WSDOT Generic Wetland Mitigation Process

WSDOT Updated 5/7/09

This mitigation process identifies roles, responsibilities, and procedures for mitigation site selection and mitigation report preparation. The yellow blocks in the left margin identify WSDOT guidance, tools, and templates available, or in development, for use with the subtask. This process is generic and may vary from region to region. Please verify this process with the regional biologist and project engineer.

Task 1.0 - Mitigation Requirement Identification

To initiate the mitigation process, it is necessary to identify the extent of wetland and wetland buffer impacts and determine the size and type of mitigation required per agency guidance/ordinance. Based on preliminary design plan sheets, this step will identify preliminary wetland and buffer impacts per area, wetland rating, functions and values, hydrogeomorphic (HGM) classifications, USFWS Classification system, and watershed location. Mitigation areas will be calculated using the Washington State Department of Ecology (Ecology), U.S. Army Corps of Engineers Seattle District (USACOE), and U.S. Environmental Protection Agency's (EPA) *Wetland Mitigation in Washington State* (also known as the Joint Guidance), local Critical Areas Ordinances and project specific information for wetland and buffer impacts, if applicable.

Information Required:

- Wetland and buffer impact areas.
- Preliminary wetland and buffer impact plan sheets.
- Final Wetland and Stream Assessment Report.
- Project Biological Evaluation for Listed Species, if applicable.
- Local Critical Areas Ordinances.
- *Wetland Mitigation in Washington State*.
- Watershed/basin/sub-basin maps.

Assumptions:

- WSDOT will provide the required information listed above unless otherwise stated.
- WSDOT will provide guidance for wetland and buffer impact assessment and mitigation area calculation.
- Wetland functions will be assessed using WSDOT's Wetland Functions Best Professional Judgment Tool (BPJ).
- WSDOT will provide review comments of all Consultant produced memos and reports within XX working days of receipt. The Consultant will resolve and revise all memos and reports to WSDOT within XX working days of receipt of WSDOT comments.
- The Consultant will be available for XX meetings with WSDOT.

Subtasks:

WSDOT Wetland and Buffer Impact Assessment Guidance

1.1 Impact Calculation

The Mitigation Biologist will identify wetland and buffer impacts per area, wetland rating (local and Ecology), hydrogeomorphic, function, and Cowardin classification. The Mitigation Biologist will identify wetland impacts area location within the watershed/basin/subbasin, using the WSDOT Wetland and Buffer Impact Assessment Guidance.

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WSDOT Mitigation Area Calculation Guidance

1.2 Mitigation Area Calculation

The Mitigation Biologist will calculate the required wetland mitigation area per *Wetland Mitigation in Washington State* and local Critical Areas Ordinance. The Mitigation Biologist will calculate the required buffer mitigation area per local Critical Areas Ordinance, using the WSDOT Mitigation Area Calculation Guidance.

The Mitigation Biologist will verify the mitigation site location requirements per local Critical Areas Ordinance. The Mitigation Biologist will summarize the mitigation requirements and goals with input from the Environmental Coordinator. The summary will become the guidance for the mitigation objectives and should include the wetland and buffer impact summary, impacted functions and values, and mitigation area requirements.

1.3 Interdisciplinary Team Coordination

The Mitigation Biologist will meet with the WSDOT Interdisciplinary Team to discuss the impact and mitigation area calculations summary. The Interdisciplinary Team consists of the Design Engineer, Mitigation Biologist, Landscape Architect, Environmental Coordinator, and sometimes the Project Biologist, and Region Hydrologist. The Interdisciplinary Team will review this information and provide comments. The Mitigation Biologist will revise the impact and mitigation calculation summary as required.

Deliverables:

- One electronic file of the impact and mitigation calculation summary for Interdisciplinary Team review.
- One electronic file of the revised impact and mitigation summary to the Interdisciplinary Team.

Task 2.0 - Mitigation Site Selection

Once the preliminary mitigation requirements have been identified and the mitigation goals have been approved, the site selection process can be initiated. Tasks in this section involve identifying likely properties.

