**Site Evaluation Report for Stream and Wetland**

**Compensatory Mitigation in NAB (Maryland)**

**August 30, 2023**

SUMMARY:

The purpose of this Site Evaluation Report is to provide a standard list of screening considerations for selecting stream and wetland mitigation sites. Completion of the report is required at the Draft Site Specific Mitigation Plan (SSMP) Phase of a compensatory mitigation project to determine if a project is feasible and ecologically preferable. The report should be used regardless of the method of compensation (Mitigation Bank, In Lieu Fee Program, or Permittee Responsible Mitigation. This site evaluation report will aid selection of mitigation sites and proposals with the highest probability of success and long term protection, while encouraging applicants and project sponsors to avoid sites with challenging constraints or unresolvable ecological stressors early in the process. Please note that the “Complete Prospectus Checklist” completed at the Prospectus Phase/Concept Plan Phase of the project may help answer many of the questions below.

The document is separated into four sections:

I. General Considerations for all Stream and Wetland Mitigation Projects

II. Screening Considerations for Stream Mitigation

III. Screening Considerations for Wetland Mitigation

IV. Screening Considerations for Fish Passage Mitigation.

The project sponsor is encouraged to fill out only the sections applicable to their site and types of mitigation they are proposing.

In general terms, the site selected for a compensatory mitigation project should replace the lost functions and resource types, provide opportunities for diverse biological colonization from the surrounding area and must not result in detriments that outweigh the proposed benefits for the project. Section 33 CFR 332.3(d) of the 2008 Mitigation Rule identifies factors that must be considered when determining the ecological suitability of the compensatory mitigation project site and is intended to assist in site selection that will support ecologically successful and sustainable compensatory mitigation projects. Please note that sites exhibiting contamination problems, unresolvable property constraints, or lacking plausible ecological rationale regarding location or approach may be deemed ineligible as compensatory mitigation sites. However, constraints such as poor water quality may be limiting for one type of mitigation (work in stream channels), it may not constrain mitigation work in stream buffers.

MITIGATION TYPE AND SERVICE AREAS:

The two dominant CWA Section 404 mitigation types in Maryland are Mitigation banks and Permittee-Responsible Mitigation (PRM). Each mitigation type has a respective geographic area where a mitigation site search should occur or where credits may be sold for banks (Service Area). Mitigation banks or consolidated mitigation sites are preferred to permittee-responsible mitigation (PRM), unless the PRM is determined by the agency(ies) requiring the mitigation, the U.S. Army Corps of Engineers (Corps) and/or the Maryland Department of the Environment (MDE), to be environmentally preferable. On-site mitigation should be considered only when it is environmentally preferable (2016 Maryland House Bill 797: Nontidal Wetlands - Nontidal Wetlands Mitigation Banking). Mitigation bank service areas must be based on ecological justification provided by the bank sponsor and are determined as part of the MBI approval. The standard mitigation bank service area includes a primary service area of the HUC8 where the mitigation bank is located and a secondary service area of adjacent HUC8s within the same drainage basin and physiographic region (e.g., coastal plan, piedmont, etc.).

PRM required by MDE must follow COMAR 26.23.04.03, with off-site mitigation being located within the same 8-digit State watershed of impact. If feasible mitigation cannot be located within the 8-digit State watershed, mitigation may be considered in the larger 6-digit State watershed. Off-site mitigation should also consider areas identified in an approved comprehensive watershed management plan. For mitigation required by the Corps, off-site mitigation is preferred within the same 8-digit USGS Hydrologic Unit Code (HUC8) as the impacts are occurring. Only when documentation is provided that indicates that no suitable mitigation sites are available within the same HUC8, should a mitigation site be considered in an adjacent HUC8 within the same physiographic region.

APPLICABILITY TO THE MARYLAND STREAM MITIGATION FRAMEWORK (MSMF V.1. FINAL)

Appendix E2 of the Maryland Stream Mitigation Framework (MSMF V.1. Final) provides calculation grids based on this Site Evaluation Report to determine Site Sensitivity Adjustments for Tabs 3 and 4 of the Stream Mitigation Calculator (Appendix A). Appendix E2 applies to mitigation in Stream Channels and Stream Buffers but does not apply to wetlands or Fish Passage.

