

TABLE OF CONTENTS

1	Bank Sponsor	3
2	Interagency Review Team.....	3
3	Relevant Authorities and Guidance	4
4	Purpose and Nature of the Mitigation Banking Instrument	4
5	Definitions.....	5
6	Transfer of Responsibility for Compensatory Mitigation	8
7	Other Laws and Agency Authorities Not Affected By This Approval	9
8	Objectives.....	9
9	Site Selection.....	9
10	Geographic Service Area	10
11	Baseline Information	10
12	Mitigation Work Plan	10
13	Performance Standards	10
14	Site Protection Instrument.....	10
15	Determination of Credits	12
16	Credit Release Schedule	12
17	Accounting Procedures	13
18	Monitoring Requirements	13
19	Financial Assurances	14
20	Maintenance Plan.....	16
21	Long-Term Management.....	16
22	Noncompliance	18
23	Adaptive Management Plan	18
24	Bank Closure	19
25	Reporting Protocols	19

26 Other Provisions..... 20
Signatures.....23

EXHIBITS

- Exhibit A. Vicinity and Location Maps
- Exhibit B. Property Assessment & Warranty Checklist/Bank Sponsor & Property Owner Certification of Property Rights & Agreement to Provide Access
- Exhibit C. Site Selection Criteria
- Exhibit D. Geographic Service Area
- Exhibit E. Mitigation Work Plan
- Exhibit F. Performance Standards
- Exhibit G. Crediting and Debiting Procedures
- Exhibit H. Credit Release Schedules
- Exhibit I. Credit Sale and Credit Availability Statements
- Exhibit J. Monitoring and Reporting Requirements
- Exhibit K. Bank Operations Maintenance Plan
- Exhibit L. Long-Term Management Plan
- Exhibit M. Adaptive Management Plan

**Bank Name MITIGATION
BANKING INSTRUMENT
2018 MBI TEMPLATE**

1. Bank Sponsor (Sponsor)

**NAME
POC
ADDRESS
TELEPHONE NUMBER
E-MAIL ADDRESS**

If the Sponsor is registered with the Virginia State Corporation Commission (SCC), the Sponsor shall provide proof of SCC registration prior to MBI approval. In addition the Sponsor must provide documentation demonstrating that the party signing the MBI has been appropriately authorized, in accordance with Virginia law, to sign on behalf of the corporation.

2. Interagency Review Team

The Interagency Review Team (IRT) is established by the Norfolk District U.S. Army Corps of Engineers (USACE) and the Virginia Department of Environmental Quality (DEQ) to review the documentation necessary for the establishment, use, operation, and management of Mitigation Banks (“Banks”). The USACE and DEQ (and Virginia Marine Resources Commission for tidal banks) will serve as Chairs of the IRT. Where the Mitigation Banking Instrument (MBI) refers to action by the IRT, it is intended that the IRT will act through the Chairs.

The IRT may also include representatives from other federal, tribal, state, and local regulatory and resource agencies (collectively, the “Non-Chair IRT Members”). The Non-Chair IRT Members will advise the Chairs in assessing potential mitigation sites, draft and final MBI(s) and Mitigation Work Plans, monitoring reports, recommending remedial or Adaptive Management Plans, approving Credit releases, and approving modifications to an MBI.

If the IRT approves the proposed Bank, the Chairs will provide the Sponsor written notification of approval and forward the final MBI to the Sponsor for the Sponsor’s signature accepting the terms and conditions of the approved MBI. The MBI will not be valid until signed by the appropriate officials authorized to act on behalf of the USACE and DEQ.

While the signatures of the Non-Chair IRT Members are not required in order for the Chairs to approve an MBI, the Non-Chair IRT Members may provide their concurrence by signing the MBI, if they so choose. As an alternative to signing the MBI, a Non-Chair IRT Member may submit a letter or other written correspondence expressing concurrence with the MBI. The Chairs and concurring Non-Chair IRT Members may terminate their concurrence or participation by providing written notice to the Sponsor and the Chairs. Such termination or concurrence shall not invalidate the MBI.

AGENCIES:

Chairs and Signatories:
U.S. Army Corps of Engineers
Virginia Department of Environmental Quality
Virginia Marine Resources Commission (tidal banks only)

Non-Chair IRT Members:

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

National Oceanic & Atmospheric Administration - National Marine Fisheries Service

U.S. Department of Agriculture - Natural Resources Conservation Service

Virginia Department of Game and Inland Fisheries

Virginia Department of Conservation and Recreation

Virginia Department of Forestry

Virginia Department of Historic Resources

3.Relevant Authorities and Guidance

The establishment, use, operation, and maintenance of the Bank are carried out in accordance with the following authorities and guidance:

A.Federal:

1. Clean Water Act (CWA) (33 USC 1251 et seq.);
2. Rivers and Harbors Act of 1899 (RHA) (33 USC 403);
3. Fish and Wildlife Coordination Act (16 USC 661 et seq.);
4. Regulatory Programs of the USACE, Final Rule (33 CFR Parts 320-332);
5. Guidelines for Specification of Disposal Sites for Dredged and Fill Material (40 CFR Part 230);
6. Endangered Species Act (16 USC 1531 et. seq.);
7. Magnuson Stevens Fishery Conservation and Management Act (16 USC 1801 et. seq.)
8. Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army concerning the Determination of Mitigation Under Clean Water Act, Section 404 (b)(1) Guidelines (February 6, 1990);

B.Commonwealth of Virginia:

1. Sections § 62.1-44.15:20-23 of the Code of Virginia;
2. Virginia Water Protection Permit Program Regulation (9 VAC 25-210 et seq.);
3. Section § 28.2-2.1308 of the Code of Virginia; and
4. Guidelines for the Establishment, Use, and Operation of Tidal Wetland Mitigation Banks in Virginia (4 VAC 20-390-10 et seq.).

4.Purpose and Nature of the Mitigation Banking Instrument

When signed by the Chairs, this MBI provides IRT approval of the Sponsor's proposed Bank.

USACE approval of this MBI constitutes the regulatory approval required for the subject Bank to be used to provide compensatory mitigation for Department of the Army (DA) permits pursuant to 33 C.F.R. § 332.8(a)(1). This MBI is not a contract between the Sponsor or Property Owner and USACE or any other agency of the federal government. Any dispute arising under this MBI will not give rise to any claim by the Sponsor or Property Owner for monetary damages. This provision is controlling notwithstanding any other provision or statement in the MBI to the contrary.

DEQ approval of this MBI constitutes regulatory approval for the subject Bank to be used to provide compensatory mitigation for permits according to § 62.1-44.15:20-23 and 9VAC25-210 et seq. This MBI is not a contract between the Sponsor or Property Owner and DEQ, or any other

agency of the state government. Any dispute arising under this MBI will not give rise to any claim by the Sponsor or Property Owner for monetary damages. This provision is controlling notwithstanding any other provision or statement in the MBI to the contrary.

Provided the Bank complies with applicable law and with the terms and conditions of this MBI, including but not limited to MBI exhibits and Performance Standards, Released Credits generated by this Bank may satisfy compensatory mitigation requirements of DA and DEQ permits that authorize activities within the Bank's Geographic Service Area.

IRT approval of the subject Bank does not warrant or guarantee the ultimate viability of the Bank as a compensatory mitigation mechanism or as a viable business enterprise.

This MBI does not provide authorization to impact any environmental resources, including wetlands, streams, and/or other Waters of the U.S. or other State Waters. The Sponsor must obtain all required permits or other authorizations necessary to construct, operate, and maintain the Bank.

5. Definitions

The Mitigation Rule, codified at 33 C.F.R. Part 332, defines several terms used in this MBI and in the exhibits to the MBI. These definitions are incorporated into the MBI as if fully stated herein. In addition, the initially-capitalized terms used in this MBI are defined as set forth below.

1. **BANK OPERATIONS** – The period of ongoing credit transactions, monitoring, reporting, and maintenance of a Bank/Phase prior to Bank closure.
2. **BENEFICIARY OF FINANCIAL ASSURANCES** – The party that agrees to receive distributions from Financial Assurances and upon receipt of any such distribution, to use those distributions in accordance with the objectives of the MBI and the particular Financial Assurance mechanism.
3. **CONSERVATION EASEMENT** – A “conservation easement”, as defined in the Virginia Conservation Easement Act, VA Code § 10.1-1009, is incorporated as if fully stated herein. For the purposes of the MBI, an “open-space easement”, as defined in the Virginia Open-Space Land Act, VA Code § 10.1-1700, may be considered a conservation easement by the IRT on a case-by-case basis where the IRT determines that the terms and conditions of the open-space easement are appropriate to protect the purposes of the Mitigation Bank and the IRT receives assurance from the open-space easement holder that it has sufficient authority and willingness to enforce those terms and conditions.
4. **CONSERVATION EASEMENT HOLDER** – A “holder”, as defined in the Virginia Conservation Easement Act, VA Code § 10.1-1009, is incorporated as if fully stated herein. For the purposes of the MBI, a “public body”, as defined in the Virginia Open-Space Land Act, VA Code § 10.1-1700, may be considered a conservation easement holder by the IRT on a case-by-case basis where the IRT determined that an open-space easement is an appropriate site protection instrument.
5. **CREATION (ESTABLISHMENT)** – The manipulation of the physical, chemical, or biological characteristics present to develop a wetland, other aquatic resource, or buffer where one did

not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.

6. CREDIT – A unit of measure representing the accrual or attainment of aquatic resource function, condition, or other Performance Standard or measure at a Bank.
 - a. POTENTIAL CREDITS – The total number of Credits that the IRT determines would be created if the Bank is constructed as described in the Mitigation Work Plan and if the Bank meets all of its Performance Standards in full.
 - b. RELEASED CREDITS – Potential Credits that have been released by the Chairs in accordance with the Bank's Credit Release Schedule.
 - c. AVAILABLE CREDITS – Released Credits that have not been Debited or sold. Only Available Credits may be Debited or sold.
7. CREDIT AVAILABILITY STATEMENT – A written statement provided by the Sponsor to potential Credit purchasers stating the number and type of Available Credits.
8. DEBIT – A unit of measure representing the reduction or sale of Credits at the Bank corresponding to the loss of aquatic resource function at an impact or project site.
9. ENDOWMENT – An institutional fund or part thereof that, under the terms of a gift instrument is not wholly expendable by the institution on a current basis. The term does not include assets that an institution designates as an endowment fund for its own use (VA Code § 64.2-1100).
10. ENHANCEMENT (REHABILITATION)- The manipulation of the physical, chemical, or biological characteristics of an existing and degraded wetland, other aquatic resource, or buffer to heighten, intensify, or improve one or more resource function(s). Enhancement results in the gain of selected resource function(s), but does not result in a gain in resource area. Rehabilitation should be shown as Enhancement in most cases of compensatory mitigation, in order to differentiate between re-establishment and assist in tracking no net loss of wetland acreage for the Commonwealth of Virginia.
11. ESCROW AGREEMENT– The general arrangement under which funds are delivered to a third-party escrow agent for a given amount of time or until the occurrence of an identified condition. The written escrow agreement, between the Sponsor and an escrow agent, provides instruction to the escrow agent regarding a sum of money deposited by the Sponsor as assurance or guarantee for certain actions, with conditional delivery of the monies under stipulated circumstances.
12. FINANCIAL ASSURANCE – A mechanism used to guarantee some aspect of the Bank's performance. Financial Assurances may include an escrow account, performance bond, casualty insurance, letter of credit, or other mechanism acceptable to the IRT.
13. GEOGRAPHIC SERVICE AREA (GSA) – The geographic area within which impacts can be mitigated at a specific Bank as designated in its MBI.
14. GROWING SEASON – Per the Regional Supplements to the USACE Wetland Delineation Manual, the Growing Season is that portion of the year when soil temperatures at 12 inches

below the soil surface are higher than biological zero (5°C). Growing Season can be approximated using air temperature data from (WETs) tables (NRCS National Water and Climate Center) or by documented evidence of above-ground growth and development of vascular plants and the use of soil temperature as an indicator of microbial activity.

15. **INVASIVE, NUISANCE, OR UNDESIRABLE SPECIES (INU Species)** – A category of species that threaten the diversity or abundance of desirable native species, ecological stability, natural resources, economic activity, or human activity. INU plant species are defined to include those species listed on the current *Virginia Department of Conservation and Recreation (DCR) Invasive Alien Plant List*, as well as any animal or plant species determined by the IRT to be a nuisance or otherwise undesirable to the success of Banks in Virginia. The Sponsor is responsible for obtaining a current list of INU species, to include inventory and treatment of those deemed by the IRT to be nuisance or undesirable species, concurrent with MBI approval.
16. **LEDGER** – An accounting of Bank Credits and Debits. The RIBITS ledger is considered the official ledger for the Bank.
17. **LONG-TERM MANAGEMENT PLAN (LTMP)** – A description of how the Bank will be managed and how management activities will be funded after Performance Standards have been achieved and the Bank has been closed. The LTMP objective is to ensure the long-term sustainability of the site. The LTMP will identify the party responsible for and the mechanisms the Sponsor will establish to finance Long-Term Management. The required contents of the LTMP are further outlined in Exhibit L to the MBI.
18. **LONG-TERM STEWARD (LTS)** – The party responsible for carrying out the Long-Term Management Plan.
19. **MITIGATION BANK (“BANK”)** – A site or sites where aquatic resources are restored, created, enhanced, or in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources. A Bank is developed and approved in accordance with all applicable federal and state laws or regulations for the establishment, use, and operation of Banks, and is operating under a signed MBI.
20. **MITIGATION WORK PLAN (MWP)** – All technical work methods and descriptions for the Bank, which, if required, eventually support the verification of a permit for construction in wetlands and streams. The MWP is separated into the following two submissions for each Phase of the Bank:
 - a. **CONCEPTUAL MITIGATION WORK PLAN (CMWP)** –The MWP is submitted by the Sponsor during the IRT’s review of the proposed MBI. The CMWP should describe to the IRT the conceptual methods and techniques used to design and build the Bank. The required contents of the CMWP are further outlined in Exhibit E. to the MBI.
 - b. **FINAL MITIGATION WORK PLAN (FMWP)** – The FMWP, which consist of final grading, design, and engineered specifications, is approved by the IRT prior to USACE verifying/authorizing/issuing a permit for work within wetlands and streams. The required contents of the FMWP are further outlined in Exhibit E to the MBI.

21. PERMITTEE – Party securing Credits from the Bank to use as compensatory mitigation for a permit issued to that party by a federal, state, or local government agency.
22. PHASE – A separate segment or stage of Bank construction or development. In order to separate a Bank into Phases, the Sponsor must demonstrate, to the satisfaction of the IRT, that the initial Phase would be ecologically viable and acceptable as a standalone Bank, if additional Phases are never constructed. Subsequent Phases must build upon the ecological and aquatic resource functions of the initial Phase.
23. PRESERVATION – The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of ecologically important aquatic resources and associated buffers in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.
24. PROPERTY OWNER – The individual or parties that hold the title to the land that the Sponsor proposes to include in the Bank.
25. REGULATORY IN-LIEU FEE AND BANK INFORMATION TRACKING SYSTEM (RIBITS) – A web-based application developed and managed by the USACE to track Bank and In-Lieu Fee program activity including Credit transactions.
26. RESTORATION (RE-ESTABLISHMENT) - The manipulation of the physical, chemical, or biological characteristics of a wetland, other aquatic resource, or buffer where it previously existed with the goal of returning natural/historic functions. Wetland restoration means the reestablishment of wetland hydrology and vegetation in an area where a wetland previously existed. Stream restoration means the process of converting an unstable, altered, or degraded stream corridor, including adjacent areas and floodplains, to its natural conditions. Re-establishment results in rebuilding a wetland, other aquatic resource or buffer and results in a gain in wetland or other aquatic resource area and functions or a gain in stream functions.
27. SITE PROTECTION INSTRUMENT – A description of the legal arrangements and instrument, including site ownership that will be used to ensure the long-term protection of the Bank.
28. SPONSOR – Any public or private entity or person responsible for establishing and operating a Bank. Under an MBI, the Sponsor assumes legal responsibility for providing compensatory mitigation once a permittee secures Credits from the Sponsor.

6. Transfer of Responsibility for Compensatory Mitigation

The Sponsor assumes responsibility for a Permittee's required compensatory mitigation up to the number of credits sold to offset the impacts associated with a given permit once the Permittee has (1) secured the appropriate number and resource type of Credits from the Sponsor; and (2) the IRT has received documentation that confirms that the Sponsor has accepted legal responsibility for providing the required compensatory mitigation for that permit. As indicated in the Accounting Procedures described in this MBI, the Sponsor shall complete the Credit Sale Statement, included as Exhibit I to the MBI, within five (5) business days of each Credit sale associated with a given permit. The Credit Sale Statement shall identify the permit number and resource type of Credits that have been secured from the Sponsor.

Credits secured by a Permittee shall not be resold or otherwise debited again.

7. Other Laws and Agency Authorities Not Affected By this Approval

The USACE and DEQ have sole discretion to determine the amount and type of compensatory mitigation necessary to offset the impacts of permits issued in accordance with their respective regulatory programs. This discretion includes determining, in accordance with applicable regulatory program regulations, the number and type of Credits required to mitigate for permits issued by the agencies and whether a particular Permittee's proposed compensatory mitigation approach, including use of any particular Bank Credit(s), will satisfy permit requirements.

If the Sponsor encounters a previously unidentified archaeological or other cultural resource or evidence that a threatened or endangered species may be affected, the Sponsor must immediately stop work and notify the USACE and DEQ of what has been found. Coordination with the Virginia Department of Historic Resources, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and/or other Federal or State resource agencies will commence and the Sponsor will subsequently be advised when it may recommence work. This MBI will not be construed to circumscribe or to limit the authority of resource agencies to make consultative recommendations, nor will it alter the extent of any potential consultative recommendation that may be made by a resource agency in the future.

8. Objectives

The Bank will be planned and constructed to create a self-sustaining natural aquatic system that achieves the intended level of aquatic ecosystem functionality with minimal human intervention, including long-term site management and maintenance.

Detailed Objectives specific to this Bank are attached in Exhibit E to the MBI.