Required Information:

- Watershed/basin/subbasin maps of the impacted areas
- Soil Conservation Service (SCS)/ Natural Resources Conservation Service (NRCS) soils maps of the impacted watershed/basin/subbasin
- National Wetland Inventory (NWI) maps of the impacted watershed/basin/subbasin
- County assessor's or parcel maps of the impacted watershed/basin/subbasin
- Aerial photographs of the watershed/basin/subbasin
- Early Action Mitigation Site Identification List, if applicable
- Map or list of parcels within the appropriate basin/subbasin identified as agricultural land in the Growth Management Act (RCW 36.70A.170 (a)).

Assumptions:

- The WSDOT Design Engineer will contact WSDOT Real Estate Services to identify properties for sale within the project area.
- A minimum of X sites will be identified for Interdisciplinary Team review.
- WSDOT will provide the standard template and example of the Preliminary Wetland Mitigation Site Selection Process, WSDOT's Site Evaluation Matrix, Wetland Mitigation Site Evaluation Matrix Guidance, and the Wetland Mitigation Site Feasibility Report/Memo *(under development)*.
- WSDOT will organize and schedule the Interdisciplinary Team site reviews.
- WSDOT will provide direction concerning selection of the preferred mitigation site(s).

Subtasks:

Preliminary Wetland Mitigation Site Selection Process

2.1 Preliminary Site Identification

Using the NWI, soils, and assessor's maps and aerial photographs, the Mitigation Biologist will identify potential properties located near existing wetlands, streams, or lakes. The Mitigation Biologist will review the Early Action Mitigation Site Identification List for potential sites. The Mitigation Biologist or Design Engineer will contact municipal and county jurisdictions, state agencies, tribes, and environmental non-governmental organizations (NGO) for partnering opportunities. Properties defined as agricultural lands in the Growth Management Act (RCW 36.70A.170(a)) will be identified.

The Mitigation Biologist and Design Engineer will visually inspect the preliminary list of properties and evaluate using the Preliminary Wetland Mitigation Site Selection Process. The parcel numbers of suitable properties will be recorded and the Design Engineer will prepare the rights of entry documents. The Mitigation Biologist and Design Engineer will identify suitable sites for partnering opportunities and coordinate with the respective jurisdiction, agency, tribe, or NGO group**.** *(state number of sites assumed)*

WSDOT's Site Evaluation Matrix

Wetland Mitigation Site Evaluation Matrix Guidance

2.2 Interdisciplinary Team Site Inspection & Site Evaluation

After the properties are identified, the Mitigation Biologist will assemble information for all the sites that will be inspected by the Interdisciplinary Team. The site information should include the impact and mitigation summary information, as well as: aerial photographs, NWI maps, soil maps, zoning maps, and watershed/basin/subbasin maps.

The Environmental Coordinator will schedule an Interdisciplinary Team inspection of potential sites. If project timelines deem it necessary, a backhoe and operator will be scheduled to complete soil potholing during the Interdisciplinary Team inspection. Local maintenance staff may have the ability to provide this expertise. Prior to potholing, an archeology study of the site will be required or an archeologist will be present on-site during the potholing operation. The Interdisciplinary Team will evaluate each site using the Mitigation Site Evaluation Matrix.

Wetland Mitigation Site Feasibility Memo/Report Template *(under development)*

2.3 Wetland Mitigation Site Feasibility Memo/Report Preparation *(under development)*

The Mitigation Biologist will prepare a mitigation Site Feasibility Memo/Report for the sites evaluated. The memo/report will include on-site conditions, site evaluation, site amenities, problems, areas of concern, and rating of the sites based on the scoring results of the Mitigation Site Evaluation Matrix. The memo/report will include a recommendation of preferred site(s).

2.4 Wetland Mitigation Site Feasibility Memo Revisions

The Mitigation Biologist will meet with the Interdisciplinary Team to discuss the Site Feasibility Memo/Report. The Interdisciplinary Team will review the memo/report and provide comments to the Mitigation Biologist. The Mitigation Biologist will revise the Site Feasibility Memo/Report as necessary. The recommended site(s) identified in the Site Feasibility Memo/Report will be forwarded to the Design Engineer. The Design Engineer will make the final determination of the site to be purchased.

