

SALISH SEA NEARSHORE PROGRAMMATIC (SSNP) CONSULTATIONS  
LIST OF REQUIREMENTS  
Version: August 02, 2022

**Project Design Criteria (PDC) #1 Culvert and Bridge Repair and Replacement  
Resulting in Improvements for Fish Passage**

Programmatic Endangered Species Act (ESA) Consultations [National Marine Fisheries Service (NMFS) reference number WCRO-2019-04086, U.S. Fish and Wildlife Service (USFWS) reference number FWS/R1/2002-0048454] have been completed for the activities listed below. If you can design your project to meet all of the requirements of the Programmatic Biological Opinions (i.e. General Construction Measures, and Essential Fish Habitat Conservation Recommendations, and PDC's) including the specific project design criteria listed below, then the review of your ESA consultation and permit application will be streamlined. The submittal of this list is not required. However, to further expedite your review you may include a description of how you meet these requirements in your SSNP application materials.

Activities Covered	
<ul style="list-style-type: none"> <li>• Culvert repair, rehabilitation or replacement for fish passage improvements.</li> <li>• Bridge repair, rehabilitation and replacement for fish passage improvements.</li> </ul>	
Notification Requirements	
<p>NMFS notification and verification is required for this activity category. USFWS notification is required for this activity category. The application materials and notification should include the information below, if applicable.</p>	
<ul style="list-style-type: none"> <li>• Drawings showing: <ul style="list-style-type: none"> <li>i. Bankfull width</li> <li>ii. Functional floodplain</li> <li>iii. Artificial fill within the project area</li> <li>iv. Existing crossing to be replaced</li> <li>v. Proposed crossing</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Name, address, and telephone number of person responsible for designing the action.</li> </ul>	
<ul style="list-style-type: none"> <li>• If embedment of abutments, footings, or inverts are not feasible, include site specific justification.</li> </ul>	
<ul style="list-style-type: none"> <li>• If a minor alteration from the PDC is requested, provide documentation in the notification. See Program Administration Section 6 of the Biological Opinions for supporting information. If applicable, NMFS verification required.</li> </ul>	

Project Design Criteria	
	Project designs must be consistent with the Anadromous Salmonid Passage Facility Design (NMFS 2011a) or subsequent version and should follow "Water Crossing Designs Guidelines "Appendix D: Tidally Influenced Crossings" (Bernard et al. 2013). See Biological Opinions for supporting information.
	<b>Crossing Replacement - Span</b>

	Span is determined by the crossing width at the proposed streambed grade.
	Single span structures will maintain a clear, unobstructed opening above the general scour elevation that is at least as wide as 1.5 times the active channel width.
	Multi-span structures will maintain clear, unobstructed openings above the general scour elevation (except for piers or interior bents) that are at least as wide as 2.2 times the active channel width.
	Entrenched streams: If a stream is entrenched (entrenchment ratio of less than 1.4), the crossing width will accommodate the flood prone width. Flood prone width is the channel width measured at twice the maximum bankfull depth (Rosgen 1996). See Biological Opinions for supporting information.
	Minimum structure span in perennial streams is 6 feet.
	<b>Bed Material</b>
	Install clean alluvium with similar angularity as the natural bed material, no crushed rock.
	Bed material shall be sized based on the native particle size distribution of the adjacent channel or reference reach, as quantified by a pebble count (Wolman 1954). See Biological Opinions for supporting information.
	Rock band designs as detailed in Water Crossings Design Guidelines (Bernard et al, 2013) may be used. See Biological Opinions for supporting information.
	Bed material in systems where stream gradient exceeds 3% may be sized to resist movement.
	<b>Scour Prism</b>
	<p>Designs shall maintain the general scour prism, as a clear, unobstructed opening (i.e., free of any fill, embankment, scour countermeasure, or structural material to include abutments, footings, and culvert inverts). No scour or stream stability countermeasure may be applied above the general scour elevation.</p> <ol style="list-style-type: none"> <li>The lateral delineation of the scour prism is defined by the criteria span.</li> <li>The vertical delineation of the scour prism is defined by the Lower Vertical Adjustment Potential (LVAP) with an additional offset of 2 times D90, as calculated in Stream Simulation: An ecological approach to providing passage for aquatic organisms at road crossings (USDA-Forest Service 2008). See Biological Opinions for supporting information.</li> </ol>
	<b>Embeddedness</b>
	All abutments, footings, and inverts shall be placed below the thalweg a depth of 3 feet, or the LVAP line with an offset of 2 times D90, whichever is deeper.
	In addition to embedment depth, embedment of closed bottom culverts shall be between 30% and 50% of the culvert rise.
	In specific cases, embedment may not be feasible due to site constraints, such as bedrock, sewer pipes, buried utilities, etc. If this occurs, the applicant must provide justification to the Corps project manager and Services on why embedment cannot occur at the project site and verify that the proposed design meets fish passage requirements with a NMFS engineer.

	<b>Bridges</b>
	Primary bridge structural elements are concrete, metal, fiberglass, or untreated timber.
	The use of treated wood shall conform with all appropriate PDCs and General Construction Measures 8 and 11.
	Riprap may only be placed below bankfull height of the stream when necessary for protection of abutments and pilings. The placement of riprap shall not constrict the bankfull width.
	Temporary work bridges meet the NMFS 2011a or most recent criteria. See Biological Opinions for supporting information.
	<b>Electronic Notification</b>
	<p>The electronic notification for the above activities shall contain the following:</p> <ul style="list-style-type: none"> <li>i. Site sketches, drawings, aerial photographs, or other supporting specifications, calculations, or information that is commensurate with the scope of the action and that show: <ul style="list-style-type: none"> <li>a. the bankfull width,</li> <li>b. the functional floodplain,</li> <li>c. any artificial fill within the project area,</li> <li>d. the existing crossing to be replaced, and</li> <li>e. the proposed crossing.</li> </ul> </li> <li>ii. The name, address, and telephone number of a person responsible for designing this part of the action that NMFS Corps project manager and Services may contact if additional information is necessary to complete the effects analysis.</li> </ul>