9. Site Selection

The Sponsor has proposed to establish a Bank on the site depicted in Exhibit A to the MBI.

By signing the certification included in Exhibit B to the MBI, the Sponsor and Property Owner certify that the Sponsor possesses the requisite property interest to undertake the activities described in this MBI and its exhibits. In addition, the Sponsor has performed a Property Assessment, in which the Sponsor has located and evaluated, for potential conflicts with the objectives of this Bank, all existing encumbrances or property interests recorded over the Property proposed for inclusion in the Bank. The Property Assessment is attached as an addendum to the Property Assessment and Warranty Checklist in Exhibit B to the MBI.

The Sponsor has evaluated the Bank using the most current version of the Site Selection Criteria Guidelines. The results are included in Exhibit C to the MBI. Provided the Bank meets Performance Standards, the Chairs, in consultation with the IRT, have concluded that the proposed site is ecologically suitable to provide compensatory mitigation for permitted impacts within the Bank's GSA.

10. Geographic Service Area

The Bank's Geographic Service Area (GSA) and its justification are described in Exhibit D to the MBI. The GSA is depicted using the most current version of the National Watershed Boundary Data Set, or by the hydrologic unit system or dataset utilized when the MBI was approved.

11. Baseline Information

A detailed description of the current Baseline Conditions of the Bank is included in Exhibit E to this MBI.

12. Mitigation Work Plan

The Sponsor plans to establish and/or maintain aquatic habitats and upland buffers in accordance with the Mitigation Work Plan (MWP) and Bank Operations Maintenance Plan until the Bank is closed. IRT approval of this Bank is limited to the mitigation project described in the MWP. The MWP is separated into two submittals—the Conceptual Mitigation Work Plan (CMWP) and the Final Mitigation Work Plan (FMWP). Specific content requirements for these submittals are further detailed in Exhibit E to this MBI.

Modifications of the MWP, other than those made in accordance with an IRT-approved Adaptive Management Plan (AMP), require written IRT approval. If the Sponsor wishes to modify the MWP, it must submit a written request to the Chairs. The request should explain the reasons for requesting the modification and demonstrate that the modified MWP would still result in an acceptable MWP according to existing site conditions and the objectives of the Bank. If the IRT elects to approve the requested modification, the IRT may condition its approval on the Sponsor's acceptance of a change to the number of Credits created by the Bank in accordance with the Determination of Credits provisions of this MBI.

The Sponsor must follow the procedures outlined in the Adaptive Management Plan to notify the IRT if the project cannot be constructed in accordance with the FMWP.

13. Performance Standards

The Performance Standards for this Bank are set forth in Exhibit F to the MBI. The Chairs may use any available information, including but not limited to monitoring reports and field observations during site visits, to determine whether Performance Standards are met within the Bank.

14. Site Protection Instrument

The aquatic habitats, riparian areas, buffers, and uplands that comprise the overall Bank must be provided long-term protection through a Site Protection Instrument. The Site Protection Instrument must be approved in writing by the Chairs and recorded in the chain of title for the Bank lands. As further indicated in the Bank's Credit Release Schedule, the IRT will not release any Credits until the Sponsor has provided evidence to the Chairs that the Site Protection Instrument has been recorded in the property records of the appropriate County or City. If the Bank is established on land owned by the Federal government or by the Commonwealth of Virginia, site protection may be provided through facility management plans or integrated natural resource management plans, as appropriate, where property transfer recordation in the chain of title might not be practicable or otherwise legally available.

The Site Protection Instrument shall establish in an appropriate third party, such as a Conservation Easement Holder, the right to monitor and enforce the site protection provisions. The Sponsor shall provide to the IRT evidence that the identified third party is authorized by Virginia law to perform the functions granted to it and that the identified third party has accepted, in writing, its third party enforcement responsibilities. Such written acceptance may be in the form of a letter from the identified third party, on its official letterhead, addressed to the Sponsor, or any other written format deemed acceptable to the IRT. The documentation of the third party's acceptance shall identify a mechanism for financing enforcement responsibilities and demonstrate that the third party and the Sponsor have reached agreement on both the financing mechanism and the amount of funds to be provided.

Conservation Easements are the preferred type of Site Protection Instrument. If it is not practicable to identify a third party Conservation Easement Holder, the Sponsor shall document its efforts to do so and alternative site protection such as a Declaration of Restrictions may be used.

The Site Protection instrument shall:

- a. Prohibit incompatible uses (e.g., clear cutting, subdivision of Bank property, mineral extraction or other uses) that might otherwise jeopardize the objectives of the Bank;
- b. Clearly require that the Property Owner provide the IRT reasonable access to the Bank to perform inspections and collect data;
- c. Establish the right of the Conservation Easement Holder and/or IRT to monitor and enforce site protections;
- d. Include the lender's and trustee's written agreement, either via separate documentation or as a signatory of the Site Protection Document to subordinate the lien, dignity, and priority of any deed of trust to the covenants and restrictions in the Site Protection Instrument;
- e. Ensure, through written subordination agreement, either in via separate documentation or as a signatory of the Site Protection Document, that the Site Protection Instrument is given superior priority to any easement or other real property interest that the IRT determines has potential to conflict with the mitigation and conservation purposes of the Bank;
- f. Contain a provision requiring 60-day advance notification to the Chairs before any action is taken to void or modify the Site Protection Instrument or establishment of any other legal claims over the Bank.
- g. Contain a provision stating that the Site Protection Instrument cannot be altered, amended, modified, vacated or terminated in whole or in part in any way without the express written approval of the Chairs, in consultation with the IRT; and
- h. Be recorded over all property within the Bank.

Where appropriate and approved in writing by the Chairs, in consultation with the IRT, multiple Site Protection Instruments recognizing compatible uses (e.g., hunting, fishing or grazing rights) may be used.

Recordation of a Conservation Easement with a Conservation Easement Holder may result in an additional credit yield of up to 5% as outlined in Exhibit G.

15. Determination of Credits

The IRT determines the number of Potential Credits at the time of MBI approval, by applying the IRT-approved assessment methodology or methodologies identified in Exhibit G of the MBI to the mitigation project described in the Sponsor's CMWP. The Sponsor is responsible for completing and submitting documentation appropriate to support the IRT's determination of Credits using the approved methodology. The IRT may conduct site visits or request additional information to verify the information provided by the Sponsor.

Potential Credits are not available for sale until the IRT releases them in accordance with the Credit Release Schedule in Exhibit H to the MBI.

Nothing in this MBI entitles the Sponsor to a change in the number of Potential Credits generated by the Bank after the MBI is approved. However, the Sponsor may request that the IRT reevaluate the number of Potential Credits based on the Sponsor's FMWP and/or the Bank's as-built plans. If the IRT concludes that the assessment methodology or methodologies described in Exhibit G to the MBI demonstrate a difference between the number of Credits approved prior to MBI signature, approved during the FMWP, and/or approved based on the as-built site conditions, the IRT may revise the number of Potential Credits in accordance with the findings of the updated assessment.

16. Credit Release Schedule

The Sponsor may request that Potential Credits be converted to Released Credits in accordance with the Credit Release Schedule in Exhibit H to the MBI. All Credit releases must be approved by the IRT and based on the IRT's determination that Performance Standards described in Exhibit F to the MBI and any other applicable requirements have been achieved. The Credit Release Schedule is structured around appropriate construction and ecological milestones; however, early achievement of Performance Standards will not accelerate Credit release.

Released Credits that have not yet been Debited (sold or transferred to a permittee) are considered Available Credits, as that term is defined herein, and are available as compensatory mitigation for permits issued under Section 401 and 404 of the CWA, Section 10 of the Rivers and Harbors Act of 1899 and Section 62.1-44.15:20-23 of the Code of Virginia. Where approved by the permitting agency or agencies, a permittee may use Available Credits to satisfy mitigation requirements of other regulatory programs. However, once a Released Credit is Debited (sold or transferred to a permittee) for any purpose, the Credit is no longer an Available Credit and cannot be Debited again. When Credits are sold to satisfy requirements of other programs, the Bank must maintain the ability to meet all applicable standards and requirements set forth in this MBI, including meeting no net loss standards applicable to 9VAC25-120-116(A) of the Code of Virginia within the remaining Credits used as compensatory mitigation.

The Credit Release Schedule must condition the final release of Credits on the Sponsor's submission of documentation demonstrating that:

- a. The Bank is meeting all Performance Standards; and
- b. The Long-Term Management Fund has been fully funded.

17. Accounting Procedures

The Sponsor shall maintain a ledger to account for all Credit transactions. Within five (5) business days of each Credit sale, the Sponsor shall upload to RIBITS copies of the completed Credit Sale Statement in Exhibit I to the MBI, the bill of sale, and update the Bank ledger in RIBITS to reflect the transaction.

At a minimum, each RIBITS ledger entry must include the following categories of information: Name of Permittee, USACE and DEQ Permit Numbers, Type of Permits, Locality, Type of Impacted System (Cowardin System Classification), Amount of Permitted Wetland and/or Stream Impacts, Amount of Wetland and/or Stream Credits debited from the Bank, USGS HUC, Impact Location Latitude/Longitude, and Date of Transaction. Wetland impacts and Credits should be reported to the hundredth of an acre. Stream impacts and Credits should be reported to the 1 linear foot (whole number - no decimals).

The Sponsor shall provide true and accurate Credit Availability Statements in Exhibit I to the MBI to prospective purchasers when requested. Credit Availability Statements shall only be issued if the Bank has Available Credits at the time the statement is requested. Credit Availability Statements shall contain, at a minimum, the following information: Bank name, Sponsor name, type of Credits available (stream/wetland and initial/released), number of Credits currently available, date, impact project name, USACE and DEQ permit numbers (if assigned), a map of the Bank GSA with the impact location indicated, and impact location HUC and latitude and longitude.

In each Credit Availability Statement, the Sponsor shall certify that the information provided is true and accurate based on the information provided to them by the prospective purchaser. The submittal or transmission of false or inaccurate Credit Availability Statements may be treated as noncompliance with this MBI.

18. Monitoring Requirements

The Sponsor shall submit an as-built report no more than ninety (90) calendar days after the Bank or a Bank Phase is fully constructed. Thereafter, the Sponsor shall monitor the Bank according to the Bank-specific Monitoring Requirements set forth in Exhibit J to the MBI. The Sponsor shall not deviate from these Monitoring Requirements without written approval from the Chairs.

The performance monitoring period for this Bank or for each Bank Phase shall be ten (10) years. The monitoring period begins at the end of the first full Growing Season following Bank construction, and the year-one monitoring report is due January 31 of the year following each monitoring year. The Sponsor shall prepare a monitoring report during Years 1, 2, 3, 5, 7, and 10 of the monitoring period. Monitoring reports may also be requested by the IRT during any non-monitoring years (Years 4, 6, 8, and/or 9) at the reasonable discretion of the IRT, and may be limited to monitoring of areas that did not attain Performance Standards or require adaptive

management as identified in previous monitoring reports or site visits. If the Sponsor fails to submit one or more required monitoring reports, the IRT may require one or more additional years of monitoring and reporting to document Bank compliance.

The Chairs may reduce the monitoring period or monitoring requirements, if the IRT concludes that the Bank has met its Performance Standards and that the full Monitoring Requirements are not necessary to ensure that the Bank will meet its objectives. Conversely, the Chairs may extend the monitoring period if the IRT determines that Performance Standards have not been met or the Bank is not on track to meet its objectives. Even if the monitoring period or Monitoring Requirements are reduced, the IRT typically requires a full Year-10 monitoring report in order to provide a baseline for long-term management. In no case shall a reduction of Monitoring Requirements be interpreted to preclude the IRT from requiring this Year-10 report.

19. Financial Assurances

The Sponsor shall provide Financial Assurances to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable Performance Standards. The amount of the required Financial Assurances shall be determined by the Chairs, in consultation with the IRT, and the Sponsor, and must be based on the size and complexity of the compensatory mitigation project, the degree of completion of the project at the time of project approval, the likelihood of success, the past performance of the Sponsor, and any other factors deemed appropriate.

The form of the Financial Assurance is subject to written approval of the Chairs, in consultation with the IRT. The Financial Assurance must be maintained, renewed, extended, or replaced so that it remains effective until the Chairs determine that the Bank is successful in accordance with its Performance Standards and that the Financial Assurance is eligible for release. The Sponsor is responsible for identifying a party that is acceptable to the Chairs as the Beneficiary of each Financial Assurance, which could be the Sponsor if determined acceptable to the Chairs. The Sponsor must demonstrate, to the satisfaction of the IRT that the identified Beneficiary has agreed to comply with the requirements of both the assurance and the procedures described in the MBI in the event the Chairs call on the assurance. The assurance must provide that, if the Beneficiary fails to submit a plan to remedy the noncompliance, DEQ is authorized to both cause and direct distribution of the funds.

All Financial Assurances must be in a form that ensures that the Chairs and beneficiary will receive notification at least 120 calendar days in advance of any termination or revocation. For third-party assurance providers, this may take the form of a contractual requirement for the assurance provider to notify the Chairs at least 120 calendar days before the assurance is terminated or revoked. If the Sponsor is deemed to be without required Financial Assurances, for any reason, they shall reestablish required Financial Assurances within thirty (30) calendar days.

The Sponsor may, with written approval of the Chairs, modify an existing Financial Assurance or replace a third-party assurance provider with a different company, agent, surety, or other entity registered to do business in the Commonwealth of Virginia. The Sponsor shall provide the Chairs with notice of its desire to modify the assurance or replace the entity and submit a draft of the new assurance for review and written approval. The provisions of the new assurance shall comply with the requirements of this MBI.

The Sponsor shall notify the Chairs by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the Sponsor as debtor, within fifteen (15) calendar days after commencement of the proceeding. The Sponsor shall notify the Chairs by certified mail within fifteen (15) calendar days of receipt of notice that any financial assurance provider has filed for bankruptcy or is otherwise named as debtor in a bankruptcy proceeding. Any financial assurance instrument prepared to meet a requirement of this MBI must require that the assurance provider notify the Chairs by certified mail within fifteen (15) calendar days of filing for bankruptcy or otherwise being named as debtor in a bankruptcy proceeding.

In the event that the Chairs determine the Sponsor is in noncompliance, and the Sponsor has failed to remedy the noncompliance (See Section 22), the Chairs may call on the appropriate Financial Assurance by providing written notice to the Sponsor, the beneficiary, and the financial institution or other holder of the Financial Assurance. Financial Assurance mechanisms must indicate that, within thirty (30) business days of receiving notice from the Chairs that the Sponsor is in non-compliance with this MBI, the beneficiary shall submit to the Chairs a plan to (1) remedy the noncompliance to the satisfaction of the Chairs; or (2) tender the funds necessary to remedy non-compliance to a party approved by the Chairs. The assurance may also provide that in exceptional cases, the beneficiary may, subject to approval by the Chairs, develop an alternative mitigation plan that would provide the appropriate type of mitigation.

The Sponsor shall provide the following Financial Assurances:

1. Initial Release Financial Assurance: If the Sponsor requests an initial release of Credits, prior to construction of the bank, the Sponsor shall provide adequate Financial Assurances, in an amount approved by the IRT, to ensure completion of the initial Phase of the Bank. The Financial Assurance shall be in the form of a performance bond, letter of credit, or other assurance mechanism approved in writing by the IRT.

a. Establishing the Assurance: The amount or penal sum of the assurance must be sufficient to secure replacement compensatory mitigation for the initial release of Credits, through an approved bank or in-lieu fee program. The Sponsor shall provide the Chairs an estimate of this amount prior to the initial release of Credits, and the amount of the assurance is subject to approval by the Chairs, in consultation with the IRT.

b. Release of the Assurance Requirement: If the Chairs, in consultation with the IRT, conclude that Performance Standards have been met for all or a portion of the type and amount of Credits initially released (i.e., stream and/or wetland), as documented in the annual monitoring reports, the Chairs may release the full amount or a portion of the amount of the assurance required. The Chairs will provide a written approval and notice of compliance that may be presented to the provider of the assurance in order to satisfy the conditions of release.

2. Bank Operations Financial Assurance: Financial Assurance shall be provided to ensure that monetary resources are available for the ongoing monitoring, reporting, and maintenance of the Bank/Phase during the operational phase of the Bank (prior to Bank closure). This assurance shall be provided through:

Option A.

An escrow account managed pursuant to an Escrow Agreement:

a. Funding the Account: Eight (8) percent of all proceeds from sale of Credits shall be placed in a separate escrow account to be called the Bank Operations Fund.

b. Release and Return of Funds:

One-tenth (10%) of the balance of this fund (as measured on December 31st) may be released after IRT approval for each of the most recently submitted monitoring reports (see Sections 18 and 25 of the MBI and Exhibits J to the MBI), has been maintained during that monitoring period and the IRT has approved the annual Financial Report. The remainder of the fund shall be held until the Bank closure monitoring report is submitted and approved, at which point the balance of the fund will be conveyed to the Sponsor.

Option B

Performance Bond/Letter of Credit/Casualty Insurance:

a. Amount of the Assurance: The amount of this assurance will be based on the estimated full cost of monitoring and maintaining the Bank after submittal of the as-built report until Bank closure (see Sections 18, 20, 23, and 25 of the MBI and Exhibits J, K, and M to the MBI).

b. Release of the Assurance: This assurance may be reduced in increments specified in the MBI or the assurance mechanism upon approval by the Chairs of each monitoring report and annual financial report. This assurance requirement is fully released upon the Chair's written approval of the Sponsor's request for Bank Closure (see Section 24 of the MBI).

20. Maintenance Plan

The Maintenance Plan in Exhibit K to the MBI is a description and schedule of regular maintenance requirements to ensure the continued viability of the mitigation project once initial construction is completed. The Sponsor shall maintain the Bank in accordance with the Maintenance Plan, the MBI, and the MWP until Bank Closure. The Sponsor shall not deviate from the maintenance activities in Exhibit K to the MBI unless the deviation is reviewed and approved in writing by the Chairs in consultation with the IRT.