SITE EVALUATION REPORT FOR STREAM AND WETLAND MITIGATION (MARYLAND)

INSTRUCTIONS:

*For Stream Mitigation proposals, please complete sections I and II.*

*For Wetland Mitigation Proposals, please complete sections I and III.*

*For Fish Passage Projects, please complete Sections I.A, I.C, and Section IV.*

*Include this site evaluation report as an attachment to your Site Specific Mitigation Plan (SSMP) (banks) or Mitigation Plan (permittee-responsible mitigation) if completed at that time. The report is required when providing a SSMP (mitigation plan phase) and should be updated with the most current information. At the top of this report, please provide a project name, sponsor, consultant (if applicable), and project coordinates and boundary map.* Mapping, photos, and habitat assessment results will be required in this report. The applicant may elect to simply reference those items if found elsewhere in the MBI or Mitigation Plan. Please answer every question applicable to your mitigation type even if provided elsewhere in the MBI/mitigation plan, although the applicant may site additional information in various sections.

Specific to stream mitigation, this report will be used to determine the Site Sensitivity Score which factors into crediting in MSMF V.1. Final.

BACKGROUND INFORMATION:

Project Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Corps Project Number (if known): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sponsor:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Consultant:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project Coordinates (decimal degrees):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project boundary map (insert here or add as attachment/reference)

# **General Screening Considerations for All Stream and Wetland Mitigation Sites**

## General Considerations

1. Provide a figure showing existing aquatic and terrestrial resources on the site, the proposed mitigation activities, and the proposed limit of disturbance. The figure should label applicable stream reaches, stream buffer areas (SBQAs), wetlands, and wetland buffers as well as any local fish passage barriers and the activity proposed for each (restoration, preservation, avoidance, removal, etc).
2. Is the site located within critical habitat for a federally (Section 7 ESA) or state listed species? If so, how might the proposal benefit or damage critical habitat or affect listed species? Note: Given changes to species listings over time, it is recommended IPAC is checked every 90 days. Attach or reference any relevant correspondence.
3. Section 106 NHPA: Is the site located near any known historical, archaeological, or tribal resources? If so, could site development pose a threat to one of these cultural resources? Attach or reference any relevant correspondence.
4. Section 408: Are there any known Corps projects or facilities near the site (levees, dams, navigation channels, etc.). How might the proposal affect these facilities?
5. Have the local community members and/or neighboring property owners been engaged regarding the proposal?
   1. If so, what local community outreach efforts have occurred to date?
   2. What feedback did the local community provide?
6. What is the proximity to the nearest airport(s)? Is the site located such that it will increase risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur? (*Note: projects occurring near airports require coordination with the airport. Any required measures by the airports (waterfowl management, seeding recommendations, etc.) must be disclosed.)*
7. Has the proposed mitigation site been subject to funding by other federal, tribal, state, or local programs for the purpose of aquatic resource restoration. If so, are project components geographically separate? Please include mapping if these features exist on or are planned for the site.
8. Is the site located on public lands? If so, please note that functions provided by the mitigation project must exceed those provided by public programs already in place (332.3(a)).
9. Please describe what other environmental programs (Bay TMDL, Stormwater Management, Forest Conservation, etc.) already have been implemented at the site or are proposed for the site?
10. Does the proposal include mitigation by preservation? If so, please elaborate on why this was proposed. Note that according to 332.3(a)(2), restoration (restoration, buffer enhancement, fish passage, etc.) is generally the preferred mitigation method, however preservation is allowable in some circumstances.
    1. If preservation is proposed, does the site provide exceptional conservation value, is it at risk of adverse impacts, and/or is it proposed as part of a plan that includes restoration/enhancement?
11. Are there plans to import materials and equipment from beyond the county in which the project occurs? If so, which materials? (Woody debris, wood chips, coconut coir fiber matting, gravel, rock, topsoil, vegetative plantings). How will the you ensure invasive species are not introduced through use of materials and equipment from outside of the county?
12. Property Considerations

