Maryland
Department of
the Environment

Stream Restoration Authorization Checklist

Version Date: **April 4, 2025** (rev. April 28, 2025)

Stream and Floodplain Restoration Project Permit Checklist

Application Submittal Date: 10/13/25

1. Project Purpose (please check all that apply)

- ☐ MS4 Permit Work
- ☐ TMDL/WIP
- ☒ Mitigation Project
- ☐ Other Grant-Funded Project (please specify): _____
- ☐ Trust Fund Project
- ☐ Whole Watershed Fund Project

2. Restoration Activities (please check all that apply)

- ☑ Stream & Floodplain Restoration
- ☑ Wetland Restoration/Creation
- ☐ Other: _____

3. Required Information

- ☑ Design Report
- ☑ Hydrological and Hydraulic (H&H) Study

Partial - Section 7 - Design Report, proposed conditions and comparison will be provided at next submittal.

4. Public Engagement

Pending

The applicant recognizes the importance of outreach to adjacent property owners and interested parties and commits to conducting adequate outreach for the project.

- ☐ Certification of Notification: Provide the completed Certification of Notification for Stream and Floodplain Restoration Projects
- ☐ Meeting Minutes: Include meeting minutes from any public outreach meetings related to the project
- ☐ Meeting Recordings: Provide any meeting recordings from public outreach sessions
- ☐ Other Outreach Details: Submit any other relevant details of the required public outreach that has taken place prior to application submission

MDE issued public notices on March 1, 2023 and on February 15, 2025 for the proposed development of the Mill Swamp Mitigation Bank.

5. Alternative Site Analysis

For restoration projects associated with achieving local Municipal Separate Storm Sewer System (MS4) requirements or Total Maximum Daily Load (TMDL) goals, the alternative site analysis is waived based on the submission of watershed planning materials documenting the project location as a priority for restoration. The watershed planning documentation should incorporate a holistic management strategy for the watershed, including a range of BMPs, both upland and in-stream.

This submission includes relevant materials from the following document verifying that the project is an MS4/TMDL-related restoration project:

- ☐ Watershed Implementation Plan
- ☐ Comprehensive Watershed Assessment
- ☑ Design Report
- ☐ Other (include description)

6. Assessment of Existing Site Condition and Function:

The current conditions of streams, wetlands, floodplains, or other resources where restoration or enhancement projects are proposed must be assessed using both biological function-based parameters AND physical parameters, including geomorphology/hydraulic function-based parameters. Applicants must include documentation (e.g., reports, photographs, and data sheets from field assessments) demonstrating that the following criteria have been evaluated, and indicate whether data was collected at the site proposed for restoration (preferred) or if reference data from another site was used:

Streams

A. Perennial Streams:

1. **Biological Function-Based Parameter**: A Benthic Index of Biotic Integrity (BIBI) score determined through Maryland Biological Stream Survey (MBSS) sampling protocols, or another MDE-approved sampling methodology; **AND** Section 8, Appendix E.9 - Baseline Report

2. **Geomorphology/Hydraulic Function-Based Parameter**: Documentation of existing stream conditions for at least one of the following: Section 5, Appendix E.10 - Baseline Report

a) **Lateral Stability**: Geomorphic evidence of active, widespread lateral erosion (e.g., Bank Erosion Hazard Index/Near Bank Stress score or an annual bank erosion rate)**; OR**

b**) Floodplain Connectivity (Vertical Stability)**: Evidence of floodplain disconnection throughout the majority of the reach (e.g., bank height ratio, entrenchment ratio, stage/Q relationship, Hydrologic Engineering Center River Analysis System or other hydraulic model), evidence of overbank flooding; **OR**

c) **Other**: Other appropriate, MDE-approved metric that demonstrates water quality impairment and stream stability degradation of the project reach.