21. Long-Term Management

1. Long-Term Management Plan

Prior to the initial release of Credits, the Sponsor must submit a Long-Term Management Plan (LTMP) for each Bank or Bank Phase for IRT review. The LTMP shall describe the Bank-specific Long-Term Management needs, include an itemized estimate of the annual cost of meeting those needs, and identify a Financial Assurance mechanism to fund Long-Term Management activities. The LTMP shall also indicate whether a third party has been granted the right to enforce the Site Protection Instrument and identify appropriate funding for such enforcement activities. No Credits will be released until the Chairs, in consultation with the IRT, have approved the LTMP in writing.

At year five (5) and year ten (10) concurrent with the Maintenance Plan report and prior to Bank closure the Sponsor shall assess the LTMP to account for any changed circumstances. If it is determined that the LTMP needs to be revised it shall include updates to the description of Long-Term Management needs and the itemized estimate of annual costs. The revised LTMP is subject

to the approval of the Chairs, and failure to submit a satisfactory LTMP may be treated as noncompliance with the MBI.

2. Responsibility for Long-Term Management

Long-Term Management commences after Bank Closure. The Sponsor shall be responsible for carrying out the LTMP. However, the Sponsor may transfer Long-Term Management responsibilities to a land stewardship entity, such as a public agency, non-governmental organization, or private land manager. Whether the Sponsor retains Long-Term Management responsibilities or transfers them, this MBI refers to the party responsible for Long-Term Management as the Long-Term Steward.

If the Sponsor transfers Long-Term Management responsibilities to a third party, the proposed Long-Term Steward must be approved by the Chairs, in consultation with the IRT. On request of the IRT, the Sponsor shall provide support for the land stewardship-related qualifications of the proposed Long-Term Steward.

If the Sponsor chooses to transfer Long-Term Management responsibilities, the Sponsor shall provide a copy of the approved MBI, MWP, LTMP, and Site Protection Instrument to the proposed Long-Term Steward. Long-Term Management responsibilities will transfer only upon the Long-Term Steward's execution of the approved LTMP, with any appropriate IRT-approved modifications. Prior to Bank Closure, the Sponsor shall grant the Long-Term Steward access to the Long-Term Management Fund and provide the Long-Term Steward a copy of the Bank's final monitoring report.

The Long-Term Steward is responsible for carrying out the approved LTMP. The LTMP shall require that the Long-Term Steward demonstrate that it is completing the tasks identified in the LTMP by submitting status reports to the IRT. The frequency of such reports should be tailored to the needs of the Bank. In addition, the LTMP shall include language making any modification of the LTMP subject to approval from the Chairs, in consultation with the IRT.

3. Funding Long-Term Management Activities

The Sponsor shall establish an endowment fund or a trust, or transfer sufficient funds to an existing endowment fund or trust, to finance Long-Term Management activities. The instrument or agreement establishing the endowment or trust, or transferring funds to an existing endowment or trust, shall restrict use of the funds to the activities described in the LTMP. The instrument or agreement is subject to IRT approval. For the purposes of this MBI, this fund is called the Long-Term Management Fund. The Long-Term Management Fund is intended to be an enduring source of funding for the activities described in the approved LTMP. If the Long-Term Management Fund is to be established utilizing a funding mechanism other than an endowment or trust, the Sponsor must submit the alternative mechanism to the IRT for approval and demonstrate that the alternative mechanism would be sufficiently funded and managed to meet the needs of Long-Term Management in accordance with the justification requirements as outlined in more detail below.

For the Bank or each Bank Phase, the Sponsor shall submit a justification for the fully funded amount of the Long-Term Management Fund, and this justification shall be attached to the LTMP. The justification shall demonstrate that interest income generated by the Long-Term Management Fund, after accounting for inflation and any anticipated annual account maintenance fees, is reasonably expected to cover the estimated annual cost of Long-Term Management without

depleting principal. The justification shall include an investment policy statement for the Long-Term Management Fund specifying the types of investments planned to generate earnings and the expected average annual rate of return. The justification shall include a table with line-items for all Long-Term Management tasks. Each line-item shall include task descriptions, the unit used for pricing purposes (e.g., each item, hours, linear feet, etc.), number of units required to complete a discrete occurrence of the task, cost per unit, cost per discrete task occurrence, discrete task recurrence interval, and total annual cost for each task. The table shall also account for administrative expenses (10% of total annual costs) and contingency expenses (20% of total annual costs).

Based on the justification table, the Sponsor shall calculate the projected total annual cost of carrying out the LTMP. The Sponsor shall identify a reasonable capitalization rate that accounts for inflation and any account maintenance fees. The fully funded amount of the Long-Term Management Fund shall be determined by dividing the projected total annual cost by the identified capitalization rate. Both the capitalization rate and the fully funded amount are subject to Chair approval, after IRT review of the Sponsor's justification.

The Sponsor must deposit funds into the Long-Term Management Fund no later than as outlined in Exhibit H to the MBI. The Sponsor shall upload to RIBITS proof of escrow receipts for the Long-Term Management Fund within thirty (30) calendar days of each transaction.

Until the Long-Term Management Fund is fully funded, the amount of the Long-Term Management Fund's principal will be adjusted for inflation on January 2 of each year. The inflation adjustment shall be equal to the change in the Consumer Price Index, All Items (Nov 1996 = 100) for All Urban Consumers published by the Bureau of Labor Statistics during the prior year. The adjustment shall be applied to the amount of the initial Long-Term Management Fund principal.

22. Noncompliance

If the IRT determines that the Sponsor is in noncompliance with any provision of this MBI or that the Bank is otherwise not meeting Performance Standards, the Chairs may take appropriate action, including but not limited to suspending Credit sales, initiating Adaptive Management, decreasing Available Credits, utilizing Financial Assurances, and/or terminating the MBI.

23. Adaptive Management Plan

The Adaptive Management Plan (AMP) is attached as Exhibit M to the MBI. The Adaptive Management Plan will guide decisions for revising compensatory mitigation plans, addressing design revisions during construction, responding to field conditions during the monitoring period for Performance Standards, and/or implementing measures to address both foreseeable and unforeseen circumstances that adversely affect compensatory mitigation performance.

Adaptive Management may be required as a result of deficiencies detailed in one or more mitigation monitoring reports or site visits or for other noncompliance issues as deemed necessary by the Chairs, in consultation with the IRT. The IRT may direct that the Sponsor implement Adaptive Management either alone or in combination with other measures identified in Exhibit M to the MBI, to address failure of the Bank to meet Performance Standards and/or Noncompliance.

24. Bank Closure

The Bank will close only after the Sponsor submits, and the Chairs, in consultation with the IRT, approve, a request for Bank Closure. The request for Bank Closure must include:

- a. Documentation that the Bank has met and continues to meet its Performance Standards described in Exhibit F to the MBI;
- b. Confirmation that all Released Credits for that Bank or Phase have been Debited or forfeited;
- c. The final IRT approved LTMP in Exhibit L to the MBI;
- d. A final LTMP Map, with the location of all mitigation activities and other implements or structures (e.g., gates, fencing, berms, etc.) that will require Long-Term Management;
- e. An inventory of existing INU species onsite to be used by the Long-Term Steward for management purposes;
- f. Documentation that the Long-Term Steward has been approved by the IRT;
- g. Confirmation that the Long-Term Steward is authorized to access and use funds in the Long-Term Management Fund;
- h. Proof, through an appropriately recorded Site Protection Instrument, that the Long-Term Steward has been granted a perpetual right to access the Bank to perform Long-Term Management tasks;
- i. If wetland Credits have been sold and it is determined to be necessary by the IRT, a wetland delineation of the Bank that has been confirmed by the USACE; and
- j. Confirmation that the Sponsor has prepared and submitted to the IRT and the appropriate locality (upon request by the locality) a GIS shapefile or similar exhibit depicting the location and extent of the Bank.

The IRT may perform a final compliance inspection to evaluate whether all Performance Standards have been met. If the Chairs provide written approval of the Sponsor's request for Bank Closure, the Bank will be considered closed, and no further Credit sales are authorized. Upon Bank Closure, the monitoring and maintenance period closes and Long-Term Management shall commence.

25. Reporting Protocols

1. Ledger Report

The Sponsor must compile an annual ledger report showing the beginning and ending balance of Available Credits, permitted impacts for each resource type, all additions and subtractions of Credits, and any other changes in Credit availability (e.g., additional Credits released, Credit sales suspended). The ledger report shall be uploaded to RIBITS and notification sent to the Chairs by January 31st of each year of Bank operation. The Sponsor must update the RIBITS ledger (see Section 17 of the MBI).

The ledger report will be part of the administrative record for the Bank and will be available to the public upon request.

2. Monitoring Report

The Sponsor shall submit monitoring reports to the Chairs, for coordination with the IRT, in accordance with Section 18 of the MBI and the approved Monitoring Requirements in Exhibit J to the MBI. Reports shall be uploaded to RIBITS and notification sent to the Chairs by January 31st of each monitoring year for the previous calendar year's monitoring.

3. Maintenance Report

The Sponsor shall submit maintenance reports to the Chairs, for coordination with the IRT, in accordance with Section 20 of the MBI and the approved Bank Operations Maintenance Plan in Exhibit K to the MBI. Reports shall be uploaded to RIBITS and notification sent to the Chairs by January 31st of each monitoring year for the previous calendar year's monitoring.

4. Financial Assurance and Long-Term Management Funding Report

The Sponsor shall upload a Financial Assurance and Long-Term Management Funding report to RIBITS by January 31st of each year of Bank operation. The report shall provide the beginning and ending balances and any deposits or withdrawals for the calendar year preceding submission of the report. The Sponsor shall notify the Chairs when the report has been uploaded. The Sponsor shall make a copy of the report available to the Long-Term Steward upon request. The report shall contain the following:

- a. Documentation of the status of any current Financial Assurance required to secure the initial release of Credits, referred to in Section 19 of the MBI, including amounts of assurances, type(s) of mechanisms, and expiration dates of assurances, if applicable.
- b. Documentation of the status of the Financial Assurance required for Bank Operations, referred to in Section 19 of the MBI, including amounts of assurances, type(s) of mechanisms, and expiration dates of assurances, if applicable.
- c. Documentation of all deposits and withdrawals and the balance in the accounts or endowments to be used for Long-Term Management, referred to in Section 25 of the MBI. The balances in these accounts (principal balance without earned interest) must match the amounts required to be set aside in Section 19 of the MBI and Section 21 of the MBI minus any approved expenditures or distributions and must be certified by the escrow agent, Trustee, or endowment manager.
- d. Documentation that the Sponsor is active and in good standing with the Virginia State Corporation Commission, if applicable.

26. Other Provisions

No Property Rights from MBI Approval

IRT approval of this MBI does not provide the Sponsor or Long-Term Steward any property rights in or to the Bank lands, and by approving the MBI, the IRT makes no warranty or other assertion that the Sponsor or Long-Term Steward has the right to access or perform any work on the

property. IRT approval of the MBI does not authorize any injury to property or invasion of other rights.

IRT Reliance on Sponsor's Certification of Property Rights

In approving this Bank, the IRT has relied on the Sponsor's certification that it possesses property rights that are sufficient to carry out the proposed compensatory mitigation project and to preserve the Bank property in perpetuity. The Sponsor is responsible for complying with this MBI, notwithstanding limitations on the Sponsor's property rights, and the Sponsor may be required to provide alternative compensatory mitigation sufficient to replace any Debited Credits if the Sponsor is unable to comply with the MBI. Nothing in this MBI shall be construed as a limitation on the liability of the Sponsor or its officers for making false statements.

Controlling Language

Any exhibits or other documents executed in accordance with this MBI are intended to be consistent with the terms of this MBI. To the extent possible, the terms, conditions, and requirements of exhibits and associated documents should be interpreted in a manner that avoids or limits conflict between the MBI and the exhibits. In the event of a conflict, the language in the MBI shall be controlling.

Eminent Domain

If the Bank is taken in whole or in part through eminent domain, the Chairs may consult with the IRT to determine impacts of the taking on total Bank area and/or functions. If the Bank has unsold Credits, the IRT may reduce the Potential Credits, including unsold Released Credits, available in the Bank to account for the loss of Bank area and/or functions. The area of loss may include both the area secured through eminent domain and the area within the Bank affected by the condemnation (e.g., through alteration of the hydrologic regime of the surrounding areas or compromising the ecological objectives for which the Bank was created).

Virginia State Corporation Commission Registration

Under the Code of Virginia and case law regarding corporations and dissolution, if the Sponsor is no longer registered to conduct business in the Commonwealth of Virginia but continues to identify itself as such, then the liability falls to the named partners as individuals. It would be a violation of Virginia law for the partners to continue to operate an LCC, if the LLC is not registered with the SCC.

Modification

Modifications to the Bank or to this MBI, including exhibits, shall be in accordance with the procedures of 33 C.F.R. § 332.8(d), unless the Chairs determine that requested modification is appropriate for streamlined review, as described at 33 C.F.R. § 332(g)(2). Modifications may require the use of the most current approved MBI template in use in Virginia.

Notice

Any notice required or permitted hereunder shall be deemed to have been given when received, in the office of the individual or organization to whom notice is directed. Notice may be delivered by (1) hand delivery; (2) electronic mail; (3) United States mail, postage prepaid, by registered or certified mail, return receipt requested; or (4) Federal Express or similar next day nationwide delivery system.

Invalid Provisions

In the event any one or more of the provisions contained in this MBI are held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability will not affect any

other provisions hereof, and this MBI will be construed as if such invalid, illegal, or unenforceable provision had not been contained herein.

Headings and Captions

Any paragraph heading or captions contained in this MBI will be for convenience of reference only and will not affect the construction or interpretation of any provisions of this Instrument.

Counterparts

This MBI may be executed by the parties in any combination, in one or more counterparts, all of which together will constitute but one and the same MBI.

No Liability of Regulatory Agencies

The responsibility for financial success and risk to the investment initiated by the Sponsor rests solely with the Sponsor. The IRT agencies administer their programs to best protect and serve the public's interest in its waterways. The IRT does not guarantee the financial success of Banks, specific individuals, or entities. Accordingly, there is no guarantee of profitability for any individual Bank. Sponsors should not construe this MBI as a guarantee in any way that the agencies will ensure sales of Credits from this Bank or that the agencies will forgo other mitigation options that may also serve the public interest. Because the agencies do not control the number of Banks proposed or the resulting market impacts upon success or failure of individual Banks, any information, conclusions, or expectations regarding the potential and future demand for Credits are the sole responsibility of the Sponsor.

Transfer of Bank/MBI Ownership

Transfer or sale of the Bank to a new Sponsor shall be treated as a modification to the MBI, provided that the original Sponsor shall notify the Chairs no less than sixty (60) calendar days prior to the proposed transfer or sale. This notification shall:

1. Identify the proposed new Sponsor;
2. Describe the new Sponsor's mitigation project qualifications;
3. *If the new Sponsor is registered with the Virginia State Corporation Commission (SCC), the new Sponsor shall provide proof of SCC registration. In addition the new Sponsor must provide documentation demonstrating that the party signing the Bank transfer signature page has been appropriately authorized, in accordance with Virginia law, to sign on behalf of the corporation.*
4. Provide documentation that the new Sponsor has the requisite access rights to the Bank property;
5. Provide documentation that ownership or control of the Long-Term Management Fund has been transferred to the new Sponsor; and
6. Identify replacement Financial Assurances, as appropriate.

The Sponsor shall provide additional information, as requested by the IRT. If the modification is approved, the transfer shall be effective only after the new Sponsor's execution of the Bank transfer signature page below, accepting the terms of this MBI and all of its exhibits.

Mitigation Bank:
Date:

The Sponsor's signature below indicates that the Sponsor accepts and agrees to comply with the terms and conditions of this MBI.

Sponsor, Authorized Agent

Date

Mitigation Bank:

Date:

By signing this acknowledgement the Property Owner acknowledges and understands that:

1. the Sponsor's proposed activities involve work on the Property Owner's property;
2. the Sponsor has certified in the Property Assessment and Warranty in Exhibit B to the MBI that the Sponsor has the requisite property rights to carry out the mitigation project described in this MBI and its exhibits;
3. this MBI requires that a Site Protection Instrument be recorded on the Property Owner's property within the limits of the Bank;
4. the Site Protection Instrument will prohibit certain activities within the Bank and require that the Property Owner provide the IRT and its authorized agent access to the Bank; and
5. the Property Owner will be a signatory to the Site Protection Instrument when it is executed.

The Property Owner agrees to notify the IRT within sixty (60) calendar days of the following circumstances:

1. Completion of sale of the Property or a portion of the Property that includes the Bank, and/or over which a Site Protection Instrument has been recorded for the Bank;
2. Receiving notification of a potential exercise of eminent domain; and
3. Conclusion of the eminent domain process.
4. The Property Owner'(s) signature(s) below indicate that the Property Owner(s) accept and agree to comply with the terms and conditions of this MBI.

Property Owner(s)

Date

This MBI becomes effective when the appropriate officials, designated to act for the USACE and for DEQ, have signed below.

INTERAGENCY REVIEW TEAM

By the IRT Chair(s):

William T. Walker
Chief, US Army Corps of Engineers,
Norfolk District

Date: _____

David L. Davis
Virginia Department of Environmental Quality
Director, Office of Wetland and Stream Protection

Date: _____

Mitigation Bank:
Date:

Members of the IRT may sign the instrument, if they so choose. By signing the instrument, the IRT members indicate their approval of the subject Bank.

By the IRT Member(s):

**Mitigation Bank:
Date:**

TRANSFER OF BANK/MBI OWNERSHIP

When the Bank/MBI Ownership associated with this Bank is transferred, the terms and conditions of this MBI will continue to be binding on the new Sponsor and owner(s) of the property. To validate the transfer of this MBI and the liabilities associated with compliance with its terms and conditions, the transferee must sign and date below.

The Sponsor's signature below indicates that the Sponsor accepts and agrees to comply with the terms and conditions of this MBI.

Sponsor, Authorized Agent

Date

The Property Owner'(s) signature(s) below indicate that the Property Owner(s) accept and agree to comply with the terms and conditions of this MBI.

Property Owner(s)

Date

Notary Seal

EXHIBIT A
VICINITY and TOPOGRAPHIC MAPS

Vicinity and/or topographic maps should be at such a scale that the nearest town is easily discernible. The latitude and longitude to the center of the compensation site and the compensation site boundaries should be included on the map.

