



US Army Corps  
of Engineers  
Seattle District

**Terms and Conditions of the  
SLOPES III Programmatic Consultation  
for  
“Water Control Structures”**



Applicability: These conditions are applicable to activities involving water control structures that were included in a programmatic consultation between the U.S. Army Corps of Engineers (Corps) and the National Marine Fisheries Service (NMFS) that addressed certain activities in the Lower Columbia River within the State of Washington. For additional information, please refer to “Endangered Species Act – Section 7 Consultation Programmatic Biological Opinion and Conference Opinion & Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation: Revised Standard Local Operating Procedures for Endangered Species (SLOPES III) to Administer Certain Activities Authorized or Carried Out by the Department of the Army in the State of Oregon and on the North Shore of the Columbia River,” dated November 30, 2004.

Location: Within Washington State, the Lower Columbia programmatic consultation addressed activities that would occur in the mainstem Columbia River, including certain sloughs and adjacent wetlands, downstream of McNary Dam. Washington State tributaries of the Columbia River, the mainstem Columbia River upstream of Dam, and all other portions of the Seattle District were excluded from the action area of this programmatic consultation.

Description of Activity: Actions related to water control structures authorized under this Opinion are repairs or modifications of existing structures, except tide gates, as necessary to provide fish passage. Installation of any fish passage system based on construction or repair of a fish ladder (*e.g.*, pools and weirs, vertical slots, Denil fishways) or fish trapping system is not proposed for authorization under SLOPES because those devices require site-specific engineering that is beyond the scope of this analysis. Similarly, installation, maintenance, or replacement of tide gates are not included because guidance necessary to understand the full effects of tide gate operation on fish behavior and habitat conditions, and to predict the consequences of alternative tide gate designs, is not yet available. New water control structures and upgraded water control structures that do not provide fish passage, are not authorized using SLOPES.

Terms and Conditions: To comply with the requirements of the Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act, a Department of the Army permittee for this activity must comply with the applicable terms and conditions listed below. These terms and conditions, specified in the above-referenced programmatic biological opinion, are necessary to implement the reasonable and prudent measures described in the biological opinion. These terms and conditions are non-discretionary, and compliance with these terms and conditions is necessary to exempt the permittee from the prohibitions of Section 9 of the ESA.

**Conditions of Standard Local Operating Procedures for Endangered Species**

- a. Salvage notice. If a sick, injured, or dead specimen of a threatened or endangered species is found, the finder must notify the Vancouver Field Office of NOAA Fisheries Law Enforcement at (360) 418-4246. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.
- b. Project Completion Report or Memo to File. Each permit issued by the Corps under this Opinion must require the applicant to submit a project completion report to the Corps within 60 days of finishing work below ordinary high water; for each project carried by the Corps, the project supervisor must prepare a project completion memo to file. Each report or memo must contain the following information and be available for inspection on request by NOAA Fisheries.

- i. Applicant's name and permit number (if any).
- ii. Corps contact person.
- iii. Project name.
- iv. Type of activity.
- v. Project site including any compensatory mitigation site by 5th field HUC.
- vi. Start and end dates for work completed.
- vii. Photos of habitat conditions at the project site including any compensatory mitigation site, before, during, and after project completion.<sup>1</sup>
- viii. Projects with the following work elements must include these data.
  - (1) Work Cessation—Dates work ceased due to high flows.<sup>2</sup>
  - (2) Fish Screen—Proof of compliance with NOAA Fisheries fish screen criteria.<sup>3</sup>
  - (3) Pollution Control—A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.
  - (4) Drilling—Describe the drilling method and steps taken to isolate drilling operations, fluids, slurry and spoils from flowing water.
  - (5) Pilings. The number, type, and diameter of pilings removed, broken during removal, and installed; and any sound attenuation measures used.
  - (6) Site Preparation—Riparian area cleared within 150 feet of ordinary high water; upland area cleared; new impervious area created.
  - (7) Streambank Stabilization—Type and amount of materials used; project size (one bank or two, width and linear feet).
  - (8) Road Construction, Repairs, and Improvements—Rationale for any new permanent road crossing design.
  - (9) In-water and Over-water Structures—Area of new in-water or over-water structure.

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<sup>1</sup> Relevant habitat conditions may include characteristics of channels, eroding, and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream from the project. Include general views and close-ups of the project and project area, including pre- and post-construction. Label each photo with date, time, project name, photographer's name, and a comment about the subject.

<sup>2</sup> "High flows" means any flow likely to rise above the top of an work isolation area or otherwise inundate a work area that would normally be dry.

<sup>3</sup> National Marine Fisheries Service, Juvenile Fish Screen Criteria (revised February 16, 1995) and Addendum; Juvenile Fish Screen Criteria for Pump Intakes (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) or as amended (<http://www.nwr.noaa.gov/1hydroweb/hydroweb/ferc.htm>).

