



**Maryland**  
Department of  
the Environment

# **Stream Restoration Authorization Checklist**

***Check One***

☐ *Government Agency*  
☐ *Other*

☐ *Non-profit Partner*

## Enhancement/Restoration Project Permit Checklist

1. Application Submittal Date: \_\_\_\_\_

2. Project Purpose (please check all that apply)

☐ MS4 Permit Work    ☐ WIP Implementation    ☐ Trust Fund Project

3. Restoration Activities (please check all that apply)

☐ Stream Restoration    ☐ Wetland Restoration/Creation    ☐ Stormwater BMP

☐ Other \_\_\_\_\_

4. Waiver of Alternative Site Analysis:

For voluntary restoration projects associated with achieving local Municipal Separate Storm Sewer System (MS4) targets or Chesapeake Bay Total Maximum Daily Load (TMDL) goals, the alternative site analysis is waived based on the submission of watershed implementation plan (WIP) materials documenting the project location as a priority for restoration.

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

☐ Watershed Implementation Plan    ☐ Comprehensive Watershed Assessment

☐ Design Report    ☐ Other \_\_\_\_\_

5. Demonstration of Functional Impairment of the site/aquatic resource(s):

The current conditions of streams, wetlands, or other aquatic resources where restoration or enhancement projects are proposed must be assessed and meet degradation criteria for both the existing biological function-based parameter AND the existing geomorphology/hydraulic function-based parameter. Applicants must include documentation (e.g., photographs and data sheets from field assessments) demonstrating that the following degradation criteria have been met:

### **Streams**

#### **A. Perennial Streams:**

1. **Biological Function-Based Parameter:** A Benthic Index of Biotic Integrity (BIBI) score of fair or worse (i.e., BIBI score of 50% or less); **AND**

2. **Geomorphology/Hydraulic Function-Based Parameter:** Documentation of existing stream conditions for at least one of the following:

a) **Lateral Stability:** Geomorphic evidence of active, widespread lateral erosion (e.g., Bank Erosion Hazard Index/Near Bank Stress score of Moderate/Moderate or higher or an annual bank erosion); **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-acceptable metric that demonstrates water quality impairment and stream stability degradation of the project reach.

## **B. Intermittent Streams**

1. **Biological Function-Based Parameter:** A Modified EPA Rapid Bioassessment Protocol Habitat Assessment score of marginal to poor **AND**

2. **Geomorphology/Hydraulic Function-Based Parameter:** Documentation of existing stream conditions for at least one of the following:

a) **Lateral Stability:** Geomorphic evidence of active, widespread lateral erosion (e.g., Bank Erosion Hazard Index/Near Bank Stress score of Moderate/Moderate or higher or an annual bank erosion rate of greater than 0.1 foot/year); **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, approved metric that demonstrates water quality impairment and stream stability degradation of the project reach.

## **Other Aquatic Resource(s)**

1. Description of Biological Degradation of the resource(s) **AND**
2. Description of Geomorphology/Hydraulic Function degradation.

## **Riparian Areas**

Please certify whether the project is exempt from the Forest Conservation Act (FCA) requirements. Make sure to specify if you contacted MDNR forest service to discuss a Forest Conservation Management Plan

(<https://dnr.maryland.gov/forests/pages/programapps/fcmp.aspx>). Additionally, below please 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.

Before choosing a particular restoration design, assess the condition of the wetlands or upland floodplain, including hydrology indicators, vegetation, signs of wildlife use, and soils, including identifying areas with existing floodplain connection and plans to maintain existing connection. Prepare a Forest Stand Delineation (FSD) and identify and mark all trees, softwood 9" DBH and hardwoods 11" DBH and greater, within the LOD regardless of FCA status. Include a separate sheet in the design drawings showing all identified and marked trees and clearly identify all trees to be removed within the LOD. For the final restoration design, describe all best practices used to reduce and mitigate impacts to existing forest and vegetated wetlands, including:

- 1) Describe measures you are taking to minimize site disturbance and the removal of trees to facilitate construction. Some examples 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 small streams, 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 timely forest succession.
- 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 nursery stock and or transplant trees (at least 1.5" DBH ) in with smaller stock .