EXHIBIT B
PROPERTY ASSESSMENT & WARRANTY CHECKLIST
AND
BANK SPONSOR & PROPERTY OWNER
CERTIFICATION OF PROPERTY RIGHTS & AGREEMENT TO PROVIDE ACCESS

PROPERTY ASSESSMENT & WARRANTY CHECKLIST
(Check all items applicable to this Bank)

This Property Assessment and Warranty must be completed to the satisfaction of the Chairs prior to MBI approval.

- The Sponsor and Property Owner have executed the attached certification that the Sponsor has the requisite property rights to carry out the mitigation project described in the MBI and its exhibits.
- The Sponsor has provided a title insurance policy, or multiple title insurance policies, covering the entirety of the property proposed for inclusion in the Bank.
- The Sponsor has provided a copy of each of the recorded deeds or other instruments referenced in the title policy's exclusions from coverage.
- The Sponsor has provided a copy of plat or multiple plats covering the entirety of the property proposed for inclusion in the Bank.
- The Sponsor has performed and provided documentation of a property assessment, to include locating all existing interests listed in the exclusions from title policy coverage, providing a narrative evaluation of the existing interests potential to create conflicts with the Bank's objectives and/or likelihood of success, and providing an accurate depiction of those existing interests on a drawing of the Bank.
- The Sponsor has concluded, in the property assessment, that all existing interests either: create a negligible risk of conflict with the Bank's objectives and likelihood of success, are located entirely outside of the Bank, are located entirely within an area that will not generate any Credits, have been appropriately subordinated to the Site Protection Instrument, or have been terminated. By signing below, the Sponsor certifies that the property assessment is true, accurate, and complete.
- By signing below, the Sponsor certifies that, to the best of the Sponsor's knowledge, there are no existing encumbrances that will conflict with the objectives of the Bank.
- The IRT has reviewed the Sponsor's property assessment and is satisfied that any existing easements, encumbrances, or other property interests (e.g., mineral rights, deeds of trust, etc.) will not create conflicts with the Bank's objectives and/or likelihood of success.
- The Sponsor has received written IRT approval of the text of a draft Site Protection Instrument. The Sponsor acknowledges that it must record the Site Protection Instrument before any Potential Credits are released.

- The Site Protection Instrument includes a legal description of the protected area that has been prepared by a registered surveyor and includes the metes and bounds of the entire Bank.
- The Site Protection Instrument establishes in an appropriate third party, if one has been identified, the right to monitor and enforce the site protection provisions.
- The Sponsor has provided documentation demonstrating that the third party who will monitor and enforce the site protection provisions has accepted such role and is authorized by Virginia law to perform the functions granted to it.
- The Sponsor has provided documentation demonstrating that the Sponsor and the third party who will monitor and enforce site protection provisions have agreed upon a mechanism to finance long-term management responsibilities.
- The Sponsor has provided the IRT a written statement from the Property Owner certifying that, to the Property Owner's knowledge, there are no easements, encumbrances, or transfers of the property, in whole or in part, not disclosed in the title policy.
- The Sponsor and Property Owner have provided the IRT a written statement that identifies and describes any Federal or state funds received, or expected to be received, for natural resources protection, enhancement, or restoration within the proposed Bank.
- If the Property Owner is a corporation or partnership, the Property Owner shall provide documentation that recordation of the Site Protection Instrument has been approved in accordance with Virginia law.
- If the Property Owner is not an individual, the Property Owner shall provide documentation that the person executing the Site Protection Instrument has the authority to sign on behalf of the company.
- If the Bank land has multiple Property Owners, all Property Owners have signed below and will sign the Site Protection Instrument when executed.

CERTIFICATION: I certify that the information provided herein is true, accurate, and complete.

Bank Sponsor

Date

Property Owner

Date

Notary Seal

**BANK SPONSOR & PROPERTY OWNER
CERTIFICATION OF PROPERTY RIGHTS
&
AGREEMENT TO PROVIDE ACCESS**

CERTIFICATION AS TO PROPERTY RIGHTS OF SPONSOR

The Sponsor requests Interagency Review Team (IRT) approval of a Mitigation Bank on the Property Owner's property. The Sponsor and the Property Owner acknowledge and understand that the Mitigation Banking Instrument (MBI) does not grant any property rights to the Sponsor and that the IRT does not review or validate the Sponsor's right to perform the activities described in the MBI.

With their signatures below, the Sponsor and the Property Owner certify that the Sponsor has been given access to the property and sufficient property interests to carry out the activities described in the MBI and its exhibits. The Sponsor and the Property Owner understand that the IRT, if it approves the MBI, will rely on this certification as to the sufficiency of the Sponsor's rights.

PROPERTY OWNER TO PROVIDE ACCESS TO IRT AGENCIES

By executing the MBI and by signing below, the Property Owner agrees to allow the duly authorized representatives of the IRT agencies to enter upon the premises of the Bank lands at reasonable times to inspect and photograph site conditions, evaluate site conditions, and to determine compliance with the MBI.

Bank Sponsor

Date

Property Owner

Date

Notary Seal

EXHIBIT D
GEOGRAPHIC SERVICE AREA

The Geographic Service Area (GSA) Map should include the location of the Bank, the Bank limits, and should identify the HUCs and Counties that are included in the GSA.

This Exhibit should also include the narrative justification for the GSA. This narrative should discuss the consistency with the Code of Virginia and the geographic and ecological criteria used to establish the GSA (e.g., watersheds, ecoregions, physiographic provinces, etc.)

EXHIBIT E MITIGATION WORK PLAN (MWP)

The Sponsor shall submit and obtain approval of the MWP from the IRT for each Phase of the Bank (in accordance with Section 12 of the MBI). The MWP includes all technical work methods and descriptions for the Bank, and is separated into two submittals, the Conceptual Mitigation Work Plan and Final Mitigation Work Plan. The Conceptual Mitigation Work Plan for the entire Bank is required to be submitted and approved concurrent with the MBI. The Final Mitigation Work Plan is to be submitted and approved prior to the commencement of construction activities, and may be submitted according to an approved Phase Plan. This Exhibit outlines the general MWP existing and proposed descriptions (Section I) as well as the sheet set deliverables (Section II) required for the Conceptual and Final Mitigation Work Plan.

I. MWP Description

A. Site Description

This may include but is not limited to:

- Name of Site;
- Address of site;
- Acreage of site;
- Geographic coordinates at the center of the Bank;
- Description and quantities (i.e., acreage and linear feet) of proposed mitigation type; and
- Bank Phasing Plan (if applicable): The initial (first) Phase of each Bank or site must be large enough to stand alone as a viable Bank, as determined by the IRT, and should include all areas where construction will be initiated within one full growing season after the first Credit sale. Subsequent Phases do not have to be independently viable but should be physically and ecologically viable.

B. Objectives of the Bank

This shall include but is not limited to:

- A description of the compensatory mitigation resource type(s) and amount(s) that will be provided;
- The method of compensatory mitigation - i.e., restoration (establishment or rehabilitation), enhancement, and/or preservation;
- A list of the objectives that will be provided by the proposed Bank, including an explanation of how these will be achieved and the Performance Standards and methods of assessment to show whether the objectives are achieved;
- How the identified resource objectives of the Bank are expected to address the needs of the watershed and the Geographic Service Area. This description may include:
 - Water quality improvements
 - Erosion control
 - Fisheries/wildlife habitat
 - Flood conveyance/flood storage
 - Restoration of stream channel dimension, pattern, profile
 - Streambank stability
 - Aquatic and riparian habitat
 - Open space/aesthetics
 - Recreation

- Rare or threatened and endangered species
- Objectives of upland buffers (e.g., filter sediment, protect bank site from adjacent development, stream stability, etc.)
- Other bank-specific objectives

C. Baseline Existing Conditions

Baseline conditions should be provided for the mitigation site. Unless otherwise specified, this information will be included in this Exhibit and the Conceptual Mitigation Work Plan, as appropriate. Baseline information may include, but is not limited to:

- Description of existing onsite streams and wetlands
- Descriptions of historic and existing plant communities/cover type, and age;
- Current hydrogeomorphic setting;
- Current drainage/ditching that has occurred on site;
- Current groundwater levels within proposed wetland restoration or creation areas (for one year, if possible), with the Final Mitigation Work Plan;
- Historic land-use development/alterations in the immediate drainage area (both upgradient and downgradient of the site);
- Historic and existing soil conditions, including soil profiles described within proposed wetland restoration or creation areas, with identification of any sulfidic materials;
- Historic, archaeological, and cultural resources if known and present on site;
- Federal and State Rare, threatened, and/or endangered species, including USFWS IPaC results (<https://ecos.fws.gov/ipac/>) and any baseline or other reporting requirements pursuant to the USACE Endangered Species Act (ESA) guidance, Virginia Department of Game and Inland Fisheries Fish and Wildlife Information Services (<http://vafwis.org/fwis/>), and the Virginia Department of Conservation and Recreation Natural Heritage Data Explorer (<https://vanhde.org/>);
- Delineation;
- Description of the nature, extent, and probable causes of degradation of wetlands and streams, including running a Cumulative Assessment report on any existing wetlands onsite from DEQ's Wetland Condition Assessment Tool (WetCAT) (http://cmap.vims.edu/WetlandViewer/Virginia/WetCAT_VA.html);
- Description of the potential wetland, riparian, or upland restoration or preservation scores projected for your site from the Watershed Resource Registry (WRR) (<https://watershedresourcesregistry.org/>);
- For areas of proposed wetland restoration, creation, or enhancement, a historical characterization of the area, including historic and existing land use, and reasons and methods for conversion from wetlands (i.e. historic ditching, re-contouring, filling, etc. for farming, silvicultural or other land use activities);
- For areas of proposed stream restoration, provide pre-restoration aquatic macroinvertebrate surveys and water quality measurements (as described in Exhibit K), with the Final Mitigation Work Plan;
- For areas of proposed stream preservation downstream of stream restoration or enhancement, provide pre-restoration stream cross sections (as described in Exhibit K), with the Final Mitigation Work Plan;
- For areas of proposed stream restoration or enhancement, a survey of existing typical channel cross section, plan view, and profile indicative of each stream type, classification, and order, and existing geomorphological characteristics data;

- INU species inventory map depicting the location (acres) and extent (coverage) of all individual species of INU plants over the entire mitigation site;
- Any other site characteristics appropriate to the type of resource proposed as compensation;
- Site specific water quality or habitat concerns within the immediate watershed [*Example: Does the site contain DEQ 305(b)/303(d) listed rivers or creeks? Are there VPDES permits immediately upstream of the site? (Available on WetCAT)*];
- Any stream crossings, roads, or other structures that will be removed, replaced, or left in place should be identified on the plans. Generally, crossings should be removed; if needed to be left in place, they should be stable and not adversely impact the stream;
- An assessment of adjacent/offsite activities that may impact water quality and habitat onsite.

D. Proposed Compensatory Mitigation Activities

Proposed conditions should be provided for the mitigation site. Unless otherwise specified, this information will be included in this Exhibit and the Conceptual and Final Mitigation Work Plans. Proposed activities may include, but are not limited to:

- Identification of targeted wetland hydrogeomorphic type
- Filling or blocking of ditches
- Creation of low berms with outlet controls
- Regrading of high spots
- Removal of fill areas
- Management of INU species
- Soil reconstruction protocols and compaction amelioration
- Soil amendments to include the supporting rationale for the soil amendments, the potential amendments to be utilized and the recommended rates of application
- Replanting of desired native vegetation
- Fencing along adjacent land uses
- Restoration of stream channels
- Stabilization of eroding banks
- Buffer or stream bank plantings
- Installation of grade controls or other instream structures
- Identification of stream reach, wetland area, and/or riparian buffer area where work is to occur

II. MWP Submittals

A. Conceptual Mitigation Work Plan (CMWP)

The Sponsor shall submit a Conceptual Mitigation Work Plan (CMWP) for the Bank or the Initial Phase of the Bank to the IRT and obtain approval of the IRT (in accordance with Section 12 of the MBI), prior to approval of the MBI.

The CMWP shall include, but not be limited to:

- Cover Sheet with Location and Vicinity Maps;
- Master Plan Map of proposed mitigation activities for the entire proposed Bank;

- Phase Plan Map, if applicable;
- Existing or Baseline Conditions for the entire proposed Bank, with wetlands delineation survey, topography, existing tree line, photo locations, and photos;
- Hydrologic analyses including, at a minimum, consideration of baseflow, bankfull, 2 yr, and 100 yr discharges;
- Soils Map, soil test pit profiles and/or soil auger borings to the depth of the root limiting layer, and soil testing results (e.g. C, N, P, Acidity); Water budget that demonstrates the creation of a hydroperiod similar to the target wetland type:
 - Inputs
 - a. Precipitation
 - b. Dispersed overland runoff
 - c. Channelized runoff from swales, ditches, etc.
 - d. Overbank flooding
 - e. Net groundwater inputs
 - Outputs
 - a. Evapotranspiration
 - b. Net groundwater losses
 - c. Spillway Outflow
- General location of known rare, threatened, and/or endangered species onsite;
- Narrative descriptions of wetland and/or stream deficiencies, and how the objectives of the Bank will address these deficiencies;
- Identification of an overall seasonal hydroperiod for the targeted wetland type;
- Wetland preliminary grading plan and profile, including proposed buffer limits, types, preliminary water control structure locations; and acres of wetland creation, restoration, enhancement, and preservation areas;
- Stream preliminary detailed cross-sections (riffle and pool only) showing existing grade, proposed grades, example stabilization measures, bankfull stage, and floodprone stage for representative sections within each restoration or enhancement reach. Existing and proposed typical design morphological characteristics for each type of activity and stream type, preliminary structure locations, proposed riparian buffer communities, linear feet of stream restoration, enhancement, preservation and acreages of riparian buffers;
- Reference data from existing wetland, stream, and riparian buffer communities that are utilized for proposed mitigation activities. This may include but is not limited to: reference location, watershed and land use composition, proximity to Bank, field data and analysis, monitoring well data, including existing hydrology, vegetation, soils, stream type, morphological characteristics, wildlife and aquatic communities;
- Preliminary proposed planting plan with general locations of planting, plant species and methods. Any seeds used for plant establishment should conform to the Virginia Seed Law (Section 3.2-40 of the Code of Virginia) and Virginia Seed Regulations (2VAC5-390 et seq.) and shall be free of INU plant species (as defined in this MBI);
- Proposed Invasive Species (INU) Management Plan – Including an inventory map (depicting the location (acres) and extent (coverage) of individual INU plant species over the entire proposed Bank), a species-specific or vegetative guild-specific Management Plan, proposed monitoring requirements, and Performance Standards. Sponsors should manage all INU species onsite, to the greatest extent practicable. Exceptions to management or treatment must be outlined in this Management Plan and approved by the IRT.

B. Final Mitigation Work Plan (FMWP)

The Sponsor shall submit the Final Mitigation Work Plan (FMWP) to the IRT for each Phase of the Bank and obtain approval of the IRT (in accordance with Section 12 of the MBI), prior to commencement of construction activities.

The general components of the FMWP shall include, but are not limited to:

- Narrative describing the final mitigation work;
- Grading plans at a scale of 1"=50' and providing 0.5 ft. contour intervals in Restoration areas (or metric equivalent), or at a more detailed scale. Plans shall use the correct vertical datum, NOS in tidal mitigation areas and NGVD 88 in non-tidal areas;
- Erosion and Sediment Control (ESC) Plans, designed in accordance with General ESC Specifications approved by the Virginia Soil and Water Conservation Board, or in accordance with the locality's ESC Program;
- A detailed location map, including the latitude and longitude and the hydrologic unit code (HUC) at the center of the site;
- Construction Methods and Details;
- Scheduled timing and sequence for construction;
- Updated Invasive Species (INU) Management Plan;
- Credit analysis based on the FMWP for the subject Phase, utilizing the methodology described in Exhibit G to estimate the expected number of Credits that will be generated by the FMWP;
- Soil amendments to include the supporting rationale for the soil amendments, the potential amendments to be utilized and the recommended rates of application;
- A GIS shapefile or similar exhibit depicting the location and extent of the Bank.

The Wetland FMWP shall also include, but is not limited to:

- Vegetation schedule with plants and seeds selected based on habitat value, projected water elevation and duration, and ecoregion. Deviations from the approved plant list must meet the targeted wetland indicator status of the approved list. Schedule shall include, but not be limited to:
 - Expected zonation (i.e. POWZ, PEM, PSS, and PFO)
 - Species names of herbaceous and woody species
 - Herbaceous seed mix that includes at least ten (10) native species (as shown for the locality in the Digital Flora of Virginia)
 - Woody species list that includes a minimum of four (4) native species (as shown for the locality in the Flora of Virginia)
 - Wetland indicator status as specified in the current version of the U.S. Army Corps of Engineers National Wetlands Plant List
 - Plant size and spacing
 - Wildlife value assessment (such as those found in DCR's native plant brochures (<http://www.dcr.virginia.gov/natural-heritage/nativeplants>)).
- Soil mapping, planned soil handling, soil testing, and soil amendments to include the supporting rationale for the soil amendments, the potential amendments to be utilized and the recommended rates of application.

- A surveyed delineation, in accordance with the Corps' 1987 Wetland Delineation Manual (Manual) and the appropriate Regional Supplement to the Manual of the existing wetland areas of each Phase. A GPS survey is sufficient.
- Reference wetland data, where applicable, from existing wetland communities that are utilized for proposed wetland creation, restoration, and enhancement activities. Reference wetlands may, on a case by case basis, include but are not limited to: Reference location, watershed and land use composition, proximity to the Bank, monitoring well data, and other field data and analysis of those data including hydrology, vegetation, soils, wildlife, etc.