- c. Site Restoration and/or Compensatory Mitigation Report. Each applicant must submit a site restoration and/or compensatory mitigation report by December 31 each year after the project is completed until the Corps approves that the site restoration and/or compensatory mitigation performance standards have been met. This report must describe the date and purpose of each visit to a restoration and/or compensatory mitigation site, site conditions observed during that visit, and any corrective action planned or taken.

### **General Conditions for Surveying, Exploration, Construction, Operation, and Maintenance**

- a. Exclusions. Any exploration or construction activity, including surface water diversion and release of construction discharge water within 300 feet upstream from any occupied redd until fry emerge or within 300 feet of native submerged aquatic vegetation is not authorized by this Opinion, unless otherwise approved in writing by NOAA Fisheries. Requests for approval should be submitted with the project notification form. Permits for the following types of exploration, construction, and mitigation actions are not authorized by this Opinion.
- i. Use of pesticides.
  - ii. Use of short pieces of plastic ribbon to determine flow patterns.
  - iii. Temporary roads or drilling pads built on steep slopes where grade, soil types, or other features suggest a likelihood of excessive erosion or failure.
  - iv. Exploratory drilling in estuaries that cannot be conducted from a work barge or an existing bridge, dock, or wharf.
  - v. Installation of a fish screen on any permanent water diversion or intake that is not already screened.
  - vi. Any projects that require in-water installation of hollow steel piling greater than 24-inches in diameter or use of H-pile larger than designation HP24.
  - vii. Drilling or sampling in an EPA-designated Superfund Site, a state-designated cleanup area, or the likely impact zone of a significant contaminant source, as identified by historical information or the Corps' best professional judgment.
  - viii. Compensatory mitigation actions that require construction of permanent structures, maintenance beyond the establishment period or after the performance standards have been met, or creation of habitat functions where they did not historically exist, or that simply preserve existing functions.
- b. Pollution and Erosion Control Plan. A pollution and erosion control plan must be prepared and carried out to prevent pollution caused by surveying or construction operations. The pollution and erosion control plan must be commensurate with the scale of the project, contain pertinent elements listed below, and meet requirements of all applicable laws and regulations. Submit an electronic copy of this plan with the project notification form.
- i. Goal. The goal is to avoid or minimize the adverse effects of pollution and erosion by limiting soil disturbance, scheduling work when the fewest number of fish are likely to be present, managing likely pollutants, and limiting the harm that may be caused by accidental discharges of pollutants and sediment.
  - ii. Responsible Party. The name, address, and telephone number of the person responsible for accomplishment of the pollution and erosion control plan.
  - iii. Minimum Area. Practices to confine vegetation removal and soil disturbance to the minimum area necessary to complete the project and otherwise prevent erosion and sedimentation associated with access roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, staging areas, and roads being decommissioned.

- iv. In-water Work Timing. Develop a schedule to complete all work below ordinary high water, except hydraulic and topographic measurements within the wetted channel,<sup>4</sup> inside the most recent Oregon Department of Fish & Wildlife (ODFW) or the Corps Seattle District preferred in-water work period,<sup>5</sup> as appropriate for the project area unless otherwise approved in writing by NOAA Fisheries. Requests for approval should be submitted with the project notification form.
  - v. Cease Work During High Flows. Project operations must cease under high flow conditions that may inundate the project area except for efforts to avoid or minimize resource damage.
  - vi. Concrete, Cement, and Grout. Practices to confine, remove, and dispose of excess concrete, cement, grout, and other mortars or bonding agents, including measures for washout facilities.
  - vii. Construction Debris. Practices to prevent construction debris from dropping into any stream or waterbody and to remove any material that does drop with a minimum disturbance to the streambed and water quality.
  - viii. Hazardous Materials. A description of any regulated or hazardous products or materials that will be used for the project including procedures for inventory, storage, handling, and monitoring.
  - ix. Spill Containment. A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, a description of quick response containment and cleanup supplies that will be available on the site, including a supply of sediment control materials (*e.g.*, a silt fence, straw bales,<sup>6</sup> an oil absorbing, floating boom whenever surface water is present), proposed methods for disposal of spilled materials, and employee training for spill containment.
- c. Work Area Isolation Plan. Except for piling installation<sup>7</sup> completed in compliance with all other relevant terms and conditions, a work area isolation plan must be prepared and carried out for any project that requires work below ordinary high water where adult or juvenile fish are reasonably certain to be present or 300 feet or less upstream from spawning habitats, unless otherwise approved in writing by NOAA Fisheries. The work area isolation plan must be commensurate with the scale of the project, contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations. Submit an electronic copy of this plan with the project notification form.
- i. Goal. The goal to minimize the adverse effects of erosion and other types of pollution by removing from flowing water and fish from the work area.
  - ii. Responsible Party. The name and address of the person responsible for meeting each component of the work area isolation plan including a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish that will be responsible for the capture and release operation.
  - iii. Flow Conditions. An estimate of the range of flows likely to occur during isolation.
  - iv. Plan View. A plan view of all isolation elements and fish release areas.