Deliverables:

- Four copies of the site information for each site to be inspected.
- One electronic file of the completed Mitigation Site Evaluation Matrix.
- One electronic file of the Site Feasibility Memo/Report *(under development)* for Interdisciplinary Team review.
- One electronic file of the revised Site Feasibility Memo/Report.

3. Mitigation Site Data Collection

Once the mitigation site(s) has been identified and the property acquisition process initiated, WSDOT staff will collect on-site data for the production of the wetland mitigation design and report.

Required Information:

- SCS/NRCS soils maps.
- NWI maps.
- County assessor's or parcel maps.
- Aerial photographs (historical and most current).

Assumptions:

- An archeological study of the mitigation site will be completed by WSDOT prior to wetland delineation, potholing, and piezometer installation.
- WSDOT will field locate groundwater monitoring wells (piezometers) and will collect monitoring well data.

Subtasks:

3.1 On-site Wetland Identification & Water Body Identification

The Mitigation Biologist/Project Biologist, and Landscape Architect will delineate on-site wetlands. Mitigation Biologist/Project Biologist will identify and flag the Ordinary High Water Mark of all on-site water bodies and drainages per WSDOT guidance, if applicable.

Mitigation Site Wetland Memo Example *(under development)*

3.2 Mitigation Site Wetland Memo Preparation

The Mitigation Biologist/Project Biologist will prepare a wetland mitigation site delineation memo with data sheets and wetland rating forms.

3.3 Mitigation Site Data Collection

The Mitigation Biologist/Project Biologist and Landscape Architect will conduct vegetation and soils surveys and flag the Ordinary High Water Mark of on-site streams. With Interdisciplinary Team coordination (including Region Hydrologist), the groundwater monitoring well (piezometer) locations will be staked. The Region Hydrologist will schedule the piezometer installations and the Materials Lab will collect monthly groundwater data. The Design Engineer will schedule the site topographic survey. The topographic survey will include elevations at 1-foot contours, existing vegetation, wetlands, streams and drainages, fences, structures, utilities, roads, piezometers, etc.

3.4 Interdisciplinary Team Coordination

The Mitigation Biologist/Project Biologist will meet with the Interdisciplinary Team to discuss the mitigation site wetland memo. The Interdisciplinary Team will provide review and comments to the memo. The Mitigation Biologist/Project Biologist will revise the memo as required.

Deliverables:

- One electronic file of the Mitigation Site Wetland Memo for Interdisciplinary Team review.
- One electronic file of the revised Mitigation Site Wetland Memo.

4. Mitigation Site Base Plan Preparation

Once the site topographic survey has been completed, the Design Engineer will prepare a base plan sheet and forward to Landscape Architect. The Landscape Architect will prepare a hard copy of the base plan for the Mitigation Biologist and Environmental Coordinator.

Required Information:

- Wetland site survey data.

Assumptions:

- Right-of-entry will be secured prior to initiation of topographic survey.
- Base map will be produced in Microstation format. WSDOT will provide base map standards.

Subtasks:

4.1 Base Map Preparation

The Design Engineer will prepare a base map of the mitigation site for mitigation site design development.

Deliverables:

- One electronic file of the mitigation site base plan, to be forwarded to the Landscape Architect. The Landscape Architect then provides paper copies of the base plan to Mitigation Biologist and Environmental Coordinator.

Conceptual Wetland (and Stream) Mitigation Report Template *(under development)*

5. Conceptual Wetland (and Stream) Mitigation Report Preparation

The Conceptual Wetland (and Stream) Mitigation Report is prepared for agency submittal when sufficient site data is not available to produce the wetland mitigation design. Typically, this report is submitted when there is insufficient hydrologic data to determine finish grades and plant community composition.

Required Information:

- Final wetland and buffer impacts
- Wetland and Stream Assessment Report
- Project biological assessment
- Mitigation site base plan
- Mitigation site soils and vegetation surveys
- Mitigation site wetland delineation memo

Assumptions:

- WSDOT will provide the standard template and example of the Conceptual Wetland (and Stream) Mitigation Report and Conceptual Mitigation Design Drawing.