The Stream FMWP shall also include, but is not limited to:

- Narrative descriptions of the existing stream within the project limits and within the watershed, including existing watershed size, existing land uses, valley types, history, and channel classification, and the estimated proposed land use for the watershed (percent residential, forested, commercial, agricultural, etc.).The stream deficiencies to be addressed, including a description of the causes of existing lateral and vertical instability and the methods used to make determinations. A description of the existing riparian buffer (age of forested, shrub, and herbaceous strata present, utility easements, existing management (silviculture or other), if applicable, etc.);
- The proposed stream restoration design approach;
- Proposed detailed plan views and longitudinal profiles, overlaid on the existing grade, of the proposed stream segment restoration and/or enhancement locations;
- Proposed detailed cross-sections, overlaid on existing channel grade, located a minimum of every 500 feet within restoration/enhancement stream channels. Proposed typical cross-sections for each reach;
- Proposed structures and locations on plan views and longitudinal profiles. Plans should include a structure table for each reach, listing structure type, design methods, invert elevation, bank angle, computed scour depth, footer depth, and justification or reason for the structure in the design. Construction specifications should be included for each type of structure.
- Hydraulic assessment, including but not limited to, a quantification of discharge, stream stage, depth-averaged velocity, average boundary shear stress, unit stream power, and largest mobile particle size in a representative riffle cross section for each restoration reach, at the 2-yr, bankfull, 10-yr, and 100-yr recurrence intervals. Please list computational tools and techniques used to model stream hydrodynamics and sediment transport.
- Data table comparison of existing, reference, and proposed design morphological characteristics, and phase of channel evolution;
- Reference stream data, if applicable, from existing stream and riparian buffer communities that was utilized for proposed stream restoration and enhancement activities. This may

include but is not limited to: Reference location, watershed and land use composition, proximity to Bank, stream classification, geomorphology, hydrology, vegetative and aquatic communities, etc.

- Anticipated project constraints;
- Plan-view location of proposed riparian buffer restoration, reestablishment, enhancement, and preservation areas;
- Vegetation schedule with plants and seeds selected based on habitat, water quality, and stream stability value. Schedule may include but should not be limited to:
 - Species name
 - Indicator status as specified in the current version of the U.S. Army Corps of Engineers National Wetlands Plant List
 - Plant size and spacing
 - Wildlife value assessment
 - Statement that all proposed species are shown for the locality in the Flora of Virginia
- Any stream crossings, roads, or other structures that will be removed, replaced, or left in place should be identified on the plans. Generally, crossings should be removed; if needed to be left in place, they should be stable and not adversely impact the stream
- For areas of proposed stream restoration, provide pre-restoration aquatic macroinvertebrate surveys and water quality measurements (as described in Exhibit K), with the Final Mitigation Work Plan;
- For areas of proposed stream preservation downstream of stream restoration or enhancement, provide pre-restoration stream cross sections (as described in Exhibit K), with the Final Mitigation Work Plan.

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

The Sponsor and IRT will use monitoring reports, visual observations, and best professional judgment to evaluate attainment of Performance Standards and in determining whether the Bank/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 Bank/Phase.

Important Note: If there is no appropriate Performance Standard listed below the Sponsor 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 MBI 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 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

(Choose one (1) of the following)

- (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 Creation areas located on non-hydric soils or wherever 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 85 lbs/cubic foot (1.35 g/cc) for loamy and finer textured soils and less than 107 lbs/cubic foot (1.70 g/cc) in sands (prior to adding organic matter or topsoil to the site).
- (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 alpha, alpha-diperydyl reagent occur within 60 percent or more of a specific layer in at least two or three soil samples. A reaction to alpha, alpha- dipyridyl 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 clay 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 greater than 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) 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

- (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 MBI 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 MBI 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 WETLAND PERFORMANCE STANDARDS

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 MBI 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 Bank/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/BioMonQAPP_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 G
CREDITING AND DEBITING PROCEDURES**

I. IRT Approved Assessment Methodology

A. Stream Credits

The number of Potential Credits for stream compensatory mitigation will be determined by the IRT, using the Unified Stream Methodology (USM) or the current methodology in use by the USACE and DEQ.

B. Wetland Credits

The number of Potential Credits for wetland compensatory mitigation will be determined using the IRT-approved credit ratios in the table below or the current methodology in use by the USACE and DEQ.. Each acre of land area within the Bank or Bank Phase shall be designated as to which types of land forms, as classified by the Cowardin System, shall be restored, created, enhanced, or preserved. Approved credit ratios will then be applied to each wetland acreage or wetland mitigation type to derive the amount of wetland mitigation credits for the Bank or Phase.

C. Conservation Easement Credits

The number of Potential Credits for wetland and stream compensatory mitigation will be considered to have an increased value of up to 5% if a Conservation Easement is recorded over the Bank property with an IRT approved Conservation Easement Holder.

II. Timing of Determination of Potential Credits

A. Conceptual Mitigation Work Plan (CMWP)

The IRT will initially determine the total number of compensatory mitigation Credits generated by this Bank, by applying the methodologies described in Section I above to the Sponsor's proposed establishment, restoration, or preservation work described in the CMWP for each Bank or Phase. Nothing in the MBI or this exhibit entitles the Sponsor to an increase in the number of Potential Credits generated by the Bank after the MBI is approved.

B. Final Mitigation Work Plan (FMWP)

If IRT finds that application of the IRT-Approved Assessment Methodology to the FMWP yields fewer Credits than determined based on the CMWP, the IRT may decrease the Bank's number of Potential Credits.

The Sponsor may request that the IRT reevaluate the number of Potential Credits based on the Sponsor's FMWP. If the IRT concludes that application of the assessment methodology or methodologies described in Section I above demonstrate a greater difference between pre- and post-compensatory mitigation project site conditions than was indicated at the time of MBI approval, the IRT may increase the number of Potential Credits in accordance with the findings of the updated assessment.

C. As-Built Reports

If IRT finds that application of the IRT-Approved Assessment Methodology to the as-built report yields fewer Credits than determined based on the FMWP, the IRT may decrease the Bank's number of Potential Credits.

The Sponsor may request that the IRT reevaluate the number of Potential Credits based on the Sponsor's as-built report. If the IRT concludes that application of the assessment methodology or methodologies described in Section I above demonstrate a greater difference between pre- and post-compensatory mitigation project site conditions than was indicated at the time of MBI approval, the IRT may increase the number of Potential Credits in accordance with the findings of the updated assessment.

If the IRT finds that a reevaluation of the number of Potential Credits results in an increase/decrease of that number of Credits, the 5% Conservation Easement Credits will be adjusted accordingly.

WETLAND RATIOS & CREDITS*****

Proposed mitigation activity	Acres	Ratio	Proposed Credit
Wetland Restoration (Reestablishment)		1:1	
Wetland Creation (Establishment) *		1:1 to 2:1	
Wetland Enhancement (Rehabilitation) **		3:1 to 7:1	
Wetland Preservation		10:1	
Upland Buffer Restoration/Enhancement***		12:1 to 15:1	
Upland Buffer Preservation****		20:1	
Other - add intermediate values here			
Conservation Easement (5%)			
Sum			
*****Percent of credits involving restoration or creation			

* Ranges for the Wetland Creation (Establishment) are based upon the connectivity of created (established) wetlands to existing aquatic resources.

** Ranges for Wetland Enhancement (Rehabilitation) are based upon what is proposed and how it is related to improving wetland function.

*** Ranges for the Upland Buffer Restoration/Enhancement are based upon what is proposed and how it is related to improving or protecting wetland function.

**** Buffer width must be a minimum of 100 feet. Credit for any buffer beyond the 100 feet is determined on a case by case basis.

***** This excludes all preservation, enhancement and any upland buffer credits

***** Acreage and credits are subject to change based on the results of the as-built report, boundary surveys, delineations, and monitoring reports.

STREAM CREDITS *

Proposed mitigation activity	Linear Feet/Acres	Improvement Credit	Preservation Credit
Stream Restoration (LF)			
Stream Enhancement with Instream Structures (LF)			
Stream Enhancement (LF)			
Riparian Areas – Preservation (LF and/or Ac)			
Riparian Areas – Enhancement/Restoration (Ac)			
Livestock exclusion AF (LF)			
Watershed AF			
T&E AF – Restoration/Enhancement			
T&E AF – Preservation			
Conservation Easement (5%)			
Sum			
** Percent of credits involving restoration or enhancement and/or livestock exclusion			

*Linear feet and credits are subject to change based on the results of the as-built report, Boundary surveys, delineations, and monitoring reports

**This excludes all preservation credits

EXHIBIT H CREDIT RELEASE SCHEDULES

Credit releases are dependent upon construction and performance of the Bank. Upon submittal of all appropriate documentation by the Sponsor and subsequent approval by the IRT, the Chairs will provide in writing any release of Credits to the Sponsor 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 Bank for which Initial Release is requested upon implementation of the following:

- a. Approval of this MBI;
- b. Approval of the CMWP for each Phase or Site of the Bank for which Initial Release is requested as described in Exhibit E;
- c. Establishment of the Bank Operations Financial Assurance;
- d. Establishment of the Long-Term Management Fund;
- e. Securing the Property interests necessary for the entire Bank 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 Bank 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 Bank limits and the Geographic Service Area

Initial Credits (up to 15%) associated with restoration, establishment, or enhancement of aquatic resources may be available for Debiting for each Phase of the Bank for which Initial Release is requested upon implementation of all of the above and the following:

- j. Establishment and funding of the Initial Credit Release Financial Assurance;
- k. Verification of a Nationwide Permit 27 or other authorization to conduct work in State waters and Waters of the US;
- l. Submittal of a construction schedule that shows that all physical and biological improvements associated with the construction of the Phase from which Credit is requested shall be initiated no later than the end of the first full Growing Season following initial Debiting from the Bank;

No additional release of Credits will take place until a sufficient amount of compensatory mitigation meets Performance Standards to offset all Debits from this initial release of Credits. The initial release of Credit will be subtracted from the first or subsequent releases until the initial release of Credits is backed by compensatory mitigation that meets all Performance Standards.

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) regardless of the percentage of the LTMF principal that is funded.

The IRT may withhold Credits based on field conditions.

Wetland Credit Release Schedule

- a. Initial Release:
Up to 15% initial release upon completion of the initial release requirements listed above.
- b. Construction Release (as-built):
10% (up to 25% cumulative) upon completion and approval of all initial physical and biological improvements made pursuant to the FMWP and IRT approval of the as-built report.
- c. Third Release:
60% (up to 85% cumulative) upon meeting all Performance Standards in Exhibit F applicable for the year in which monitoring is occurring and funding a minimum of 50% of the LTMF principal.
- d. Fourth Release:
15% (up to 100% cumulative) upon meeting all Year 5 Performance Standards in Exhibit F and funding a 100% of the LTMF principal.

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 and funding a minimum of 50% of the LTMF principal.

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. Initial Release: Up to 15% initial release upon completion of the initial release requirements listed above and IRT approval of the as-built report.
- b. Construction Release (as-built):
Up to 10% (up to 25% cumulative) upon completion and approval of all initial physical and biological improvements made pursuant to the FMWP. IRT may withhold credit based on field conditions.
- c. Third Release:
60% of total credits (up to 85% cumulative) upon meeting all Performance Standards in Exhibit F and funding a minimum of 50% of the LTMF principal
- d. Fourth Release:
15% of total credits (up to 100% cumulative) upon meeting all Year 5 Performance Standards in Exhibit F and funding a minimum of 100% of the LTMF principal.

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

- a. Initial Release: Up to 15% initial release upon completion of the initial release requirements listed above.
- b. Construction Release (as-built):
Up to 10% (up to 25% cumulative) upon completion and approval of all initial physical and biological improvements made pursuant to the FMWP and IRT approval of the as-built report.
- c. Third Release:
10-20% of total Credits (up to 45% cumulative) upon the occurrence of a bankfull event, all Performance Standards in Exhibit F are met, and funding a minimum of 50% of the LTMF principal
- d. Fourth Release:
10-20% of total Credits (up to 65% cumulative) upon the occurrence of a bankfull event, all Performance Standards in Exhibit F are met.
- e. Fifth Release:
10-20% of total Credits (up to 85% cumulative) upon the occurrence of a bankfull event, all Performance Standards in Exhibit F are met, and funding a minimum of 85% of the LTMF principal

- f. Sixth Release:
Up to 15% of total Credits (100% cumulative) upon the occurrence of a bankfull event, all Performance Standards in Exhibit F are met, and funding 100% of the LTMF principal
- g. No additional credits will be released after Year 4 until a bankfull event occurs and the LTMF is fully funded. 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.

Any Credits debited before achieving the Performance Standards (e.g., the 15% initial release of Credits) shall require conformance with the Financial Assurance and Long-Term Management funding requirements described in Section 19 and Section 21, and execution of those Financial Assurances/Long-Term Management Fund must be approved in writing by the Chairs and must be established to provide sufficient Financial Assurance to assure performance and to cover contingency actions in the event of partial or total failure and other relevant provisions in this MBI. Aside from the initial release of Credits, if at any time, the number of Credits Debited exceeds the number meeting all Performance Standards then the Sponsor 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
Initial Release	15%	<ul style="list-style-type: none"> • Completion of initial release requirements
Construction	10%	<ul style="list-style-type: none"> • Approval of as-built by IRT • Funding a minimum of 15% of LTMF principal
3 rd Release	60%	<ul style="list-style-type: none"> • Meeting Performance Standards for year monitored • Funding a minimum of 50% of LTMF principal
4 th Release	15%	<ul style="list-style-type: none"> • Meeting Year 5 Performance Standards • Funding a minimum of 100% of LTMF principal

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
2 nd Release	50%	<ul style="list-style-type: none"> • Meeting Performance Standards • Funding a minimum of 50% of the LTMF principal

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
Initial Release	15%	<ul style="list-style-type: none"> • Completion of initial release requirements
Construction	10%	<ul style="list-style-type: none"> • Approval of as-built by IRT
3rd release	60%	<ul style="list-style-type: none"> • Meeting Performance Standards • Funding a minimum of 50% of LTMF principal
4th Release	15%	<ul style="list-style-type: none"> • Meeting Year 5 Performance Standards • Funding a minimum of 100% of LTMF principal

**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
Initial Release	15%	<ul style="list-style-type: none"> • Completion of initial release requirements
Construction	10%	<ul style="list-style-type: none"> • Approval of as-built by IRT
3rd Release	10-20%**	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event • Funding a minimum of 50% of LTMF principal
4th Release	10-20%**	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event
5th Release	10-20%**	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event • Funding a minimum of 85% of LTMF principal
6th Release	minimum 15%	<ul style="list-style-type: none"> • Meeting Performance Standards • Upon the occurrence of a bankfull event • Funding 100% of LTMF principal

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

EXHIBIT I
CREDIT SALE STATEMENT
(All information in italics must be completed by the Sponsor)

Bank Name
Bank Address, City, State, Zip Code
Bank Contact Phone Number

Date

US Army Corps of Engineers (USACE),
Norfolk District OR appropriate Field Office
 Regulatory Branch
 Attention: **USACE Project Manager**
803 Front Street
Norfolk, VA 23510 OR appropriate Field Office Address

Department of Environmental Quality (DEQ)
 Office of Wetlands and Stream Protection
 Attention: **DEQ Project Manager**
 PO Box 1105
 Richmond, VA 23218

In accordance with USACE and DEQ instructions for reporting credit sales, we are providing the following to document a stream/wetland credit sale:

<i>Date of Sale</i>	
<i>Dept. of the Army Permit Number</i>	
<i>DEQ VWP Number</i>	
<i>Permittee</i>	
<i>County of impact</i>	
<i>Watershed of impact (8 digit HUC)</i>	
<i>Latitude/Longitude of Impact (centroid)</i>	
<i>Type(s) of impact(s) (NTW/TW/ST)</i>	
<i>Amount of impact(s) (acreage/linear feet)</i>	
<i>Type of Credits (NTW/TW/ST)</i>	
<i>Number of Credits Sold</i>	
<i>Type of Credits Sold (advanced/initial/released)</i>	
<i>Project within Geographic Service Area of Bank (Yes or No)</i>	

I verify that the required number and type of Credits identified above are available at my Bank/Bank Site or ILF Program Site and that they have been released by the IRT or made available through and ILF Program Instrument. Once this form is signed, I shall update the appropriate ledger and provide a copy of the signed form to the Permittee and to the USACE

Bank/In-Lieu Fee Program Manager. This form does not relieve me of the requirement to comply with all reporting requirements established in the Bank or ILF program instrument.

I certify that the information provided in this form is true, accurate, and complete to the best of my ability based on the information provided to me by the Permittee/Permittee's Agent. I acknowledge that the USACE and DEQ are entitled to rely on the information I have provided. I further acknowledge that, if the information I have provided proves to be false, incomplete, or inaccurate, the USACE may reevaluate its approval of this mitigation Bank, and I may be subject to legal penalties. If USACE withdraws or terminates its approval, I acknowledge that I would remain responsible for any compensatory mitigation requirements associated with Credits I have previously debited.

By signing below, I acknowledge that I have accepted full responsibility for the identified mitigation. Please contact me with any questions.

Sincerely,

Bank POC

EXHIBIT I
CREDIT AVAILABILITY STATEMENT
*(All information in **italics** must be completed by the Sponsor)*

Bank Name
Bank Address, City, State, Zip Code
Bank Contact Phone Number

Date

US Army Corps of Engineers (USACE),
Norfolk District OR appropriate Field Office
 Regulatory Branch
 Attention: ***USACE Project Manager***
803 Front Street
Norfolk, VA 23510 OR appropriate Field Office Address

Department of Environmental Quality (DEQ)
 Office of Wetlands and Stream Protection
 Attention: ***DEQ Project Manager***
 PO Box 1105
 Richmond, VA 23218

In accordance with USACE and DEQ instructions for reporting credit availability, we are providing the following to document the availability of stream/wetland credits:

<i>Date of Sale</i>	
<i>Dept. of the Army Permit Number</i>	
<i>DEQ VWP Number</i>	
<i>Permittee</i>	
<i>County of impact</i>	
<i>Watershed of impact (8 digit HUC)</i>	
<i>Latitude/Longitude of Impact (centroid)</i>	
<i>Type(s) of impact(s) (NTW/TW/ST)</i>	
<i>Amount of impact(s)</i>	
<i>Type of Credits (NTW/TW/ST)</i>	
<i>Number of Credits Sold</i>	
<i>Type of Credits Sold (advanced/initial/released)</i>	
<i>Project within Geographic Service Area of Bank (Yes or No)</i>	

I verify that the required number and type of Credits identified above are available at my Bank/Bank Site or ILF Program Site and that they have been released by the IRT or made available through an ILF Program Instrument. Once the form is signed, I shall provide a copy of the signed form to the Permittee and to the USACE and DEQ Project Manager. This form does not relieve me of the requirement to comply with all reporting requirements established in the Bank or ILF program instrument.