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<sup>4</sup> Hydraulic and topographic measurements within the wetted channel may be completed anytime except during the spawning period, unless a fisheries biologist verifies that no redds are occupied within 300 feet downstream from the measurement site.

<sup>5</sup> ODFW, Oregon Guidelines for Timing of In-water Work to Protect Fish and Wildlife Resources (June 2000) at [http://www.dfw.state.or.us/lands/0600\\_inwtrguide.pdf](http://www.dfw.state.or.us/lands/0600_inwtrguide.pdf) and U.S. Army Corps of Engineers, Seattle District Regulatory Branch, Allowable Work Windows at [http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=work\\_windows](http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=work_windows) as amended.

<sup>6</sup> When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

<sup>7</sup> Pilings may be installed without work isolation provided all other relevant terms and conditions are met.

- v. Equipment and Materials List. A list of equipment and materials that are necessary to complete work area isolation including fish screen for any pump used to dewater the isolation area, and that will be available onsite to provide appropriate redundancy of key plan functions (*e.g.*, operational, properly-sized, back-up pumps and generators).
  - vi. Sequence and Schedule. The sequence and schedule of dewatering and rewatering activities.
- d. Capture and Release. Before and intermittently during isolation of an in-water work area, fish trapped in the area must be captured using a trap, seine, electrofishing, or other methods as are prudent to minimize risk of injury, then released at a safe release site.
- i. Do not use electrofishing if water temperatures exceed 18°C or are expected to rise above 18°C, unless no other method of capture available.
  - ii. If electrofishing equipment is used to capture fish, comply with NOAA Fisheries' electrofishing guidelines.<sup>8</sup>
  - iii. Handle ESA-listed fish with extreme care keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.
  - vi. Ensure water quality conditions are adequate in buckets or tanks used to transport fish by providing circulation of clean, cold water using aerators to provide dissolved oxygen and minimizing holding times.
  - v. Release fish into a safe release site as quickly as possible and as near as possible to capture sites.
  - vi. Do not transfer the ESA-listed fish to anyone except NOAA Fisheries personnel unless otherwise approved in writing by NOAA Fisheries. Requests for approval should be submitted with the project notification form.
  - vii. Obtain all other Federal, state, and local permits necessary to conduct the capture and release activity.
  - viii. Allow NOAA Fisheries or its designated representative to accompany the capture team during the capture and release activity and to inspect the team's capture and release records and facilities.
  - ix. Submit an electronic copy of the Salvage Report Form (Appendix B) to NOAA Fisheries at [slopes.nwr@noaa.gov](mailto:slopes.nwr@noaa.gov) within 10 calendar days of completion of the salvage operation.
- e. Fish Passage. Safe passage around or through the project area must be provided for any adult and juvenile salmon or steelhead species present during construction unless passage did not previously exist or as otherwise approved in writing by NOAA Fisheries. Requests for approval should be submitted with the project notification form.
- i. Fish ladders (*e.g.*, pools and weirs, vertical slots, Denil fishways) and fish trapping systems are not authorized by this Opinion.
  - ii. After project completion, adult and juvenile passage upstream and downstream must not be impaired for the life of the project.
- f. Stormwater Management Plan. A stormwater management plan must be prepared and carried out for any project that will produce any new impervious surface or a land cover that will slow the entry of water into the soil. The stormwater management plan must be commensurate with the scale of the projects, contain the

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<sup>8</sup> National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act (June 2000) (<http://www.nwr.noaa.gov/1salmon/salmesa/final4d.htm>).

pertinent elements listed below, and meet requirements of all applicable laws and regulations. Submit an electronic copy of this plan with the project notification form.