B. Intermittent Streams:

1**. Biological Habitat Quality-Based Parameter**: A Modified EPA Rapid Bioassessment Protocol Habitat Assessment score using an assessment appropriate for the site, **AND**
Section 8, Appendix E.9 - Baseline Report

2. **Geomorphology/Hydraulic Function-Based Parameter**: Documentation of existing stream conditions for at least one of the following: Section 5, Appendix E.9 - Baseline Report

a) **Lateral Stability**: Geomorphic evidence of active, widespread lateral erosion (e.g., Bank Erosion Hazard Index/Near Bank Stress score or an annual bank erosion rate); **OR**

b) **Floodplain Connectivity (Vertical Stability):** Evidence of floodplain disconnection throughout the majority of the reach (e.g., bank height ratio, entrenchment ratio, stage/Q relationship, Hydrologic Engineering Center River Analysis System or other hydraulic model); **OR**

c) **Other**: Other appropriate, MDE-approved metric that demonstrates water quality impairment and stream stability degradation of the project reach.

Other Aquatic Resource(s) Sections 7-10, Appendix E.9 - Baseline Report

MDE may consider additional information including, but not limited to:

- Description of biological degradation of the resource(s) (e.g., MBSS Fish Index of Biotic Integrity (FIBI) scores, locations of barriers to aquatic life passage, etc.)
- Description of Hydraulic Function degradation
- Other ecological resources, including documentation of current condition or cause of degradation

Nontidal Wetlands Section 11, Appendix E.10 - Baseline Report

Assess the condition of any nontidal wetlands within the project site, including hydrology indicators, vegetation, signs of wildlife use, and soils, including identifying areas with existing floodplain connection and plans to maintain existing connection.

Riparian Areas

- ☐ Provide a Forest Stand Delineation (FSD) conducted in accordance with State or local requirements. Pending - will be provided at next submittal
- ■ Describe any mitigation required by the local jurisdiction, best management practices implemented to reduce tree loss, and steps taken to avoid and minimize impacts to existing trees within the limit of disturbance in application materials or the Design Report. Section 3.01 - Design Report
- ■ Assess the condition of the upland floodplain, including vegetation and signs of wildlife use. Identify areas with existing floodplain connections and measures to maintain existing connections. Section 2 - Design Report
- ■ Ensure design drawings clearly depict the Limit of Disturbance (LOD), Limit of Clearing (LOC), any individual trees identified as part of the FSD to be removed, quantification of vegetative clearing, and any protection measures for trees or other vegetation. See Design Plans
- ■ Describe all best practices used to reduce and mitigate impacts to existing forest and vegetated wetlands, including measures taken to minimize site disturbance and the removal of trees for construction, in the final restoration design. Section 2 - Design Report
- ■ Follow the practices identified in the "Maintaining Forests in Stream Corridor Restoration: A Best Practices Guide for Projects in Pennsylvania, Maryland, and Virginia" prepared by the Center for Watershed Protection, Inc.
- ■ Review Appendix A for additional best practices and examples of measures to avoid and minimize impacts to riparian areas.

7. Impacts/Conversions/Enhancements

Please note that MDE may not approve certain designs. MDE will evaluate projects individually and require compensatory mitigation if, after consideration of existing and proposed resource conditions, it is determined that the design could cause water quality degradation or does not provide adequate aquatic or ecological benefits.

The applicant must demonstrate that there is a net increase in aquatic resource functions and/or services at the project site. Any conversions that do occur should not result in adverse impacts to nontidal wetlands of special State concern, State or Federally listed Rare, Threatened or Endangered Species, other wetlands having significant plant or wildlife value, ambient thermal regimes in temperature-sensitive streams, or existing water quality parameters.

Functional Uplift & Resource Tradeoffs: Section 9 - Design Report

- ■ Provide a narrative and/or tabular description of the expected ecological uplift from the project.
- ■ To the extent practicable, quantify or provide a tabular description of any anticipated changes to vegetation, surface and groundwater hydroperiods, aquatic life, other plant

and wildlife habitats, and water quality associated with the restoration project. Include changes anticipated during construction as well as due to alterations after construction is completed.

- ▣ Describe all resource tradeoffs associated with the project.

Resource Improvement:

- ▣ Clearly describe how the project results in a net overall resource improvement.