I certify that the information provided in this form is true, accurate, and complete to the best of my ability, based on the information that was provided to me by the Permittee/Permittee's Agent . Please contact me with any questions.

Sincerely,

Bank POC

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 Bank/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 Bank/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 Bank, 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 and Reporting Sections of this MBI, 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 Bank/Phase being monitored:

- Title page, including, where applicable, the Bank name, site name, Phase, monitoring year(s), requested actions (credit release, adaptive management, etc.), Sponsor identification (name, address, phone number, and email address), Report preparer identification (name, address, phone number, and email address).
- Vicinity Map of the Bank, including latitude and longitude at the entrance of the site.
- A Section with all Performance Standards and monitoring requirements for the Bank/Phase or site.
- Complete maintenance summary for the Bank/Phase or site 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 Bank/Phase or site, 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 Bank/Phase or site, 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 Bank/Phase or site as described in the Mitigation Work Plan (Exhibit E), and the degree to which the Bank/Phase or site meets those objectives.
- A revised summary map and table depicting the total mitigation credits within the Bank/Phase or site and the areas where Credits have been released.
- Corrective action plan, if necessary, including the current deficiencies or issues within the Bank/Phase or site, 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 Sponsor 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 Bank)</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 MBI 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 Bank/Phase or site 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 MBI 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 Bank/Phase or site, 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 Bank/Phase or site 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 Bank/Phase AND from an adjacent forested site are required.
- (2) Soil Temperature – Soil temperatures are to be measured from within the Bank/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 Banks/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 Bank/Phase.

- (4) The Bank/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 Bank/Phase. For a Bank/Phase less than 20 acres, a minimum of 1 monitoring well per 2 acres will be required. For a Bank/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 Sponsor 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 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), 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 well.

b) Reporting

Describe the soil profile, including a table with the following for each soil profile: depth, color, texture, horizon, matrix color, redoximorphic features, redox color, and redox feature abundance, and field indicators of hydric soil.

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 MBI 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 Bank 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 Bank/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 (10 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 livestock or woody stems, extrapolated number livestock 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 Banks 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 MBI.
- (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.

EXHIBIT K BANK OPERATIONS MAINTENANCE PLAN

The Sponsor shall maintain the Bank consistent with the MBI during operation of the Bank, including this Maintenance Plan, in addition to construction, monitoring, and adaptive management. The Maintenance Plan is a description and schedule of maintenance requirements to ensure the continued viability of the mitigation resources from MBI approval to Bank closure and Long-Term Management. The Sponsor shall continue with such maintenance activities until the Bank is closed in accordance with the Bank closure procedures and the Long-Term Steward assumes their responsibilities. Deviation from the maintenance provisions in the approved MBI requires review and written approval from the Chairs in consultation with the IRT.

Upon the conclusion of the ten year monitoring period, the Sponsor will revisit this Maintenance Plan, and submit an updated Maintenance Plan, for coordination with the IRT. The updated Maintenance Plan will cover any changes or revisions anticipated in maintenance activities from the time of the conclusion of monitoring until Bank Closure. An updated Maintenance Plan may be uploaded to RIBITS and notification sent to the Chairs, either concurrent with Year 10 monitoring or by January 31st on the year after completion of monitoring.

The following regular maintenance and bookkeeping will be conducted for the Bank, at a minimum:

- Maintain a Bank activities ledger, which describes the date, purpose, description of activities performed, and outcome of each maintenance visit. This ledger is not required to be submitted on a regular basis, but may be requested by the IRT at any time;
- Conduct regular inspections of all mitigation areas, including preservation areas, particularly during non-reporting years of Bank operation (annual inspections recommended, at a minimum);
- Maintain and repair all mitigation areas to meet or exceed the objectives and functions of the Bank, including all mitigation-related berms and structures;
- Proactively manage INU species on the Bank property;
- Ensure that no trespass, illegal dumping, or trash accumulation occurs on the Bank property;
- Post and repair Bank/property limit and conservation easement signs;
- Maintain, repair, and/or replace gates and fences, as necessary;
- Maintain and repair direct access roads, as necessary;
- Other maintenance responsibilities to Bank operation and adaptive management.

Exhibit L
Long-Term Management Plan (LTMP)

For
The _____ Phase/Site of the
The _____ Mitigation Bank

I	Introduction	3
A	Purpose of Bank/Phase Establishment	3
B	Purpose of this Long-Term Management Plan (LTMP).....	3
C	Long-Term Steward Responsibilities	3
D	Eminent Domain	3
II	Property Description	4
A	Setting and Location	4
B	Cultural Resources	4
C	Existing Easements	4
D	Existing Man-Made Structures	4
III	Habitat and Species Descriptions	4
A	Baseline Description of Biological Resources.....	4
B	Summary of Mitigation work Plan.....	5
C	Rare/Threatened/Endangered Species	5
IV	Management and Monitoring	5
A	Biological Resources	5
Element A.1	Streams and wetlands and their associated buffers	5
Element A.2	Rare/Threatened/Endangered Plant Species Monitoring	6
Element A.3	Rare/Threatened/Endangered Animal Species Monitoring	6
Element A.4	Invasive, Nuisance, and Undesirable (INU) Species.....	7
B	Security, Safety, and Public Access	7
Element B.1	Trash and trespass.....	7
Element B.2	Fire Hazard Reduction.....	8
C	Infrastructure and Facilities	8
Element C.1	Fences,Gates, Signage, and Property Boundaries	8
Element C.2	Crossings, Trails, and Roads.....	8
Element C.3	Berms. Water Control Structures, and Grade Control Structures.....	9
Element C.4	Impoundments	9
D	Reporting and Administration.....	9
Element D.1	Annual Report	9
Element D.2	Administrative and Contingency Fees.....	10
Element D.3	Defense of Easement and Other Real Estate Issues	10
V	Transfer, Replacement, Amendments, and Notices	10
A	Transfer	10
B	Replacement	11

C	Amendments	11
D	Notices	11
VI	Funding and Task Prioritization.....	12
A	Funding	12
	Table 1. Management/Monitoring Activities, Level of Effort, Frequency and Cost.....	13
B	Task Prioritization	14
C	Enforcement	14

I Introduction

A Purpose of Bank/Phase Establishment

The _____ (“Bank”) was established by the Mitigation Bank Instrument (“MBI”) to compensate for unavoidable impacts to streams and wetlands, and to conserve and to protect streams and wetlands and their associated buffers. The Bank/Phase includes _____ acres of streams and wetlands and their associated buffers including _____ acres (*insert as applicable: of /all of which are*) preserved wetlands, _____ acres of established or restored wetlands, _____ linear feet of restored stream channel, _____ linear feet of enhanced stream channel, _____ acres of preserved riparian buffer, _____ acres of restored or enhanced riparian buffer. The IRT Agencies include the Norfolk District of the U.S. Army USACE of Engineers, Region 3 of the U.S. Environmental Protection Agency, the Virginia Field Office of the U.S. Fish and Wildlife Service, the Virginia Department of Environmental Quality, the Virginia Department of Game and Inland Fisheries, the Virginia Department of Conservation and Recreation, and the Virginia Department of Forestry. Terms used in this LTMP have the same meaning as defined in the MBI.

B Purpose of Long-Term Management Plan (LTMP)

The purpose of this LTMP is to ensure the Bank/Phase is managed, monitored, and maintained in perpetuity. This management plan establishes objectives, priorities and tasks to monitor, manage, maintain and report on the waters of the U.S. and/or State Waters and their associated protected buffers, covered species and covered habitat on the Bank/Phase. This LTMP is implemented in accordance with the MBI and the site protection instrument (conservation easement or declaration of restrictions) covering the Bank/Phase and the period of LTM will begin upon closure of the Bank.

C Long Term Steward and Responsibilities

The Long-Term Steward is _____. The Long-Term Steward, and subsequent Long-Term Stewards upon transfer, shall implement this LTMP, managing and monitoring the Bank/Phase in perpetuity to preserve its habitat and conservation values in accordance with the MBI, conservation easement and/or declaration of restrictions, and the LTMP. Long-term management tasks shall be funded through the Long-Term Management Fund. The Long-Term Steward must maintain a copy of the MBI and all addendums associated with the Bank/Phase including all deed restrictions and easements. The Long-Term Steward shall be responsible for providing an annual report to the IRT detailing the time period covered, an itemized account of the management tasks and total amount expended. Any subsequent grading, or alteration of the hydrology and/or topography by the Long-Term Steward or its representatives must be approved by the IRT and the necessary permits, such as a Section 404 permit and/or Virginia Water Protection Permit, must be obtained if required.

D Eminent Domain

If the Bank/Phase is taken in whole or in part through eminent domain, the Long-Term Steward shall use all monies it receives as compensation for lands and all associated services and values taken to provide replacement compensation within the same Geographic Service Area subject to IRT approval. The IRT will have the right to participate in any proceeding associated with the

determination of the amount of such compensation. Replacement compensation may be determined in consultation with the IRT.

II Property Description

A Setting and Location

The Bank/Phase is located at _____ (*include address and county*), in the Commonwealth of Virginia, designated as Parcel No. _____. The Bank/Phase is shown on the general vicinity map (Figure 1) and the Bank/Phase location map (Figure 2). The general vicinity map shows the Bank/Phase/Site location in relation to cities, towns, or major roads, and other distinguishable landmarks. The Bank/Phase location map shows the property boundaries on a topographic map (1:24,000 scale).

B Cultural Resources

(Describe all existing architectural features including but not limited to battlefields, historic districts, roads, levees, fencing, and buildings, and their intended future use on the area. Note whether such structures are likely to be considered "historic properties" pursuant to state or federal historic resource preservation laws.)

(Describe any known archeological sites without providing their specific locations on the property, and include a summary of the results of any site surveys/inventories, including who conducted them. An assessment of the impacts of management should be given for such sites.)

C Existing Easements

(Include descriptions/locations of existing easements, their nature (buried pipeline, overhead power, ingress/egress, mineral or timber rights etc.), authorized users (if known), access procedures, etc. Depict easements, rights of way, ingress, and egress routes on an attached map.)

D Existing Man-Made Structures

(Describe and depict on a map or aerial image all manmade features associated with establishment and operation of the Bank/Phase including roads, berms, fences, gates, dams, weirs, outfall structures, and water control structures.)

III Habitat and Species Descriptions

A Baseline Description of Biological Resources

(Include a general description of geographic location and features, vegetation (assessment of native vs. INU and non-native species), a quality assessment of all wetland and streams on the Bank/Phase. An overview of native plant species present, if applicable, their habitat and management requirement should be presented here. This section may need to be modified at Bank closure if conditions are different than those described here.)

B Summary of Mitigation Work Plan

Provide final Bank/Phase map showing the mitigation resources including the location of streams and wetlands and their associated buffers and the location, percent of coverage, and name of all Invasive, Nuisance, and Undesirable (INU) species.

C Rare/Threatened/Endangered Species

Describe all federal and state rare/rare/threatened/endangered species that occur or may occur on the Bank/Phase. If applicable provide a map of their location.

IV Management and Monitoring

The overall objective of long-term management is to foster the long term viability of the Bank/Phase streams and wetlands and their associated buffers, and any listed species/habitat. Routine monitoring and minor maintenance tasks are intended to assure the viability of the Bank/Phase in perpetuity.

A Biological Resources

The approach to the long-term management of the Bank/Phase biological resources is to conduct annual Bank/Phase examinations and monitoring of selected characteristics to determine stability and ongoing trends of the preserved, restored, and enhanced streams and wetlands and their associated buffers. Annual monitoring will assess the Bank/Phase condition, establishment of INU or non-native species, water quality, fire hazard, and/or other aspects that may warrant management actions. While it is not anticipated that major management actions will be needed, an objective of this LTMP is to conduct monitoring to identify any issues that arise, and using adaptive management to determine what actions might be appropriate. Those chosen to accomplish monitoring responsibilities will have the knowledge, training, and experience to accomplish monitoring responsibilities.

Adaptive management means an approach to natural resource management which incorporates changes to management practices, including corrective actions as determined to be appropriate by the IRT in discussion with the Long-Term Steward. Adaptive management includes those activities necessary to address the effects of climate change, fire, flood, or other natural events. Before considering any adaptive management changes to the LTMP, the IRT will consider whether such actions will help ensure the continued viability of Bank/Phase biological resources.

The Long-Term Steward for the Bank shall implement the following as appropriate:

Element A.1 Streams and wetlands and their associated buffers

Objective: Monitor, conserve and maintain the Bank/Phase streams and wetlands and their associated buffers. Limit any impacts to streams and wetlands and their associated buffers from vehicular travel or other adverse impacts.

Task: At least one annual walk-through survey will be conducted to qualitatively monitor the general condition of these habitats. General topographic conditions, hydrology, general vegetation cover and composition, INU species, erosion, will be noted, evaluated and mapped during a site examination. Notes to be made will include observations of species encountered, water quality, general extent of

wetlands and streams, and any occurrences of erosion, structure failure, or INU species establishment.

Task: Establish reference sites for photographs and prepare a site map showing the reference sites for the Bank/Phase file. Alternatively, utilize photographic reference sites, if any, developed during the interim Bank/Phase management period. Reference photographs will be taken of the overall Bank/Phase at least every five years from the beginning of long-term management, with selected reference photos taken on the ground more frequently, _____ times per year (*if applicable*).

Special attention should be paid to any area adjacent to or draining property outside of the Bank/Phase limits. Streams and wetlands, and their associated buffers, should be observed near Bank/Phase boundaries to observe if increased sediment deposition has occurred. The report should provide a discussion of any recent changes in the watershed (i.e., subdivision being developed upstream of stream bank).

Task: Maintain stream restoration/enhancement features like sills and J hooks as necessary.

Element A.2 Rare/Threatened/Endangered Plant Species Monitoring

(Note: This methodology may vary for different plant species as determined in consultation with the appropriate agencies.)

Objective: Monitor population status and trends.

Objective: Manage to maintain habitat for _____.

Task: Monitor status every year by conducting population assessment surveys. The annual survey dates will be selected during the appropriate period as identified by the applicable member of the IRT and will generally occur from _____ through _____ each year. Occupied habitat will be mapped and numbered to allow repeatable data collection over subsequent survey years. Abundance will be assessed semi-quantitatively using broad abundance categories, i.e., 0, 1 - 100, 101 - 500, 501 - 1,000, and >1,000 plants.

Task: Visually observe for changes to occupied habitat, such as changed hydrology or vegetation composition. Record any observed changes. Size of population (1 acre, etc.).

Task: Implement other tasks that enhance or monitor habitat characteristics for _____.

Element A.3 Rare/Threatened/Endangered Animal Species Monitoring

(Note: Species-specific objectives and tasks will need to be developed in consultation with the appropriate IRT agencies.)

Objective: Monitor population status and trends.

Objective: Manage to maintain habitat for _____.

Task: Monitor status every year by conducting population assessment surveys. (The annual survey dates will be selected during the appropriate period each year.)

Task: Implement other tasks that enhance or monitor habitat characteristics for _____.

Element A.4 Invasive, Nuisance, and Undesirable (INU) Species

(Note: Species-specific objectives and tasks will need to be developed in consultation with the appropriate IRT agencies.)

Objective: Monitor and maintain control over INU species that diminish Bank/Phase quality for which the Bank/Phase was established. The Long-Term Steward shall consult the *Virginia Department of Conservation and Recreation's Invasive Alien Plant list* at http://www.dcr.virginia.gov/natural_heritage/documents/invlist.pdf as well as the definition of INU species in the MBI for the Bank/Phase for guidance on what species may threaten the Bank/Phase and on management of those species.

Task: Monitor any new introduction or expansion of INU species compared to the baseline map provided at Bank Closure

Task: Each year's annual walk-through survey (or a supplemental survey) will include a qualitative assessment (e.g. visual estimate of cover) of INU species and an inventory map. Additional actions to control INU species will be evaluated and prioritized in coordination with the IRT.

Attached to this plan are fact sheets (including identification aid) for all INU species known to be present on the Bank/Phase.

Task: Develop and implement a management plan to control/manage INU species on the Bank/Phase.

B Security, Safety, and Public Access

The Bank/Phase will be fenced or appropriately marked and shall have no general public access, nor any regular public use. Research and/or other educational programs or efforts, hunting, fishing, and passive recreational activities may be allowed on the Bank/Phase as deemed appropriate by the IRT in consultation with the landowner and as provided for in the site protection instrument, but are not specifically funded or a part of this LTMP.

Potential wildfire fuels will be reduced as needed where approved by the IRT.

Element B.1 – Trash and trespass

Objective: Monitor sources of trash and trespass.

Objective: Collect and remove trash, repair vandalized structures, and rectify trespass impacts.

Task: During each site visit, record occurrences of trash and/or trespass. Record type, location, and management mitigation recommendations to avoid, minimize, or rectify a trash and/or trespass impact.

Task: At least once yearly collect and remove as much trash as possible and repair and rectify vandalism and trespass impacts.

Element B.2 – Fire Hazard Reduction

Objective: Maintain the Bank/Phase as required for fire control while limiting impacts to biological values.

Task: Reduce vegetation in any areas recommended by authorities, and as approved by the IRT, for fire control. Potential wildfire fuels will be reduced as needed where approved by the IRT.

Task: Manage, maintain, or re-establish fire breaks as necessary on the Bank/Phase.

C Infrastructure and Facilities

Element C.1 Fences, Gates, Signage, and Property Boundaries

Objective: Monitor condition of fences, gates, signage, and property boundaries.

Objective: Maintain fences, gates, signage, and property boundaries to prevent casual trespass, allow necessary access, and facilitate management (if applicable).

Task: During each site visit, record condition of fences, gates, signs, and property boundaries. Record location, type, and recommendations to implement repair or replacement to fence, gate, signage, or property boundary markers, if applicable.