- i. Goal. The goal is to minimize adverse effects due to the quantity and quality of stormwater runoff for the life of the project by maintaining or restoring natural runoff conditions.
- ii. Responsible Party. The name, address, and telephone number of the person responsible for accomplishment of the stormwater management plan.
- iii. Management Practices and Facilities. A system of management practices and if necessary, structural facilities designed to complete the following functions.
  - (1) Minimize, disperse, and infiltrate stormwater runoff onsite using sheet flow across permeable vegetated areas to the maximum extent possible without causing flooding, erosion impacts, or long-term adverse effects to groundwater.
  - (2) Pre-treat stormwater from pollution generating surfaces including bridge decks before infiltration or discharge into a freshwater system, as necessary to minimize any nonpoint source pollutant (*e.g.*, debris, sediment, nutrients, petroleum hydrocarbons, metals) likely to be present in the volume of runoff predicted from a six-month, 24-hour storm.<sup>9</sup>
  - (3) Ensure that the duration of post project discharge matches the predeveloped discharge rates from 50 percent of the two-year peak flow up to the 50-year peak flow.
- iv. Continuous Rainfall/Runoff. For projects that require engineered water quality or detention facilities to meet stormwater requirements, use a continuous rainfall/runoff model if available for the project area to calculate stormwater facility water quality and flow control rates.
- v. Permeable Pavements. Use permeable pavements for load-bearing surfaces including multiple-use trails to the maximum extent feasible based on soil, slope, and traffic conditions.
- vi. Facilities Inside the Riparian Management Area. Install structural facilities outside wetlands or the riparian management area<sup>10</sup> whenever feasible, otherwise provide compensatory mitigation to offset any long-term adverse effects. Identify the location of all stormwater facilities relative to the riparian management area.
- vii. Recordkeeping. Document completion of the following activities according to a regular schedule for the operation, inspection, and maintenance of all structural facilities and conveyance systems in a log available for inspection on request by the Corps and NOAA Fisheries.
  - (1) Inspect and clean each facility as necessary to ensure that the design capacity is not exceeded, heavy sediment discharges are prevented, and whether improvements in operation and maintenance are needed.
  - (2) Promptly repair any deterioration threatening the effectiveness of any facility.

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<sup>9</sup> A six-month, 24-hour storm may be assumed to be 72 percent of the two-year, 24-hour amount. See, Washington State Department of Ecology (2001), Appendix I-B-1.

<sup>10</sup> “Riparian management area” means land: (1) within 150 feet of any natural water occupied by listed salmonids during any part of the year or designated as critical habitat; (2) within 100 feet of any natural water within one-fourth mile upstream from areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an above-ground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat; and (3) within 50 feet of any natural water upstream from areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an above-ground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat. “Natural water” means all perennial or seasonal waters except water conveyance systems that are artificially constructed and actively maintained for irrigation.

- (3) Post and maintain a warning sign on or next to any storm drain inlet as appropriate for the receiving water that says, "Dump No Waste – Drains to Groundwater, Streams, or Lakes."
  - (4) Only dispose of sediment and liquid from any catch basin in an approved facility.
- viii. Runoff/Discharge into a Freshwater System. When stormwater runoff will be discharged directly into surface water or a wetland, or indirectly through a conveyance system, the following requirements apply.
- (1) Maintain natural drainage patterns and whenever possible ensure that discharges from the project site occur at the natural location.
  - (2) Use a conveyance system comprised entirely of manufactured elements (*e.g.*, pipes, ditches, outfall protection) that extends to the ordinary high water line of the receiving water unless existing topography and vegetative site conditions will provide adequate biofiltration to remove likely sediment and other pollutants.
  - (3) Stabilize any erodible elements of this system as necessary to prevent erosion.
  - (4) Do not divert surface water from or increase discharge to an existing wetland if that will cause a measurable or detectable adverse effect to wetland hydrology, soils, or vegetation.
  - (5) The velocity of discharge water released from an outfall or diffuser port may not exceed four feet per second, and the maximum size of any aperture may not exceed one inch.
- g. Site Restoration Plan. A site restoration plan must be prepared and carried out to ensure that all streambanks, soils, and vegetation disturbed by the project are cleaned up and restored as follows. The site restoration plan must be commensurate with the scale of the project, contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations. Submit an electronic copy of this plan with the project notification form.
- i. Goal. The goal is to reestablish habitat access, water quality, production of habitat elements (*e.g.*, large wood), channel conditions, flows, watershed conditions, and other aquatic habitat forming processes that were harmed during project completion.
  - ii. Responsible Party. The name, address, and telephone number of the person responsible for accomplishment of the site restoration plan including providing and managing any financial assurances and monitoring necessary to ensure restoration success.
  - iii. Baseline Information. This information may be obtained from existing sources (*e.g.*, land use plans, watershed analyses, subbasin plans), where available.
    - (1) A functional assessment of adverse effect, *i.e.*, the location, extent and function of the riparian and aquatic resources that will be adversely affected by construction and operation of the project.
    - (2) The location and extent of resources surrounding the restoration site including historic and existing conditions.
  - iv. Objectives. Restoration objectives that describe the extent and methods of site restoration necessary to offset adverse effects of the project by aquatic resource type.
    - (1) Restore damaged streambanks to a natural slope, pattern, and profile suitable for establishment of permanent wood vegetation unless precluded by pre-project conditions (*e.g.*, a natural rock wall).
    - (2) Replant each area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region including grasses, forbs, shrubs, and trees. Noxious or invasive species may not be used.