## SUMMARY TABLE/DEGRADATION

### Streams

*Stream Perenniality:* ☐ Perennial ☐ Intermittent

Function	Measure	Score	Impaired? (Y/N)
Biological			
Geomorphological			

### Other Aquatic Resource(s)

Function	Measure	Description of Degradation	
Biological			
Geomorphological/Hydraulic Wetlands Upland Floodplain			

## 6. Impacts/Conversions/Enhancements

MDE recognizes that functional uplift of aquatic resources at a restoration project site may involve some conversions of wetlands and/or streams to uplands, some conversions of wetland community types, some conversions of streams to open waters or wetlands, some conversion of forest cover, and/or some conversions of wetlands to other aquatic habitat type. Applicants must quantify, to the extent practicable, and document the nature and extent of expected conversions associated with the restoration project, both during construction and due to altered hydrology after construction is completed. In the permitting of these restoration projects, MDE will operate under the presumption that compensatory mitigation will **not** be required, provided that: (1) the applicant demonstrates (and MDE agrees) that there is a net increase in aquatic resource functions and/or services at the project site (i.e., environmental benefit); and, (2) any conversions that do occur will not exceed the Conversion Thresholds, as defined under the Corps of Engineers Bay TMDL RGP of September 1, 2020 and will not result in 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, or

ambient thermal regimes in temperature sensitive streams or reduce existing water quality.

For situations where expected conversions associated with a MS4/Chesapeake Bay TMDL-related restoration project exceed the Corps Bay TMDL RGP conversion thresholds, MDE affirms that if the applicant is able to document (and MDE agrees) that there is a functional uplift to the aquatic resource at the project site between existing and proposed conditions, that such projects will not require mitigation PROVIDED that the applicant demonstrates (and MDE agrees) that there is no practicable option that achieves the same or substantially similar degree of functional uplift with a lesser degree of conversions. Absent such a demonstration, MDE may require an alternate design and will, on a case-by-case basis, consider the need for some level of Compensatory Mitigation.

Summarize impacts/conversions/enhancements below:

a. Summary of the amount and type of resource conversions:

<b>Existing</b>		<b>Post-Restoration</b>	
Stream Length		Stream Length	Change in condition/function,
Wetland Acreage Wetland Type		Wetland Acreage Wetland Type	

## Wetland/Riparian Area Assessment Results

b. Narrative and/or tabular description (summary form) of the expected functional uplift (environmental benefit) that is expected from the project (see case studies for examples of narrative summaries), as well as resource tradeoffs. Describe how there is a net overall resource improvement.

c. If conversions exceed Corps Thresholds in the September 1, 2020, TMDL RGP, describe whether there is a practicable option that achieves the same or substantially similar degree of functional uplift (environmental benefit) with a lesser degree of conversions and the basis for the applicant's decision as to whether there is a practicable alternative.

*If there is a practicable option with a lesser degree of conversions for the same or substantially similar degree of functional uplift, and the applicant is choosing not to adopt this option, the applicant may be required to submit a proposal for mitigation.*

**7. Monitoring**

The applicant recognizes the necessity of project monitoring for stability and commits to conducting project stability monitoring for a period of 5 years beyond the construction of the project, providing MDE with a report documenting the stability and/or adaptive management actions taken to ensure continued stability, on an annual basis.

**8. Outreach**

The applicant recognizes the importance of outreach to adjacent property owners and interested parties and commits to performing adequate outreach for the project. Please provide the details of any outreach that has taken place prior to application submission.

Signature of applicant: \_\_\_\_\_

Date: \_\_\_\_\_