*\*Note that the property considerations apply to all mitigation sites except for sites that are Fish Passage Only in the MSMF V.1. Considerations regarding fish passage are included in Section V.*

1. Does the site have any known encumbrances (i.e., easements, liens, right-of-ways, 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? Title conflicts must be resolved prior to approval of a mitigation site. Identification of potential title problems at the Prospectus Development phase will help to prevent the sponsor from pursuing a project that is infeasible.
2. Do any conservation related restrictions already exist on the property (Agricultural easement, Environmental Easement, Development Rights restrictions, Conservation Reserve Program, etc.)?
3. Is the property title otherwise clear?
   1. Are there other easements or interests on the property?
   2. If so, how is it compatible or not compatible with stream or wetland mitigation?
4. Will the site be protected long-term through recordation of an appropriate site protection instrument or other mechanism that will support the long-term protection of the site?
5. Will current zoning and current/proposed development use adjacent to the mitigation site affect the mitigation site?
6. What utility corridors occur on the site?
   1. What limitations does this place on the site design?
   2. What % of the proposed site is encumbered by utility corridors or easements?
7. Is the site located where adjacent land uses pose a risk through invasive species, encroachment, trespassing, trails, dumping, vandalism, etc.?
8. Ecological, Landuse, and Contamination Considerations

*Please provide mapping for items 1, 2, 3, 4, and 7 below*

1. Is the site located near any brownfield or superfund sites? See EnviroAtlas: <https://www.epa.gov/enviroatlas/enviroatlas-interactive-map>
2. Have any point source or water withdrawal permits been issued in the vicinity of the project? Was the site listed for any type of waterway impairment? If so, what was the impairment specified and what waterway was it specific to?

See EPA EnviroAtlas and How’s My Waterway: <https://www.epa.gov/enviroatlas/enviroatlas-interactive-map>

<https://mywaterway.epa.gov/>

1. Is the site in a highly disturbed area (e.g., old sand/gravel quarries, commercial/industrial) that require additional considerations to achieve success (e.g., degraded soils, hydrologic interruptions, invasive species, contaminants, limited functional lift, etc.)?
2. Please include soil mapping of the site. Are there any acid forming soils (glauconite, etc) present within the LOD of the proposed mitigation site? If so, please note that earthwork may be limited in those areas, due to concerns about lowering the pH of receiving waters.
3. How will the site support the watershed needs (e.g., flood management, water quality improvement, habitat restoration)?
4. How will the site replace functions lost from the impacts (for mitigation banks, the bank sponsor should anticipate functions that may be lost from future impacts within the proposed service area)?
5. How well is the site connected to existing natural resources (e.g., aquatic resources, forest, etc.)? How will the site contribute to Maryland’s conservation goals (Maryland Watershed Resources Registry (WRR) <https://watershedresourcesregistry.org/states/maryland.html>, see WRR/Priority Conservation Areas)? Provide a map including items 7a, b, c, d, and h. Provide a separate map for item 7i.
   1. Will the site expand upon existing Green Infrastructure HUBs or contribute to new or existing corridors? At the link below see “Priority Conservation Areas-Green Infrastructure” https://watershedresourcesregistry.org/map/?config=stateConfigs/maryland.json
   2. Is the site located in FIDS habitat or abutting FIDS habitat?
      1. If yes, what benefits and detriments does the project provide to FIDS habitat?
   3. Is the site located within the Chesapeake or Coastal Bays Critical Area?
   4. Is the site located within a State-designated Tier II watershed?
   5. What are potential sources of colonization for the site?
   6. What species do you anticipate colonizing the site after work is performed?
   7. How is work planned to benefit those species?
   8. What is the total acreage of the proposed mitigation site? (This is typically the total area that would be permanently protected as a result of the site including all mitigation types and potentially other environmental programs).
      1. If the site is less than 50 Acres in size (contiguous), does it abut other protected lands?
      2. Is the site fragmented? (e.g. a series of smaller properties separated by development or agricultural lands).
6. Will the mitigation site location support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region? What is the reference community for the proposed mitigation site?
7. What Key Wildlife Habitat Types (MD DNR, 2015) and/or existing natural communities occur on site? Please consider nearby species, life histories of those species, and consult the Key Wildlife Habitat Types in the Maryland State Wildlife Action Plan. Do you anticipate adverse effects to any existing species as a result of the work?
8. Will the project result in significant tree clearing? Will it result in clearing of more the 2 acres of forest or other native plant communities that are 40 years or older? (Historic aerial photographs and tree diameter may help in making this determination). *Note that mitigation crediting may be substantially diminished for sites resulting in losses to native forest, shrub, and emergent communities. Clearing of some resources may be infeasible for a mitigation proposal due to adverse impacts.*
9. Does the site propose a conversion of the plant community? For example, a conversion from mature forest to scrub-scrub? If so, please explain whether this is to be considered a beneficial conversion. (*Example, conversion may be recommended for bog turtle habitat construction*).
10. Has native vegetation (>1 acre) been cleared on the site within the past five years? If so, was this a managed silviculture operation?
11. Are there any known constraints related to construction access?