- (3) Use as much as possible of the large wood, native trees, native vegetation, topsoil, and native channel material that was stockpiled during site preparation.
  - (4) Do not apply surface fertilizer within 50 feet of any stream channel.
  - (5) Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- v. Performance Standards. Use the following standards to help design the plan and assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.
- (1) Human and livestock disturbance if any is confined to small areas necessary for access or other special management situations.
  - (2) Areas with signs of significant past erosion are completely stabilized and healed; bare soil spaces are small and well dispersed.
  - (3) Soil movement such as active rills and soil deposition around plants or in small basins is absent or slight and local.
  - (4) Native woody and herbaceous vegetation, and germination microsites are present and well distributed across the site.
  - (5) Plants have normal, vigorous growth form and a high probability of remaining vigorous, healthy, and dominant over undesired competing vegetation.
  - (6) Vegetation structure is resulting in rooting throughout the available soil profile.
  - (7) Plant litter is well distributed and effective in protecting the soil with little or no litter accumulated against vegetation as a result of active sheet erosion (“litter dams”).
  - (8) A continuous corridor of shrubs and trees appropriate to the site are present to provide shade and other habitat functions for the entire streambank.
  - (9) Streambanks are stable, well vegetated, and protected at margins by roots that extend below baseflow elevation or by coarse-grained alluvial debris.
- vi. Work Plan. Develop a work plan with sufficient detail to include a description of the following elements as applicable:
- (1) Water supply source if necessary.
  - (2) Boundaries for the restoration area.
  - (3) Restoration methods, timing, and sequence.
  - (4) Geomorphology and habitat features of stream or other open water.
  - (5) Site management and maintenance requirements including a plan to control exotic invasive vegetation.
  - (6) Elevation and slope of the restoration area to ensure they conform to required elevation and hydrologic requirements of target plant species.

- (7) Woody native vegetation appropriate to the restoration site.<sup>11</sup> This must be a diverse assemblage of species that are native to the project area or region including grasses, forbs, shrubs, and trees. This may include allowances for natural regeneration from an existing bank or planting.
- vii. Five-Year Monitoring and Maintenance Plan. Develop a five-year monitoring and maintenance plan with the following elements as applicable:
- (1) A schedule to visit the restoration site annually for five years or longer as necessary to confirm that the performance standards are achieved. Despite the initial five-year planning period, site visits and monitoring must continue from year to year until the Corps certifies that site restoration performance standards have been met.
  - (2) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).
  - (3) Keep a written record to document the date of each visit, site conditions, and any corrective actions taken.
- h. Compensatory Mitigation Plan. A compensatory mitigation plan must be prepared and carried as necessary to ensure the project does not cause a long-term loss of riparian or aquatic functions. The compensatory mitigation plan must be commensurate with the scale of the project, contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations. Submit an electronic copy of this plan with the project notification form.
- i. Actions of Concern. The following actions require a Compensatory Mitigation Plan to offset long-term adverse effects:
    - (1) Riparian and aquatic habitats displaced by construction of structural stormwater facilities, a new or enlarged boat ramp, or scour protection.
    - (2) Riparian and benthic habitat displaced by new or enlarged over-water structures.
    - (3) Other activities that prevent development of properly functioning riparian and aquatic habitat processes.
  - ii. Goal. The goal is to ensure that completion of the project does not cause a net loss of riparian and aquatic habitat functions.
  - iii. Responsible Party. The name, address, and telephone number of the person responsible for accomplishment of the compensatory mitigation plan including providing and managing any financial assurances and monitoring necessary to ensure compensatory mitigation success.
  - iv. Objectives. Compensatory mitigation objectives related to the extent and type of compensatory mitigation necessary to offset unavoidable losses to riparian and aquatic habitat at the project site.
    - (1) Elements of a site restoration plan outline above.
    - (2) Watershed-level considerations related to specific aquatic resource needs of the affected area.
    - (3) Existing technology and logistical concerns.
    - (4) A description of the legal means for protecting mitigation areas, and a copy of any legal instrument relied on to secure that protection.

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<sup>11</sup> Use reference sites to select vegetation for the mitigation site whenever feasible. Historic reconstruction, vegetation models, or other ecologically-based methods may also be used as appropriate.

- (5) Make mitigation compatible with adjacent land uses or if necessary use an upland buffer to separate mitigation areas from developed areas or agricultural lands.
- (6) Base the level of required mitigation on a functional assessment of adverse effects of the proposed project and functional replacement (*i.e.*, “no net loss of function”), whenever feasible or a minimum one-to-one linear foot or acreage replacement.
- (7) Acceptable mitigation includes reestablishment or rehabilitation of natural or historic habitat functions when self-sustaining, natural processes are used to provide the functions.
- (8) Whenever feasible, complete mitigation before or concurrent with project construction to reduce temporal loss of aquatic functions and simplify compliance.
- (9) When project construction is authorized before mitigation is completed, the applicant must show that a mitigation project site has been secured and appropriate financial assurances in place.
  - (a) Complete all work necessary to carry out the mitigation plan no later than the first full growing season following the start of project construction whenever feasible.
  - (b) If beginning the initial mitigation actions within that time is infeasible, then include other measures that mitigate for the consequences of temporal losses in the mitigation plan.
- (10) Actions to complete a mitigation plan that require a Corps permit must also meet all applicable terms and conditions for this Opinion or complete a separate consultation.

i. Surface Water Diversion. Surface water may be diverted consistent with Oregon law to meet construction needs only if water from sources that are already developed such as municipal supplies, small ponds, reservoirs, or tank trucks is unavailable or inadequate.