- WSDOT will provide guidance for wetland and buffer impact assessment and mitigation area calculation.

Subtasks:

5.1 Conceptual Wetland Mitigation Design Preparation

The Landscape Architect will prepare the Conceptual Wetland Mitigation Design drawings with input from the Mitigation Biologist. The drawings will identify locations of proposed wetland creation, enhancement, restoration, and wetland buffer areas.

5.2 Agency Coordination

The Interdisciplinary Team will meet with regulatory agency staff to conduct site inspection of the impact areas and the wetland mitigation site. Conceptual Wetland Mitigation Design will be discussed with the regulatory agencies at this time.

5.3 Conceptual Wetland (and Stream) Mitigation Report Preparation

The Mitigation Biologist will prepare a Conceptual Wetland and Stream Mitigation Report if sufficient hydrologic information is not available to complete the mitigation design. The Conceptual Wetland (and Stream) Mitigation Report must contain the following information: a project description, purpose and need; final wetland and buffer impact areas; wetland impacts per rating; HGM classification and Cowardin classification; impacted wetland functions and values; impact avoidance and minimization; mitigation requirements per *Wetland Mitigation in Washington State* and local Critical Areas Ordinance; a mitigation site description; and conceptual wetland mitigation design.

5.4 Interdisciplinary Team Coordination

The Mitigation Biologist will provide copies of the Conceptual Wetland (and Stream) Mitigation Report for Interdisciplinary Team review. The Interdisciplinary Team will provide comments to the Conceptual Wetland and Stream Mitigation Report.

5.5 Conceptual Wetland (and Stream) Mitigation Report Revisions

The Mitigation Biologist will revise the Conceptual Wetland (and Stream) Mitigation Report per Interdisciplinary Team comments.

Deliverables:

- One electronic file of the Conceptual Wetland (and Stream) Mitigation Report for Interdisciplinary Team review
- One electronic file of the revised Conceptual Wetland (and Stream) Mitigation Report for agency submittal

6. Draft Wetland and Stream Mitigation Report Preparation

Once enough hydrologic data has been collected to design the wetland mitigation site, the Draft Wetland and Stream Mitigation Report is produced. The Draft Wetland and Stream Mitigation Report is submitted to the agencies as part of the Joint Aquatic Resource Permit Application (JARPA). The Draft Wetland and Stream Mitigation Report contains all information noted in the Conceptual Wetland (and Stream) Mitigation Report in addition to the following: the completed wetland mitigation site design description; mitigation goals; grading design plans and cross-sections; planting design plans; groundwater data; proposed functional assessment; the performance standards; contingencies; adaptive management; a monitoring plan; and the site management plan.

Required Information:

- Conceptual Wetland (and Stream) Mitigation Report, if applicable.
- Final wetland and buffer impacts.
- Wetland and Stream Assessment Report.
- Project biological assessment.
- Mitigation site base plan.
- Mitigation site soils and vegetation surveys.
- Mitigation Site Wetland Delineation Memo.

Assumptions:

- WSDOT will provide the standard template and example of the Draft Wetland and Stream Mitigation Report and Mitigation Design Drawing.
- WSODT will provide guidance for wetland and buffer impact assessment and mitigation area calculation.

Subtasks:

WSDOT's Mitigation Design Evaluation

6.1 Draft Wetland Mitigation Design Preparation

The Landscape Architect will prepare the Draft Wetland Mitigation Design Drawings with Mitigation Biologist input. The drawings will include a schematic plan sheet that will identify locations of proposed wetland creation, enhancement, restoration, and wetland buffer areas. Other plan sheets include the grading plans, planting plans, and two cross-sections.

Draft Wetland and Stream Mitigation Report Template

6.2 Draft Wetland and Stream Mitigation Report Preparation

The Mitigation Biologist will prepare a Draft Wetland and Stream Mitigation Report. The Draft Wetland (and Stream) Mitigation Report will contain a detailed description of impact avoidance and minimization; a project description, purpose and need; final wetland and buffer impact areas; wetland impacts per rating; the HGM classification; Cowardin classifications; and impacted wetland functions and values. Mitigation requirements per *Wetland Mitigation in Washington State* and local Critical Areas Ordinances must be addressed in the report. The report must also provide the following: a mitigation site description, a wetland mitigation design description, the success standards, a contingency plan, monitoring plan, and mitigation design plan sheets.