Wetland Creation & Resource Conversion: See Credit Map

- ▣ Ensure areas of wetland creation are clearly depicted on the design drawings
- ▣ Quantify any resource conversion (e.g., wetland type changes, etc.) resulting from the project.

Avoidance & Minimization of Impacts Section 9 - Design Report, JPA, & Plans

Provide details regarding efforts to minimize:

- ▣ Impacts to wildlife habitats;
- ▣ Tree loss and removal;
- ▣ Earth disturbance;
- ▣ Disturbance to native vegetation; and
- ▣ Any other resources within the project area.

Provide details regarding efforts to avoid:

- ▣ Large noninvasive native plant communities;
- ▣ Specimen trees; and
- ▣ Any other resources within the project area.

8. Co-Benefits Section 8 - Design Report

Provide information detailing the incorporation of the following co-benefits, as appropriate, into the restoration project:

- ▣ The creation or restoration of wildlife habitat, riparian buffers, and wetland restoration;
- ▣ The restoration of aquatic resources, such as freshwater mussels, fish passage, or oyster reefs;
- ▣ Carbon sequestration;
- ▣ Climate change mitigation, adaptation, or resilience;

- ■ Improving and protecting public health; and
- ■ Recreational opportunities and public access to waterways and natural habitats.

9. Monitoring

The applicant shall be required to conduct post-construction monitoring for a period of at least 5 years after completion of construction of the project to ensure project goals are met. The applicant shall minimally provide MDE with periodic reports in accordance with the Authorization documenting stream stability, stream and floodplain function, and vegetation viability within the project area, as well as any adaptive management actions taken to ensure continued stream stability, stream and floodplain function, and vegetation viability.

To facilitate monitoring report submissions, the Department has established a monitoring report mailbox: **streammonitoring.mde@maryland.gov**.

Signature of applicant: _____

Date: 10/13/25

Appendix A:

1) Examples of measures you are taking to minimize site disturbance and the removal of trees to facilitate construction may include:
    a) Using the streambed as your haul or construction road or removing mature trees (trees marked by the FSD) to facilitate building from the bank.
    b) Demonstrate efforts to design the restoration project around specimen trees (30 inches DBH and greater, or trees having 75% or more of the diameter of the current state champion tree).
    c) Bringing in material as you need to reduce removing mature (trees marked by the FSD) trees to create staging areas.
    d) Limiting road widths to only that needed for construction equipment, and by using the shortest paths possible. For access roads, the width should be limited to 12 feet, unless it is demonstrated that equipment requiring larger widths is required.
    e) Limit tree removal by identifying and marking specific trees to be removed. If tree removal is necessary, removal of trees in poor health should be the preference over healthy trees.
    f) Construct access roads according to areas where trees are approved for removal. This may require a curving path through the riparian area rather than a straight line.
    g) Use the smallest equipment possible for construction.
2) Where it is demonstrated that large or specimen trees must be removed, reuse them in the restoration design or otherwise consider using on site as much as possible. Examples include:
    a) Use large woody debris (i.e., whole trees with root wads attached) strategically in the restoration design to provide stable natural dam features that promote floodplain reconnection.
    b) Reuse trees as mulch and mats to reduce soil compaction, damage to roots, and prevent erosion of disturbed areas.
3) Do not raise water levels to heights where extensive tree loss is anticipated. If tree loss is anticipated, develop long term tree replacement plans to ensure appropriate forest cover is established as soon as possible.
4) Install structures by hand where feasible.
5) If structures are installed, use materials and designs which allow for movement of aquatic life through, over, or around the structure.
6) Hire an independent environmental monitor to oversee construction when working in highly sensitive areas.
7) Work closely with contractors to communicate special conditions and work limits.
8) Identify and avoid impacts to State-listed rare, threatened species or species in need of conservation.
9) Design and construct projects to maintain any existing spring flow to the stream channel or adjacent wetlands.
10) In urban and suburban locations or other high visibility publicly accessible areas, the aesthetics of a project may dominate adjacent property owners' concerns. Given that it may take 10 years for significant growth of trees planted as part of the project, consider mixing landscape-quality stock and or transplant trees (at least 1.5” caliper) in with smaller stock.