- i. Alternative Sources. When alternative surface sources are available, diversion shall be from the stream with greatest flow.
- ii. Fish Screen. A temporary fish screen must be installed, operated, and maintained according to NOAA Fisheries fish screen criteria on any surface water diversion used to meet construction needs.
- iii. Rate and Volume. The rate and volume of pumping will not exceed 10 percent of the available flow. For streams with less than five cubic feet per second, drafting will not exceed 18,000 gallons per day and no more than one pump will be operated per site.

j. Construction Discharge Water. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) must be treated as follows:

- i. Water Quality Treatment. Design, build, and maintain facilities to collect and treat all construction and drilling discharge water using the best available technology applicable to site conditions to remove debris, nutrients, sediment, petroleum products, metals, and other pollutants likely to be present.
- ii. Return Flow. If construction discharge water is released using an outfall or diffuser port, velocities may not exceed four feet per second, and the maximum size of any aperture may not exceed one inch.
- iii. Pollutants. Do not allow pollutants such as green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any waterbody, wetland, or stream channel below ordinary high water.

- iv. Drilling Waste Containment. All drilling equipment, drill recovery, recycling pits, and any waste or spoil produced must be contained as necessary to prevent any drilling fluids or other wastes from entering the stream.
  - (1) All drilling fluids and waste must be completely recovered then recycled or disposed to prevent entry into flowing water.
  - (2) Drilling fluids must be recycled using a tank instead of drill recovery/recycling pits whenever feasible.
  - (3) When drilling is completed, try to remove the remaining drilling fluid from the sleeve (*e.g.*, by pumping) to reduce turbidity when the sleeve is removed.
  
- k. Heavy Equipment. Use of heavy equipment is restricted as follows:
  - i. Choice of Equipment. When heavy equipment will be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally sized, low ground pressure equipment).
  - ii. Vehicle and Material Staging. Store construction materials and fuel and operate, maintain, and store vehicles as follows:
    - (1) To reduce the staging area and likelihood of contamination, ensure that only enough supplies and equipment to complete a specific job will be stored onsite.
    - (2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody, or wetland unless otherwise approved in writing by NOAA Fisheries. Requests for approval should be submitted with the project notification form.
    - (3) Inspect all vehicles operated within 150 feet of any stream, waterbody, or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by the Corps or NOAA Fisheries.
    - (4) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below ordinary high water until all visible external oil, grease, mud, and other visible contaminants are removed. Complete all cleaning in the staging area.
    - (5) Diaper all stationary power equipment (*e.g.*, generators, cranes, and stationary drilling equipment) operated within 150 feet of any stream, waterbody, or wetland to prevent leaks unless suitable containment is provided to prevent likely spills from entering any stream or waterbody.
  
- l. Pre-construction Activity. The following actions must be completed before significant<sup>12</sup> alteration of the project area.
  - i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands, areas below ordinary high water, and other sensitive sites beyond the flagged boundary.
  - ii. Temporary Erosion Controls. All temporary erosion controls must be in place and appropriately installed downslope of project activity until site restoration is complete.
  
- m. Site Preparation. Native materials including large wood, native vegetation, weed-free topsoil, and native channel materials (gravel, cobble, and boulders) disturbed during site preparation must be conserved onsite for site restoration.

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<sup>12</sup> "Significant" means an effect can be meaningfully measured, detected, or evaluated.

- i. If possible, leave native materials where they are found. In areas to be cleared, clip vegetation at ground level to retain root mass and encourage reestablishment of native vegetation.
  - ii. If native materials are moved, damaged, or destroyed, replace them with a functional equivalent during site restoration.
  - iii. Stockpile all large wood<sup>13</sup> taken from below ordinary high water and from within 150 feet of a stream, waterbody, or wetland, native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.
  - iv. As part of the site restoration, all large wood taken from the riparian zone or stream during construction must be returned to those areas and placed in a natural configuration that may be expected to function naturally.
- n. Temporary Access Roads and Drilling Pads. All temporary access roads and drilling pads must be constructed as follows.
- i. Existing Ways. Use existing roadways, travel paths, and drilling pads whenever possible unless construction of a new way or drilling pad would result in less habitat take. When feasible, eliminate the need for an access road by walking a tracked drill or spider hoe to a survey site or lower drilling equipment to a survey site using a crane.
  - ii. Soil Disturbance and Compaction. Minimize soil disturbance and compaction whenever a new temporary road or drill pad is necessary within wetlands or the riparian management area by clearing vegetation to ground level and placing clean gravel or geotextile fabric unless otherwise approved in writing by NOAA Fisheries. Requests for approval should be submitted with the project notification form.
  - iii. Temporary Stream Crossings.
    - (1) Minimize the number of temporary stream crossings.
    - (2) Design temporary road crossings as follows.
      - (a) A qualified fish biologist will survey and map spawning habitat, any occupied spawning redds, and native submerged aquatic vegetation within 300 feet upstream downstream and 100 feet upstream from a proposed crossing.
      - (b) Do not place a stream crossing within 300 feet downstream or 100 feet upstream from any occupied redd until fry emerge or within 300 feet of native submerged aquatic vegetation.
      - (c) Design the crossing to provide for foreseeable risks (*e.g.*, flooding and associated bedload and debris to prevent the diversion of streamflow out of the channel and down the road if the crossing fails).
      - (d) Vehicles and machinery must cross riparian areas and stream at right angles to the main channel wherever possible.
  - iv. Obliteration. When the project is complete, obliterate all temporary access roads that will not be in footprint of a new bridge or other permanent structure, stabilize the soil, and revegetate the site.