6.3 Agency Coordination

The Interdisciplinary Team will meet with the agency to conduct site inspection of impacts and proposed wetland mitigation design.

6.4 Interdisciplinary Team Coordination

The Mitigation Biologist will provide an electronic copy of the Draft Wetland and Stream Mitigation Report for Interdisciplinary Team and HQ Monitoring review. The Interdisciplinary Team and HQ Monitoring will provide comments to the Draft Wetland and Stream Mitigation Report.

6.5 Draft Wetland and Stream Mitigation Report Revisions

The Mitigation Biologist/Landscape Architect will revise the Draft Wetland and Stream Mitigation Report per Interdisciplinary Team and HQ Monitoring comments. The Mitigation Biologist will provide copies for agency and Interdisciplinary Team submittal.

Deliverables:

- One electronic file of the Draft Wetland and Stream Mitigation Report for Interdisciplinary Team and HQ Monitoring review.
- One electronic file of the revised Draft Wetland and Stream Mitigation Report for agency and Interdisciplinary Team submittal.

7. Final Wetland and Stream Mitigation Report Preparation

The Final Wetland and Stream Mitigation Report is submitted to the agencies as part of the JARPA. The Draft Wetland and Stream Mitigation Report will be revised to address all agency comments. The revised report will be submitted to the agencies as the Final Wetland and Stream Mitigation Report.

Required Information:

- Draft Wetland and Stream Mitigation Report.
- Agency comments.

Assumptions:

- WSDOT will identify all approved agency revisions.
- The Consultant will be available for XX meetings with WSDOT.

Subtasks:

7.1 Agency Coordination

The Interdisciplinary Team will coordinate with the agency staff as required.

7.2 Respond to Agency Comments

The Mitigation Biologist, Environmental Coordinator, Design Engineer, Landscape Architect, and Region Hydrologist will prepare written responses to agency comments of the Draft Wetland and Stream Mitigation Report.

7.3 Final Wetland Mitigation Design Preparation

The Landscape Architect will revise the draft mitigation design plan sheets with Mitigation Biologist input in response to agency comments to complete the final wetland mitigation design plan sheets.

7.4 Final Wetland and Stream Mitigation Report Preparation

The Mitigation Biologist will revise the Draft Wetland and Stream Mitigation Report in response to agency comments to complete the Final Wetland and Stream Mitigation Report.

7.5 Interdisciplinary Team Coordination

The Mitigation Biologist will provide copies of the Final Wetland and Stream Mitigation Report for Interdisciplinary Team review. The Interdisciplinary Team will provide comments to the Final Wetland and Stream Mitigation Report.

7.6 Final Wetland and Stream Mitigation Report Revisions

The Mitigation Biologist will revise the Final Wetland and Stream Mitigation Report per Interdisciplinary Team comments. The Landscape Architect will revise mitigation design drawings as necessary. The Mitigation Biologist will provide copies of the Final Wetland and Stream Mitigation Report for submittal to the agencies and Interdisciplinary Team.

Deliverables:

- One electronic file of the Final Wetland and Stream Mitigation Report for Interdisciplinary Team review.
- One electronic file of the revised Final Wetland and Stream Mitigation Report for agency and Interdisciplinary Team submittal.

References

Brinson, M. M. (1993). "A hydrogeomorphic classification for wetlands," Technical Report WRP-Design Engineer-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A270 053.

Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. March 2006. *Wetland Mitigation in Washington State: Part 1 - Agency Policies and Guidance* (Version 1). Washington State Department of Ecology Publication #06-06-011a. Olympia, WA.

Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. March 2006. *Wetland Mitigation in Washington State: Part 2 - Developing Mitigation Plans* (Version 1). Washington State Department of Ecology Publication #06-06-011b. Olympia, WA.