# **Screening Considerations for Stream Mitigation Sites**

1. General Considerations
2. For Stream Channels: Using the Maryland Watershed Resources Registry: Maryland Stream Mitigation Framework (MSMF) Site Sensitivity Analysis for Stream Mitigation, please answer the following questions:
   1. What was the Mitigation Site Sensitivity Score for the Site (attach map)?
   2. Which incentives were indicated by the mapper?
   3. Based on the information provided in earlier sections of this report, please indicate why this score is appropriate for the mitigation site or why an adjustment to the score may be warranted for use in the Maryland Stream Mitigation Framework Version 1 Final.
   4. Please visit U.S. Geological Survey stream stats for the subject stream reaches. What is the % impervious cover? Is it over 50%?
3. For Stream Buffers: Based on item I.C.7, does the project provide benefits to Green Infrastructure and/or FIDS habitats? If so these may be substituted for other factors in the Site Sensitivity Model (WRR) to determine the site sensitivity values for stream buffers.
4. Does the proposal include stream restoration?
   1. If so, does the stream exhibit physical impairments?
   2. What are the sources of impairment in each reach?
   3. In general, how do you propose to address the impairments to meet project goals?
   4. Please include photos of each stream reach discussed and stream assessments if completed. These may be referenced if provided elsewhere in the SSMP.
5. Aquatic Connectivity: for perennial streams only
   1. Are there any barriers to aquatic movement between the streams of the proposed mitigation site and large downstream waters? (Large downstream waters are defined as tidal waters or streams/rivers of at least 20 square miles in drainage area)
   2. Do any barriers limit the potential suite of species that may colonize the site or the genetic health of the populations?
   3. Will the proposed project remedy any of these barriers?

Note: *Connection to consistent perennial waterways is important for recolonization following extreme droughts, unexpected pollution discharge events, and long term ecological viability of a stream restoration or preservation site.*

1. Does topography or infrastructure laterally or vertically adversely affect the stream valley or stream profile?
   1. Will the proposed site plan remedy these constraints?
   2. How might lateral confinement or vertical limitations effect the proposed site plan/design?
2. In general, does the site provide stream buffering of at least 35 feet on each side? (Buffering may occur as a credited stream buffer, a wetland, or other preserved area that contains native vegetation and is protected from development and disturbance.)
   1. What is, in general, the proposed buffer width on the stream reaches? (*May simply reference a site schematic if it contains a scale bar*).
3. What is the channel evolution trend for stream reaches on the site?