Task: Maintain fences, gates, signs, and property boundary markers as necessary by replacing posts, wire, gates, and signs. Replace fences and/or gates, as necessary, and as funding allows. Note any trespass by livestock as well as any negative effects attributed to authorized livestock activities.

Element C.2 Crossings, Trails, and Roads

Objective: Monitor condition of trails, crossings, and roads, etc.

Objective: Maintain trails, crossings, and roads, to facilitate management (if applicable) and maintain conditions of wetlands and streams

Task: During each site visit, record condition of trails, crossings, and roads. Record location, type, and recommendations to implement repair or replacement to trails, crossings, and roads, if applicable.

Task: Maintain trails, crossings, and roads as necessary. Replace trails, crossings, and roads as necessary, and as funding allows.

Element C.3 Berms, Water Control Structures, and Grade Control Structures

Objective: Monitor condition of wetland berms and/or water control structures for wetland mitigation, and grade control and other structures for stream mitigation, and any other mitigation practices, as appropriate.

Objective: Maintain berms and structures, etc. to facilitate management (if applicable) and maintain conditions of wetlands and streams.

Task: During each site visit, record condition of berms and structures. Record location, type, and recommendations to implement repair or replacement to berms and structures, if applicable.

Task: Maintain berms and structures, as necessary. Replace berms and structures, as necessary, and as funding allows.

Element C.4 Impoundments

Objective: Ensure that impoundments have minimal to no adverse effects on downstream compensatory wetland and stream mitigation practices.

Task: During each site visit, if the impoundments are onsite, record the condition of the impoundments, including inspecting for breaches, cracks, or other signs of instability or damage. Record the condition of downstream aquatic resources within the mitigation site. If it appears that the channel may have been impacted by sediment from the impoundment, record the condition of other stream resources in the area, as a reference condition.

Task: Maintain and repair the onsite impoundments, as necessary to ensure stable downstream wetland and stream conditions.

Task: Remediate sediment or other impacts from the impoundment in any downstream wetlands or streams onsite, if such impacts are determined to be affecting the goals and objectives of the mitigation site.

D Reporting and Administration

Element D.1 – Annual Report

Objective: Provide annual report on all management tasks conducted and general Bank/Phase conditions to IRT and any other appropriate parties. Each report shall include a cover page with the following information: the Bank/Phase name, Long-Term Steward (name, address, phone number, and email address), monitoring year, and any requested action (e.g. funding release, maintenance recommendations requiring IRT approval).

Task: Prepare annual report and any other additional documentation. Include a summary. Complete and circulate to the IRT and other parties by December 31 of each year. Reports should be distributed electronically.

Task: Make recommendations with regard to (1) any enhancement measures deemed to be warranted, (2) any problems that need near-, short-, and long-term

attention (e.g., weed removal, fence repair, erosion control), (3) any changes in the monitoring or management program that appear to be warranted based on monitoring results to date, (4) and provide documentation that the Long-Term Steward (if not an individual) is considered active and in good standing with the SCC. Provide documentation of the cost of any recommended maintenance and repairs.

Task: Provide a copy of the LTM Fund end of year statement that indicates the balance in the fund, interest accrued, withdrawals made, etc.

Element D.2 – Administrative & Contingency Fees

Objective: Provide funds for regular administrative costs incurred as a result of administrative tasks, maintenance of escrow, endowment, or other funding accounts, etc. These funds shall be paid from the earnings of the account and not the principal funds.

Task: Pay all regular administrative or other fees through this task.

Element D.3 – Defense of Easement or Other Real Estate Issues

Objective: Ensure the perpetual protection of and address any encroachments on the property on which the wetland and stream mitigation activities occurred.

Task: Maintain conservation easements, declarations of restriction, or other protective instruments intended to protect mitigation site.

Task: If the property is owned by the Sponsor or stewardship organization, assist in resolving real estate issues, such as property taxes, title considerations, Virginia Land Conservation Incentives Act, relevant county initiatives, mineral rights, easements and maintenance, and conservation, water or other district assessments.

Task: If the LTS is not the easement holder, then coordination/cooperation with the easement holder.

Task: Hire attorney or other legal representation for defense of easement or other proceedings, where necessary.

V Transfer, Replacement, Amendments, and Notices

A Transfer

Any subsequent transfer of responsibilities under this LTMP to a different Long-Term Steward shall be requested by the Long-Term Steward in writing to the IRT, will require written approval by the IRT, and will be incorporated into this LTMP by amendment.

The long-term steward shall be required to ensure that any subsequent property owners (if not identified as the long-term steward) are notified of the deed restriction, conservation easement, purpose and location of the Bank/Phase lands, and requirements for long-term stewardship.

B Replacement

If the Long-Term Steward fails to implement the tasks described in this LTMP and is notified of such failure in writing by any member of the IRT, the Long-Term Steward shall have 90 days to correct such failure. If failure is not corrected within 90 days, the Long-Term Steward may request a meeting with the IRT to resolve the failure. Such meeting will occur within 30 days or a longer period if approved by the IRT.

Based on the outcome of the meeting, or if no meeting is requested, the IRT may designate a replacement Long-Term Steward in writing by amendment of this LTMP. If the Long-Term Steward fails to designate a replacement Long-Term Steward, then such public or private land or resource management organization acceptable to and as directed by the IRT may enter onto the Bank/Phase property in order to fulfill the purposes of this LTMP.

C Amendments

The Long-Term Steward, property owner, and the IRT may meet and confer from time to time, upon the request of any one of them, or at a minimum every five (5) years, to revise the LTMP to better meet management objectives and preserve the conservation values of the Bank/Phase. Any proposed changes to the LTMP will be discussed with the IRT and the Long-Term Steward. Any proposed changes will be designed with input from all parties. Amendments to the LTMP will be approved by the IRT in writing, will be required management components and will be implemented by the Long-Term Steward.

D Notices

Any notices regarding this LTMP will be directed as follows:

Long-Term Steward (name, address, telephone)

Property Owner (name, address, telephone)

IRT Chair, US Army Corps of Engineers (name, address, telephone)

IRT Chair, Virginia Department of Environmental Quality (name, address, telephone)

VI Funding and Task Prioritization

A Funding

(The list of tasks in Table 1 is not meant to be exhaustive. Some sites may have more elements to consider and some may have fewer depending on the attributes of the Bank/Phase.)

Table 1 summarizes the anticipated costs of long-term management for the Bank. These costs include estimates of time and funding needed to conduct the basic monitoring site visits and reporting, trash removal, fence repair, etc. a prorated calculation of funding needed to fully repair and/or replace fences and other structures every years, and funding for catastrophic event assessment and repair every years. The total annual funding anticipated is approximately \$_____, therefore, with the current annual estimated capitalization rate of the total endowment amount (The Long-Term Management Fund) required will be \$_____.

_____ shall hold the endowment principal and earnings (The Long-Term Management Fund) as required in the MBI, which consists of monies that are paid into it in trust, and is appropriated to fulfill the purposes for which payments into it are made. The Long-Term Management Fund (principal and earnings) will fund the long-term management, enhancement, and monitoring activities on Bank/Phase lands in a manner consistent with this LTMP.

Table 1. Hypothetical Annual Cost estimate for long-term management of a 20 acre Bank

Task	Component/Specification	Unit	Number	Cost/Unit	Annual Cost	Recurrence interval (years)	Total
Sign	Boundary	Ea.	20	\$6	\$120	10	\$12
Sign	Inspect/replace	Hour	4	\$25	\$100	1	\$100
Trash	Collection & dump	Hour	8	\$25	\$200	1	\$200
Trash	Dump Fee	Ea.	2	\$20	\$40	1	\$40
Adaptive Management Plan	Labor	Hour	80	\$120	\$9,600	50	\$192
Exotic Control	Herbicide	Oz	8	\$50	\$400	1	\$400
Exotic Control	Herbicide application	Hour	10	\$50	\$500	1	\$500
Exotic Control	Monitoring report	Hour	12	\$75	\$900	1	\$900
Annual Report	Narrative summary	Hour	4	\$75	\$300	1	\$300
Field Equipment	Small pickup	Ea.	0.10*	\$30,000	\$3,000	10	\$300
Fence	Labor	Hours	32	\$30	\$960	5	\$211
Fence - Installed	Barbed wire – 4 strand	Lin. Ft.	2,000	\$4	\$8,000	5	\$1600
Gate	Powder River, Classic	Ea.	1.0	\$300	\$300	15	\$20
Sub Total							\$4775
Contingencies	20%					1	\$955
Administration	10%					1	\$478
Easement Defense							
Estimated Annual Expenses							\$6208
Capitalization rate	3.5%						
Total Endowment amount	Est. Annual Expenses/Capitalization rate						\$177,372

B Task Prioritization

Due to unforeseen circumstances, prioritization of tasks, including tasks resulting from new requirements, may be necessary if insufficient funding is available to accomplish all tasks. The Long-Term Steward and the IRT will discuss task priorities and funding availability to determine which tasks will be implemented. In general, tasks are prioritized in this order: 1) required by a local, state, or federal agency; 2) tasks necessary to maintain or remediate the Bank/Phase (including unauthorized impacts); and 3) tasks that monitor resources, particularly if past monitoring has not shown downward trends. Equipment and materials necessary to implement priority tasks will also be considered priorities. Final determination of task priorities in any given year of insufficient funding will be determined in consultation with the IRT and as authorized by the IRT in writing.

C Enforcement

The IRT and its authorized agents will have the right to inspect the Property and take actions necessary to verify compliance with this LTMP. The LTMP herein shall be enforceable by any proceeding at law or in equity or administrative proceeding by the IRT, including the USACE or DEQ. Failure by any agency (or owner) to enforce the LTMP contained herein shall in no event be deemed a waiver of the right to do so thereafter.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the date herein below last written.

(There should be one signature page for each required signature)

Sponsor

Date

Long-Term Steward

Date

Chief, US Army Corps of Engineers
Norfolk District

Date

Virginia Department of Environmental Quality
Director, Office of Wetlands and Stream Protection

Date

EXHIBIT M
ADAPTIVE MANAGEMENT PLAN (AMP)

The Sponsor shall maintain the Bank consistent with the MBI during the Bank Operation period. The Adaptive Management Plan is a strategy to address changes in site conditions or other components of the Bank, including the party or parties responsible for implementing any necessary adaptive management measures. The Adaptive Management Plan should outline the requirements necessary, including monitoring, to ensure the continued viability of the mitigation resources from MBI approval to Bank closure and Long-Term Management. The Sponsor shall implement the strategies outlined in the AMP until the Bank is closed in accordance with the Bank closure procedures and the Long-Term Steward assumes their responsibilities. Deviation from the AMP requires review and written approval from the Chairs, in consultation with the IRT.

Items to be discussed in the AMP could include, but are not limited to:

- Changes to Performance Standards
- Changes to Monitoring and Reporting Requirements
- Modifications to the INU Plan
- Changes necessary during construction

Exhibit C

Site Selection Criteria

USACE Norfolk District and Virginia Department of Environmental Quality
October 2018

Mitigation Site Name

Principal Criteria
(check all that apply)

- 1) Site activities will result in at least 80% of wetland credits obtained through wetland restoration/ establishment/re-establishment
- 2) Site activities will result in at least 50% of stream credits obtained through stream restoration/ enhancement/re-establishment/rehabilitation
- 3) Site is contiguous or connected to other aquatic resources
- 4) Site contains minimal or no invasive /undesirable/ nuisance species
- 5) Site has not been logged in the past 5 years
- 6) Site abuts and/or adjoins an existing preservation/ conservation area, etc.
- 7) Site has no known encumbrances (ie easements, liens, rights of way, reserved timber, severed surface or subsurface mineral or natural gas rights, etc.) on the site, on adjacent properties or within the watershed of the site that will negatively affect the compensation goals
- 8) Immediately adjacent land is less than 10% impervious cover
- 9) Site does not contain any impoundments that are not proposed for removal
- 10) Site is able to be protected long-term through the recordation of an appropriate site protection instrument or other mechanism that will support the long-term protection of the site
- 11) Site is expected to provide in-kind compensation (similar hydrologic regime)

Watershed Scale Features
(check all that apply)

**Explanation Required
Provide supplemental
Information in an attachment
to this checklist.

- 12) Site activities will contribute to habitat diversity**
- 13) Site activities will remove pollutants from waters**
- 14) Site activities will remediate inputs of substantial amounts of sediments waters**
- 15) Site will contribute to habitat connectivity**

Development Trends in the Watershed Where Site is Located
(check all that apply)

****Explanation Required**
Provide supplemental
Information in an attachment
to this checklist.

- 16) Site will address watershed needs for habitat protection as identified in the state wildlife action plan, compensation planning framework, Habitat Conservation Plan, etc.**
 - 17) Site will address watershed needs for flood management as identified in the state wildlife action plan, compensation planning framework, Habitat Conservation Plan, etc. **
 - 18) Site will address watershed needs for water quality improvement as identified in through the 303 (d) list**
 - 19) Site will address watershed needs for reduction of sediment loads as identified through the 303(d) list**
 - 20) Less than 50% of land use within the watershed is residential/commercial/industrial
 - 21) Less than 50% of land use within the watershed is agricultural
 - 22) Future land use plans (i.e. local comprehensive plans, conservation plans) show minimal or no change
 - 23) No water withdrawal permits issued within the vicinity of the site
 - 24) No point source permits within the vicinity of the site
-

Watershed vs. Site Specific Water Quality Goals
(check all that apply)

****Explanation Required**
Provide supplemental
Information in an attachment
to this checklist.

- 25) Site is likely to contribute to improved water quality within the watershed and not solely within the site boundaries**
- 26) Site will include preservation/establishment/rehabilitation of the entire watershed upstream of the project to the drainage divide
- 27) No downstream impoundments (excluding drinking water) that would limit the watershed benefits derived from site activities
- 28) Site will improve water quality conditions of existing wetlands identified by VDEQ (WetCAT) as "Somewhat Severely Stressed" or "Severely Stressed"**

Site Compatibility with Adjacent Land Use (check all that apply)

****Explanation Required**
Provide supplemental information in an attachment to this checklist.

- 29) Site is within an area identified as meriting conservation in an approved watershed management plan, state wildlife action plan, national forest management plan, or conservation plan**
 - 30) Site is not likely to be affected by current activities occurring on adjacent properties
 - 31) Site will not be affected by likely future activities occurring on adjacent properties
 - 32) Site activities will not affect adjacent properties
 - 33) Site is not adjacent to residential, commercial or industrial development
 - 34) Site is not adjacent to silvicultural operations
 - 35) Site is not adjacent to agricultural land
 - 36) Properties adjacent to the site do not have the potential to spread invasive, nuisance or undesirable species to the site**
-

Positive Effects Site will have on Ecological/Cultural Resources (check all that apply)

****Explanation Required**
Provide supplemental information in an attachment to this checklist.

- 37) Site activities will conserve/restore habitat for species identified as rare by VDCR**
- 38) Site activities will conserve/restore natural communities identified by VDCR as imperiled**
- 39) Site activities will conserve/restore karst resources identified by VDCR as imperiled**
- 40) Site activities are within areas that have been identified by VDGIF as meriting improvement**
- 41) Site activities will conserve/restore areas designated by VDGIF as wild trout streams**
- 42) Site activities will conserve/restore areas designated by VDGIF as anadromous fish use areas**
- 43) Site activities will restores/preserve/enhance areas designated by VDGIF as Threatened and Endangered Species Waters**
- 44) Site activities will protect state or federal threatened and/or endangered species**
- 45) Site contains historical cultural resources that will be preserved**
- 46) Site activities will establish new or expand existing wildlife corridors**
- 47) Site activities will result in removal of barriers to fish passage**
- 48) Site results in score of 1 or greater for potential wetland, riparian, or upland restoration or preservation as identified by the Watershed Resource Registry (WRR)**
- 49) Site will improve habitat conditions of existing wetlands identified by VDEQ (WetCAT) as "Somewhat Severely Stressed" or "Severely Stressed"**

**Hydrologic Sources/
Ecological Features
(check all that apply)**

- 50) Site activities do not consist of wetland creation in the uplands unless adjacent to existing streams or wetlands
 - 51) Site activities do not consist of stream creation
 - 52) Site activities do not entail impounding or diverting water from other areas to the project site
 - 53) Site activities do not entail excavation to reach groundwater
-

**Physical/Chemical
Characteristics
(check all that apply)**

****Explanation Required-
Provide supplemental
Information in an attachment
to this checklist.**

- 54) Sites receiving waters are 303(d) listed
- 55) Site qualifies for preservation only, as 1) the resources provide important physical, chemical, or biological functions to the watershed, 2) the resource contribute significantly to the ecological sustainability of the watershed, 3) the IRT has determined that preservation is appropriate and practicable, 4) the resources are under threat of destruction or adverse modification, and 5) the site will be permanently protected through an appropriate real estate instrument**
- 56) Site activities will not result in the construction of artificial or unnatural wetlands that will have limited opportunity to provide the desired functions
- 57) Past land use was PC crop or ditched wetlands
- 58) Past land use was agriculture/silviculture**
- 59) Past land use was commercial or industrial**
- 58) No impoundments exist upstream of the site that will cause thermal increases in water temperature, decreases in dissolved oxygen, erosion and degradation of the channel downstream from the impoundment, or dam failure from a storm event**
- 60) Site activities will result in all onsite impoundments being removed and streams re-established/ rehabilitated

REVISED MARCH 2015

NOTE: THIS TEMPLATE IS ONLY INTENDED TO BE USED WHEN THE PERMITEE OWNS THE SITE PROPOSED TO BE PRESERVED. IF ANOTHER ENTITY OWNS THE PRESERVATION SITE, PLEASE DISCUSS THE PROPOSAL WITH YOUR SUPERVISOR AND COUNSEL.

DECLARATION OF RESTRICTIVE COVENANTS

OF

(Owner)
_____, VIRGINIA

THIS DECLARATION OF RESTRICTIVE COVENANTS (“Declaration”) is made this ____ day of _____, _____, by _____, Owner.