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<sup>13</sup> “Large wood” means a tree, log, or redwood big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See Oregon Department of Forestry and ODFW, “A Guide to Placing Large Wood in Streams, May 1995, <http://www.nwr.noaa.gov/1salmon/salmesa/4ddocs/lrgwood.pdf>

- o. Earthwork. Earthwork including drilling, excavation, dredging, filling, and compacting must be completed as quickly as possible.
  - i. Site Stabilization. Stabilize all disturbed areas including obliteration of temporary roads following any break in work unless construction will resume within four days.
  - ii. Inspection of Erosion Controls. Monitor instream turbidity and inspect all erosion controls daily during the rainy season, weekly during the dry season, or more often as necessary to ensure the erosion controls are working adequately.<sup>14</sup>
    - (1) If monitoring or inspection shows that the erosion controls are in effective, immediately mobilize work crews to repair, replace, or reinforce controls as necessary.
    - (2) Remove sediment from erosion controls before it reaches one-third of the exposed height of the control.
  - iii. Drilling, Boring, Jacking. If drilling, boring, or jacking is used, the following conditions apply.
    - (1) Isolate drilling operations in wetted stream channels using a steel pile, sleeve, or other appropriate isolation method to prevent drilling fluids from contacting water.
    - (2) If it is necessary to drill through a bridge deck, use containment measures to prevent drilling debris from entering the channel.
    - (3) Sampling and directional drill recovery/recycling pits and any associated waste or spoils must be completely isolated from surface waters, off-channel habitats, and wetlands. All waste or spoils must be covered if precipitation is falling or imminent. All drilling fluids and waste must be recovered and recycled or disposed to prevent entry into flowing water.
    - (4) If a drill boring conductor breaks and drilling fluid or waste is visible in a water or a wetland, all drilling activity must cease pending written approval from NOAA Fisheries to resume drilling.
- p. Treated Wood. Use of lumber, pilings, or other wood products that are treated or preserved with pesticidal compounds (including but not limited to alkaline, copper quaternary, ammoniacal copper arsenate, ammoniacal copper zinc arsenate, copper boron azole, chromated copper arsenate, copper naphthenate, creosote, and pentachlorophenol) may not be used below ordinary high water or as part of an in-water or over-water structure except as described below.
  - i. Onsite Storage. Treated wood shipped to the project area must be stored out of contact with standing water and wet soil and protected from precipitation.
  - ii. Visual Inspection. Each load and piece of treated wood must be visually inspected and rejected for use in or above aquatic environments if visible residues, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other matter is present.
  - iii. Pilings. Pilings treated with ammoniacal copper zinc arsenate, chromated copper arsenate, or creosote may be installed below ordinary high water according to NOAA Fisheries' guidelines,<sup>15</sup> provided that no more

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<sup>14</sup> "Working adequately" means that upland work is not contributing visible sediment to water, and in-water work does not increase ambient stream turbidity by more than ten percent above background 100 feet below the discharge, when measured relative to a control point immediately upstream from the turbidity causing activity.

<sup>15</sup> Letter from Steve Morris, National Marine Fisheries Service to W.B. Paynter, Portland District, U.S. Army Corps of Engineers (December 9, 1998) (transmitting a document titled "Position Document for the Use of Treated Wood in Areas within Oregon Occupied by Endangered Species Act Proposed and Listed Anadromous Fish Species," National Marine Fisheries Service, December 1998).

than 50 piles are used. Also note that these guidelines do not apply to pilings treated with any other preservative and do not authorize use of treated wood for any other purpose.