You may describe using a channel evolution model of your choosing. (For example: Cluer and Thorne 2014, Schumm et al., 1984; Simon and Hupp, 1986

1. Water Contamination Screening:

*Please address any perennial stream reaches in your answers below. It may be best to describe by stream reach if they show different qualities. If water quality impairments are suspected, a detailed water quality assessment may be needed.*

1. Are waters on the site 303d listed for impairments other than sediment and nutrient pollution?
2. Are there any known or suspected water quality impairments on the site?
3. Does the water surface have an oily sheen or unusual froth?
   1. If an oil sheen was observed, does the sheen stay broken when disturbed (tapped with stick, etc), or does it reconnect?
4. Is the water a gray or blue-gray color?
5. Does the water have an odor (chemical, oil, sewage, other)?
6. Is there any known mining in the local watershed (typically only of concern in mountainous areas)? If so please provide specific conductance readings for stream reaches.
7. Are stream substrates covered by excessive algae or film such as orange floculant, green algae, gray film, other unusual films (Do not include natural periphyton)?
   1. Approximately what % of each stream reach is affected by the algae/film?
8. Has aquatic macroinvertebrate sampling been conducted on the site? If so, did the species observed differ substantially from expected species of a stream with clean water? (For example, a sample containing primarily chironomids, soldier fly larva, and Hydropsychid caddisflies are an indicator of poor water quality).

# **Screening Considerations for Wetland Mitigation Sites**

1. General Considerations
2. Using the Maryland Watershed Resources Registry: WRR Suitability Analysis, how does the site score for Wetland Restoration? Wetland Preservation?
3. Hydrologic Screening Considerations
4. Are hydrologic connections of the site (i.e., surface and subsurface hydrologic connections driving the wetland form and function) consistent with the proposed wetland and stream class?
5. Are the sources of hydrology and hydrodynamics achievable and sustainable?
6. Are the proposed water sources engineered or unnatural (e.g., municipal water)?
7. Do activities involve impounding water or diverting water (including indirectly) from other areas to the project site? If so, will this affect the area or hydrologic classification of other wetlands or waterways on the site?
8. Does the proposal include wetland establishment or creation of wetlands in dry land? What portion of the site will be considered “wetland establishment?” *Note that “wetland establishment”* proposals are considered higher risk as natural hydrology does not occur*. “Wetland establishment”* differs from *“wetland re-establishment”,* where *“wetland re-establishment”* implies restoration of a resource that previously existed in a given location.

# **Screening Considerations for Fish Passage Projects**

# General Screening Considerations

*Note 1: Credited fish passage projects are limited to dams only as of July 2023. Additional capabilities to consider culverts and other small barriers are being discussed, however no method is available to award credits in the Baltimore District. This section refers to fish passage projects for mitigation, however where mitigation credits for stream restoration are also sought, sections I. and II. provide screening details for restoration efforts within the stream through the stream mitigation calculation tabs 3 and 4 in MSMF V.1 Final.*

*Note 2: Fish Passage Crediting (measured in functional feet) and Stream restoration crediting (also measured in functional feet) are independent calculations. Stream restoration crediting requires permanent site protection (see Section I.) while Fish Passage Crediting does not require permanent site protection. See Fish Passage for Mitigation User Manual for more details.*

# Using the Freshwater Network, what priority tier is the barrier for anadromous fish passage? Resident fish passage? Results are used in the Fish Passage for Mitigation Calculator. The Freshwater Network: <https://maps.freshwaternetwork.org/chesapeake/>

# How large is the functional network before and after barrier removal?

1. Other barriers: From satellite imagery, can you identify any additional barriers in the watershed which may limit the function network?
2. Contamination: Are there any known contaminants in the impoundment sediment? If so, what are they and how will they be managed? *Note: detailed sediment analysis may be required at a later stage.*
3. Sediment management: How do you propose sediment will be managed for the project? How much sediment will be removed as a result of the project? How much sediment will be released? Please estimate the volume of both for each grain size (clay, silt, sand, gravel, cobble).
4. Has the project been coordinated with Maryland DNR (Environmental Review) regarding potential impacts to brook trout or other potential adverse impacts?

REFERENCES

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