RECITALS

WHEREAS, _____ is the owner (“Owner”) in fee of the real property, rights and interests (including in wetlands, submerged lands, uplands, and associated riparian/littoral rights) (“Property”), comprising of _____ acres ± located in the Town of _____, _____ County, Virginia. The property is more fully described as Tax Map ID Number _____ and is shown on Exhibit A attached hereto; it being the same Property conveyed to _____, by deed from _____, dated _____, and duly recorded in the Clerk’s Office of the _____ of _____ in Deed Book _____, at page _____;

WHEREAS, Owner plans a [development, project, etc.] to be known as “_____,” completion of which will result in a discharge of dredged or fill material that requires authorization through a Department of the Army Permit (“DA Permit”);

WHEREAS, Owner obtained authorization for certain impacts to Waters of the U.S. through DA Permit Number _____, issued on _____, 20__ by the U.S. Army Corps of Engineers, Norfolk District (“USACE”) in accordance with Section 404 of the Clean Water Act, 33 U.S.C. § 1344;

WHEREAS, Owner obtained authorization through Virginia Department of Environmental Quality (DEQ) Permit Number _____, issued on _____, 20__, by the DEQ in accordance with State Water Control Law Sections 62.1-44.5 and 62.1-44.15:20 for impacts to State Waters.

WHEREAS, the Property includes a total of _____ [acres or feet] of [type of resource serving as mitigation, including acreage of upland buffers] (the "Mitigation Area") as shown on the map, dated _____ and recorded with this Declaration of Restrictive Covenants as Exhibit ____;

WHEREAS, DA Permit Number ____/DEQ Permit Number _____ requires that Owner (i.e., Permittee) provide compensatory mitigation be provided to offset permitted impacts, and Owner (Permittee) has chosen to satisfy this requirement, **in whole or in part**, by completing Permittee-responsible mitigation on the Property;

WHEREAS, the USACE and the DEQ have determined that the Owner's proposal to use portions of the Property, including the [wetland and/or stream and their associated upland buffers to wetlands or streams] functions and values provided by the Mitigation Area, is acceptable to offset impacts associated with DA Permit Number _____ and DEQ Permit Number _____;

WHEREAS, USACE regulations, at 33 C.F.R. § 332.7, require that the aquatic habitats, riparian areas, buffers, and uplands that comprise an overall compensatory mitigation project (the Mitigation Area) must be provided long-term protection through a real estate instrument, such as this Declaration;

WHEREAS, Owner has chosen to record this Declaration of Restrictive Covenants expressing Owner's intent to preserve _____ acres of the Property (the "Mitigation Area") as shown on Exhibit B and as described as _____, in order to comply with DA Permit Number _____ and DEQ Permit Number _____ as well as USACE and DEQ regulations;

NOW THEREFORE, for good and valuable consideration as set forth above, Owner does hereby declare, covenant and agree, for itself and its successors and assigns, that said Property described as _____ shown on Exhibit B shall be hereafter held, occupied, used, leased, transferred, and sold subject to the following Restrictive Covenants which shall run with the land and be binding on Owner and all of Owner's heirs, successors, assigns, lessees, and any other occupiers or users.

COVENANTS AND RESTRICTIONS

1. **Recordation.** Owner shall ensure that this Declaration is recorded in the land records of _____ County, and shall ensure that this Declaration is indexed against the land records for the Property. Owner shall ensure that these Covenants and Restrictions run with the Property in perpetuity and be binding on Owner and its successors, assigns, lessees, and any other occupiers or users of the Property.
2. **Conservation Purpose.** Owner declares, for itself and its successors and assigns, that the Property shall hereafter be held exclusively for conservation purposes, unless otherwise provided herein.

3. **Restrictions on Owner's Activities.** The Property described as _____ shown on Exhibit B, Mitigation Area, attached hereto shall be preserved in perpetuity in its natural state, by **prohibiting** the following activities:
- a. Destruction or alteration of the Mitigation Area shown on Exhibit B, *provided that* the following activities are **allowed**:
 - i. Alteration necessary to construct the Mitigation Area and associated improvements, such as nature trails and interpretive stations, proposed to be built by _____, or its successors, and/or assigns as approved by the USACE and DEQ plans titled “_____” and dated _____ (Exhibit C);
 - ii. Alteration necessary to ensure the success of the Mitigation Area including monitoring, reconstruction or maintenance of the constructed Mitigation Area, as approved by the USACE and DEQ;
 - iii. Alteration to construct structures such as walkways, boardwalks, foot trails, wildlife observation or management structures, benches, observation decks, picnic tables, fence posts, and ecological, biological, hydrological or chemical monitoring, observation or management equipment including, without limitation, monitoring wells, or interpretive stations, or other structures as approved by the USACE and DEQ, provided that:
 1. any such structures permit, and do not impede, the natural movement of water, and
 2. structures and/or facilities do not alter the physical, biological, or chemical nature of the protected resource and/or its protected buffer
 3. such facilities are constructed and maintained in accordance with all applicable federal and state laws;
 - iv. Addition of signs constructed in public right of ways by or on behalf of the Virginia Department of Transportation or other governmental agencies;
 - v. Removal of vegetation (where not precluded by federal or state law) when approved by the USACE and DEQ and conducted for
 1. Removal of noxious or invasive plants; or
 2. Public safety purposes

- vi. Planting of native species of plants by hand for aesthetic landscaping or screening purposes; and
 - vii. Alteration as reasonably necessary to comply with state or federal law or appropriate court order.
- b. Construction, maintenance or placement of any structures including but not limited to buildings, building pads, and mobile homes, other than those which currently exist.
 - c. Alteration of the physical, chemical, or biological properties of Waters of the U.S. or State Waters, including but not limited to the alteration of wetland acreage and their associated buffers, land clearing, ditching, draining, diking, damming, filling, excavating, grading, plowing, flooding/ponding, mining, drilling, placing of trash and yard debris or removing/adding topsoil, sand, or other materials, and the loss of functions in any surface waters or their associated buffer (except as may be necessary on a case-by-case basis with prior written approval by the USACE and DEQ);
 - d. Permitting livestock to graze, inhabit or otherwise enter the Mitigation Area.
 - e. Harvesting, cutting, logging, and pruning of trees and plants, or using fertilizers and spraying with biocides other than what is authorized by the USACE and DEQ;
 - f. Utilizing a non-reporting Nationwide Permit or State Program General Permit under Section 404 of the Clean Water Act or state general permits under VWPP regulations to impact any Water of the U. S., or any State Waters on the Mitigation Area. Notification shall be required for the use of any Nationwide Permit, State Program General Permit, Regional Permit, or state general permit under VWPP regulations; and
 - g. Further subdividing the Mitigation Area as shown on Exhibit B.
4. **Other Restrictions.** Owner represents and warrants that no restriction of record on the use of the Property, nor any presently existing future estate or interest in the Property, nor any lien, obligation, covenant, limitation, lease, mortgage, or encumbrance of any kind precludes the imposition or maintenance of this Declaration or the Restrictions established in this Declaration.
 5. **Notice of Legal Action.** The USACE and DEQ shall be provided with a 60-day advance written notice of any legal action concerning this Declaration or of any action to extinguish, void or modify this Declaration in whole or in part.
 6. **Survival of Restrictions.** This Declaration is intended to survive foreclosure, bankruptcy, condemnation or judgments affecting the Property.

7. **Amendment.** This Declaration of Restrictive Covenants shall not hereafter be altered in any respect without the express written approval and consent of the Owner or its successor in interest and the USACE and DEQ. In order to vacate, modify, or amend this Declaration after recording, the Owner or its successor must (1) notify the USACE and DEQ of the intended vacation, modification, or amendment; and (2) obtain written approval from the USACE and DEQ, indicating that such vacation, modification, or amendment does not cause non-compliance with the compensatory mitigation requirements being satisfied by the Property. Any amendments must be recorded in the land records for the Property.
8. **Compliance Inspections and Enforcement.** The USACE, DEQ, and their authorized agents shall be allowed to enter and go upon the Property at reasonable times and under reasonable circumstances, to inspect the Property and take actions necessary to verify compliance with these restrictive covenants. Unless prior arrangements have been made with the property owner, any inspection and compliance verification activities undertaken during normal business hours shall be deemed reasonable time and circumstance. Nothing contained herein shall make an inspection time unreasonable during an emergency. The USACE and DEQ may enforce the Restrictions through any means permitted by law, including any proceeding at law or in equity or administrative proceedings, provided that no violation of the Restrictions contained in this Declaration shall cause a forfeiture or reversion of title. Failure by any agency (or owner) to enforce any covenant of restriction contained herein shall in no event be deemed a waiver of the right to do so thereafter.
9. **Effect of Prior Encumbrances.** Should a servitude, interest, right, or lease on or to the Property, not acknowledged herein, listed in Exhibit A, or identified on Exhibit B, and prior in time and recording to this Declaration of Restrictions, or unrecorded, be exercised in such a manner that it conflicts with or voids the prohibited uses of the Property set out in this Declaration of Restriction, then the Owner and its successors, assigns, lessees, and any other occupiers or users of the Property, shall be responsible for providing alternative compensatory mitigation in such amounts and of such service and function as the USACE and/or DEQ (or their successors in interest) shall determine in their sole discretion, in accordance with the Clean Water Act and/or Sections 62.1-44.15:20-23 of the Code of Virginia.
10. **Eminent Domain.** The Owner shall notify the USACE and DEQ, within 30 days, if any party initiates eminent domain proceedings involving the Mitigation Area.
11. **Severability Provision.** The provisions hereof shall be deemed individual and severable and the invalidity or partial invalidity or unenforceability of any one provision or any portion thereof shall not affect the validity or enforceability of any other provision thereof.
12. **Notice to Government.** Any permit application or request made to any government entity, which would affect the Mitigation Area on the Property, shall provide notice and copy of this Declaration of Restrictions to the government entity.

13. **Property Transfers.** Owner covenants to provide notice of this Declaration of Restrictions on any legal instrument used to convey any interest in the Property, provided that failure to include such notice shall not extinguish or otherwise impair the validity or enforceability of the Restrictions and Covenants established by this Declaration.

Consent of Lender and Trustee (if applicable)

Owner is the maker of a note dated _____, secured by, among other things, a deed of trust dated _____, from Owner to _____, as trustee, recorded in the Clerk's office at Deed Book _____, Page _____. For the benefit of _____ Bank (the "Deed of Trust"), _____, trustee joins herein for the sole purpose of subordinating the lien, dignity and priority of the Deed of Trust to these restrictive covenants. _____ Bank joins herein for the sole purpose of consenting to trustee's action.

WITNESS the following signature the day and year first above written.

[_____]

BY: Its General Partner

BY: _____

TITLE: _____

Commonwealth of Virginia, City of _____, to wit:

I, _____, a notary public for the state and city aforesaid, do certify that [Name] [Title] whose name was signed on _____, _____ in his capacity on that date to the foregoing document has acknowledged said document and signature before me in the city aforesaid.

Given under my hand and notarial seal this _____ day of _____, _____.

Notary Public

My commission expires _____.

Signature block for Bank and Trustee, if applicable.

Exhibit A

Legal description of Property.

Exhibit B

Plat Map and /or Legal description of preserved area. If Plat is oversized it will be recorded separately. Exhibit B should contain a description that includes the reference to the Plat Book and Page number where the plat is recorded.



Virginia Department of Game and Inland Fisheries

VaFWIS Coordination Recommendations

Coordination Recommendations by Species Status

STATUS	AGENCY FOR COORDINATION
Federal Endangered (FE) <i>Animals</i> <small>(other than insects)</small> <i>Plants and listed insects</i>	<ul style="list-style-type: none"> ➤ US Fish and Wildlife Service (USFWS) ➤ VA Department of Game and Inland Fisheries (VDGIF) ➤ USFWS ➤ VA Department of Conservation and Recreation – Division of Natural Heritage* (VDCR-DNH)
Federal Threatened (FT) <i>Animals</i> <small>(other than insects)</small> <i>Plants and listed insects</i>	<ul style="list-style-type: none"> ➤ USFWS ➤ VDGIF ➤ USFWS ➤ VDCR -DNH*
Federal Candidate <i>Animals</i> <small>(other than insects)</small> <i>Plants and listed insects</i>	<ul style="list-style-type: none"> ➤ USFWS ➤ USFWS ➤ VDCR -DNH*
Federal Species of Concern (FS)	<ul style="list-style-type: none"> ➤ USFWS (at applicant's discretion)
State Endangered (SE) <i>Animals</i> <small>(other than insects)</small> <i>Plants and listed insects</i>	<ul style="list-style-type: none"> ➤ VDGIF ➤ VDCR -DNH*
State Threatened (ST) <i>Animals</i> <small>(other than insects)</small> Plants and insects	<ul style="list-style-type: none"> ➤ VDGIF ➤ VDCR -DNH*
Wildlife Action Plan (WAP) Tiered Species of Greatest Conservation Need (SGCN)	<ul style="list-style-type: none"> ➤ VDGIF (at applicant's discretion)

* the VA Dept. of Agriculture and Consumer Services (VDACS) retains legal authority for the protection of all plants and listed insects. However, through a memorandum of agreement with VDCR-DNH, coordination regarding these resources should be initiated with VDCR-DNH.

Coordination Recommendations by Dataset

Only when you get a confirmed documentation* of a species or resource **in your search area**, defined as a two-mile radius around the project area, do you need to consider coordination with this Department or other agencies. Coordination recommendations depend on which database makes the confirmation:

Species Observations (SppObs) – The Species Observation dataset includes all verified species documentations maintained by VDGIF. Follow the above guidelines (coordination recommendations by species status) for coordination if a species is documented by SppObs within the search area. Below is a list of the taxa experts who should be contacted based on the species confirmed by the SppObs dataset:

Reptiles and Amphibians – John (JD) Kleopfer
804-829-6703 or John.Kleopfer@dgif.virginia.gov

Birds – Jeff Cooper
540-899-4169 or Jeff.Cooper@dgif.virginia.gov
Sergio Harding
804-367-0143 or Sergio.Harding@dgif.virginia.gov

Mollusks/Aquatic Invertebrates – Brian Watson
434-525-7522 or Brian.Watson@dgif.virginia.gov

Fishes – Mike Pinder
540-961-8387 or Mike.Pinder@dgif.virginia.gov

Mammals/terrestrial Invertebrates – Rick Reynolds
540-248-9360 or Rick.Reynolds@dgif.virginia.gov

Eastern Shore – Ruth Boettcher
757-787-5911 or Ruth.Boettcher@dgif.virginia.gov

Bald Eagle Nests (BAENests) – The Bald Eagle Nests dataset includes bald eagle nest locations maintained by VDGIF. Follow the above guidelines (coordination recommendations by species status) for coordination if a bald eagle nest is documented by BAENests within the search area. Jeff Cooper (contact information above) should be contacted regarding bald eagle nests.

Bald Eagle Concentration Area and Roosts (BECAR) – The Bald Eagle Concentration Area and Roosts dataset includes the locations of bald eagle concentration areas, defined as 660 feet landward or channelward of the shoreline, and documented roosting sites maintained by VDGIF. Follow the above guidelines (coordination recommendations by species status) for coordination if a bald eagle roost site or concentration zone is documented by BECAR within the search area. Jeff Cooper (contact information above) should be contacted regarding bald eagle roosts and concentration zones.

Threatened and Endangered Species Waters (TEWaters) – The Threatened and Endangered Species Waters dataset includes the location of waters in which a listed species has been documented and which agency biologists have determined are currently occupied by such species. Coordinate with VDGIF any time a TEWater is documented from your project area using the above list of appropriate contacts.

Anadromous Fish Use Areas – The Anadromous Fish Use Areas dataset includes the locations of streams known to provide migratory and spawning habitats for anadromous fish. Coordinate with VDGIF any time an Anadromous Fish Use Area is documented within your project area. Alan Weaver, VDGIF Fish Passage Coordinator, should be contacted at 804-367-6795 or Alan.Weaver@dgif.virginia.gov regarding anadromous fish use areas.

Cold Water Streams – The Cold Water Streams dataset includes the locations of waters designated as cold water habitat. Many of these streams represent designated wild trout streams. Coordinate with VDGIF any time a Cold Water Stream is documented within your project area. DGIF's Verona office should be contacted at 540-248-9386 regarding cold water streams.

Stocked Trout Waters – The Stocked Trout Waters dataset includes the locations of waters currently stocked with trout by VDGIF and those suitable for stocking. Coordinate with VDGIF any time a Stocked Trout Water is documented within your project area. DGIF's Verona office should be contacted at 540-248-9386 regarding stocked trout waters.

Colonial Waterbird (CWB) – This dataset includes all documented locations of colonial waterbird colonies maintained by VDGIF. Coordinate with VDGIF and the USFWS any time a colonial waterbird colony has been documented within your search area. Sergio Harding (contact information above) or Jeff Cooper (contact information above) should be contacted regarding colonial waterbird colonies on Virginia's mainland. Ruth Boettcher (contact information above) should be contacted regarding colonial waterbird colonies on Virginia's Eastern Shore.

DGIF Lands (boat ramps, WMA's, Fish Hatcheries) – The DGIF Lands dataset includes locations of all VDGIF facilities. Coordinate with VDGIF any time your project is located adjacent to or will impact VDGIF property identified by the DGIF Lands dataset. James Adams, VDGIF Facilities Manager, should be contacted at 804-367-0183 or James.Adams@dgif.virginia.gov regarding DGIF properties.

Predicted Habitat, Aquatic and Terrestrial – The Predicted Habitat dataset includes the locations of habitats that, through agency modeling efforts, have been identified as potential habitat for listed or WAP tiered species. No coordination with VDGIF is recommended if a species is only documented by this dataset.

Impediments to Fish Passage – The Impediments dataset includes the locations of known impediments to aquatic species passage. No coordination with VDGIF is recommended based on documentations only from this dataset.

Breeding Bird Survey (BBS) – No coordination recommended if species only documented by this dataset.

Breeding Bird Atlas (BBA) - No coordination recommended if species only documented by this dataset.

Christmas Bird Count (CBC) - No coordination recommended if species only documented by this dataset.

**Time sensitivity: Any data 30 years old or older is considered historical and does not need to be evaluated when making coordination decisions.*