- iv. Prefabrication and Field Preservative Treatment. Use prefabrication to the extent feasible to ensure that cutting, drilling, and field preservative treatment is minimized. When field fabrication is necessary, all cutting and drilling of treated wood and field preservative treatment of wood exposed by cutting and drilling, will occur above ordinary high water to minimize discharge of sawdust, drill shavings, excess preservative and other debris in riparian, or aquatic habitats. Use tarps, plastic tubs, or similar devices to contain the bulk of any fabrication debris and wipe off any excess field preservative.
- v. Abrasion Prevention. All treated wood structures including pilings must have design features to avoid or minimize impacts and abrasion by livestock, pedestrians, vehicles, vessels, floats, *etc.*, to prevent the deposition of treated wood debris and dust in riparian or aquatic habitats.
- vi. Waterproof Coating. Treated wood may be used to construct a bridge, over-water structure, or an in-water structure provided that all surfaces exposed to leaching by precipitation, overtopping waves, or submersion are coated with a waterproof seal or barrier that will be maintained for the life of the project. Coatings and any paint-on field treatment must be carefully applied and contained to reduce contamination. Surfaces that are not exposed to precipitation or wave attack, such as parts of a timber bridge completely covered by the roadway wearing surface of the bridge deck are exempt from this requirement.
- vii. Debris Removal. Projects that require removal of treated wood must use the following precautions.
  - (1) Ensure that to the extent feasible, no treated wood debris falls into the water. If treated wood debris does fall into the water, remove it immediately.
  - (2) After removal, place treated wood debris in an appropriate dry storage site until it can be removed from the project area. Do not leave treated wood construction debris in the water or stacked on the streambank at or below the ordinary high water.
  - (3) Evaluate treated wood construction debris removed during a project including treated wood pilings to ensure proper disposal of debris.
- q. Piling Installation. Hollow steel piling 24 inches in diameter or smaller and H-pile designated as HP24 or smaller may be installed below ordinary high water as follows.
  - i. Minimize the number and diameter of pilings as feasible.
  - ii. Repairs, upgrades, and replacement of existing pilings consistent with these terms and conditions are allowed. In addition, up to five single pilings or one dolphin consisting of three to five pilings may be added to an existing facility per in-water construction period.
  - iii. Whenever feasible, use vibratory hammer for piling installation. Otherwise, use the smallest drop or hydraulic impact hammer necessary to complete the job and set the drop height to the minimum necessary to drive the piling.
  - iv. When using an impact hammer to drive or proof steel piles, one of the following sound attenuation devices must be used to reduce sound pressure levels by 20 dB.
    - (1) Place a block of wood or other sound dampening material between the hammer and the piling being drive.

- (2) If water velocity is 1.7 miles per hour or less, surround the piling being driven by an unconfined bubble curtain that will distribute small air bubbles around 100 percent of the piling perimeter for the full depth of the water column.<sup>16</sup>
  - (3) If water velocity is greater than 1.7 miles per hour, surround the piling being driven by a confined bubble curtain (*e.g.*, a bubble ring surrounded by a fabric or metal sleeve) that will distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column.
  - (4) Written approval of an alternative sound attenuation plan may be requested with the project notification form, provided the plan will maintain sound pressure levels below 150dB rms (re: 1 micro Pascal) for a minimum of 50 percent of the driver strikes, and peak sound pressure levels below 180dB rms (re: 1 micro Pascal) for all strikes.
- r. **Piling Removal.** If a temporary or permanent piling will be removed, the following conditions apply.
- i. Dislodge the piling with a vibratory hammer, whenever feasible.
  - ii. Once loose, place the piling onto the construction barge or other appropriate dry storage site.
  - iii. If a treated wood piling breaks during removal, either remove the stump by breaking or cutting three feet below the sediment surface or push the stump into that depth, then cover it with a cap of clean substrate appropriate for the site.
  - iv. Fill the holes left by each piling with clean, native sediments whenever feasible.

#### **Specific Conditions for Water Control Structures**

- a. **Exclusions.** Permits for new or upgraded water control structures are not authorized by this Opinion. Repairs of tide gates are not authorized by this Opinion.
- b. **Water control structure repairs.** Except for tide gates, repair of existing water control structures that were previously permitted and that do not involve reconfiguration of an existing fish facility, are authorized by this Opinion, provided they are consistent with all applicable terms and conditions of this Incidental Take Statement, including, but not limited to, monitoring and construction (*e.g.*, project notification, project completion report, minimum area, timing of in-water work, pollution and erosion control, treated wood, temporary access roads, work area isolation, stormwater management, site restoration, compensatory mitigation).

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<sup>16</sup> For guidance on how to deploy an effective, economical bubble curtain, see Longmuir, C. and T. Lively, "Bubble Curtain Systems for Use During Marine Pile Driving, Fraser River Pile and Dredge LTD, 1830 River Drive, New Westminster, British Columbia, V3M 2A8, Canada. Recommended components include a high volume air compressor that can supply more than 100 pounds per square inch at 150 cubic feet per minute to a distribution manifold with 1/16 inch diameter air release holes spaced every 3/4-inch along its length. An additional distribution manifold is needed for each 35 feet of water depth.