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**Teaway Hydraulic Improvements Project -
Phase 1, Story Creek Culvert Replacement Project
Environmental Compliance Plan**

Kittitas County Public Works

July 2, 2019



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Introduction

This Environmental Compliance Plan (ECP) is a pre-construction project document that is intended to summarize and document project-specific environmental requirements and permit conditions, list applicable regulations, and define priority tasks required to meet and manage environmental compliance through the life of the Teanaway Road Hydraulic Improvements Project Phase 1 – Story Creek Project (project). This ECP contains the information necessary to assign, implement, document, and report construction compliance actions for the project. Copies of the ECP shall be maintained onsite and in the project office. Copies of Federal, State, and local environmental permits or approvals, where applicable, are attached for reference.

Objectives

The ECP is used to effectively communicate environmental compliance tasks, assign compliance task owners, address identified task owner issues, and ensure clear accountability and assignment of compliance tasks through the project lifecycle. When used appropriately, the ECP will assist Contractor and agency personnel in managing environmental compliance and maintaining the following objectives:

- Institute project-wide environmental awareness, maintain our ability to react, and maintain a high level of environmental compliance on this project.
- Manage risk and identify situations that could result in non-compliance events and implement proactive solutions.
- Provide all environmental information, permits, and best management practices (BMPs) in one location.
- Have no violations from resource agencies.
- Minimize impacts caused by unavoidable noncompliance situations.
- Continually assess environmental compliance needs and update this plan to incorporate new ideas and methods.
- Avoid and minimize environmental impacts during construction.
- Prevent gaps in documentation, implementation, and maintenance of required tasks.

Scope

Project-specific information is summarized into a series of tables, an environmental compliance overview or “Hot Sheet” to bring attention to key compliance efforts, primary contact information for agencies and contractors, environmental commitments and applicable permits/plans/approvals, and environmental compliance tasks.

Roles and Responsibilities

Primary environmental compliance task owners have been pre-determined and will be primarily responsible for the environmental compliance tasks assigned. If a compliance task is unable to be met by the primary task owner, it is their responsibility to arrange a backup task owner to complete the task(s).

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Communication of compliance task status between owners is often interdependent and critical to the efficient closure of the project. Maintain all current environmental records and plans (Appendix A) on site or in a readily accessible location until construction has ceased and final stabilization is achieved.

Disclaimer

The purpose of this Notebook is to identify, summarize and document environmental requirements and conditions for this project. It is not a replacement for full permits and conditions. It is the Contractor responsibility to read all of the authorizations and environmental documents to gain a full understanding of the environmental requirements and associated conditions for the project. Any changes in environmental commitments and conditions must be added to this plan to keep it up to date over the life of the project.

If there are questions regarding conditions or commitments shown in this plan, or about the applicability of permits/approvals not shown within the plan, contact Darren Case, Kittitas County Construction Lead.

509-962-7692 or Darren.Case@co.kittitas.wa.us.

Environmental Compliance Hot Sheet

The purpose of this list is to identify critical or key compliance items.

Environmental Compliance Tasks and Owner		
Item Number	Task	Task Owner ¹
USFWS Letter of Concurrence		
LOC-002	The in-water work window will occur from July 16 – October 31.	CC
LOC-003	Worksite isolation and fish exclusion will be conducted by qualified biologists in accordance with WSDOT Protocols.	CC/ES
Biological Assessment		
BA-001	Culvert and channel work below the OHWM will only occur in an isolated condition.	CC
BA-009	Fines will be washed into areas of new streambed prior to the reintroduction of flows to ensure water stays on the surface, and to minimize downstream turbidity during rewatering.	CC
Hydraulic Project Approval (HPA)		
HPA-003	APPROVED PLANS: You must accomplish the work per plans and information submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled Teanaway Hydraulic Improvements-Phase 1 Story Creek, dated January 14, 2019, except as modified by this Hydraulic Project Approval. We anticipate more detailed plans for construction that must be reviewed and approved by WDFW for consistency with HPA application materials. You must have a copy of these plans available on site during all phases of the project construction.	CC/CM/ ES/PE
HPA-048	The temporary bridge must fully span the channel downstream of the existing crossing. Installation and removal of the temporary bridge must avoid work within the wetted channel.	CC
HPA-050	The temporary bridge must be set and removed with full suspension such that it does not disturb the bed of Story Creek.	CC/CM
HPA-051	Completely remove the detour bridge and all temporary fill before the end of the in-water timing window. Crushed rock fill must be completely removed with the temporary bridge and the banks must be reshaped and planted as shown in the approved designs.	CC

¹ PE=Project Manager, CM=Construction Manager, CC=Construction Contractor, ES=Environmental Support

Environmental Compliance Information and Commitments

Primary Construction Team				
Title	Project Manager	Construction Manager	Construction Contractor	Environmental Support
Agency	Kittitas County Public Works	Kittitas County Public Works	Hurst Construction	Jacobs Engineering Group
Name	Mark Cook	Darren Case	Larry Cambell	Craig Broadhead
Title	Director	Construction Lead	Project Manager	Environmental Practice Lead
Phone	509-962-7692	509-962-7692	509-885-8011	509-312-0375
Primary Environmental Task Owners				
Title	Project Engineer (PE)	Construction Manager (CM)	Construction Contractor (CC)	Environmental Support (ES)
Name	Mark Cook	Mark Cook	Larry Cambell	Craig Broadhead
Mobile Phone	509-962-7692	509-962-7023	509-885-8011	509-312-0375
Email Address	Mark.cook@co.kittitas.wa.gov	Mark.cook@co.kittitas.wa.gov	lcambell@hurstconstructionllc.net	Craig.Broadhead@jacobs.com
Emergency Contacts				
Agency	Washington Military Department - Emergency Management Division	Washington Department of Ecology	Washington Department of Fish and Wildlife	Local Police/Fire Department
Name	N/A	N/A	Jennifer Nelson	N/A
Title	N/A	N/A	Area Habitat Biologist	N/A
Phone	1-800-258-5990	1-800-424-8802	509-962-3421	911
Environmental Considerations				
Project Name	Teanaway Hydraulic Improvements - Phase 1, Story Creek Culvert Replacement			
Project Location	Teanaway Road – Cle Elum, WA (47.254704° /-120.878632)			
Estimated Start Date	July 16, 2019			
Estimated Completion Date	November 15, 2019			
Jurisdictional Wetlands Encountered	No			
Threatened and Endangered Species Impacted	Impacts to Bull trout, MCR Steelhead, and Gray wolf. See USFWS LOC and NMFS FPRP Conditions			
Tribal Lands Impacted	No			

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In-water Work	IWWW from July 16 to October 31; see contract plans for work below the OHWM			
Description of Work	The project will replace a deficient and failing culvert located in high-priority watershed for listed species recovery. The improvements at Story Creek will include the complete removal of the existing 4-foot high by 8-foot wide culvert and the construction of a new 12-foot high by 14-foot wide culvert on the same alignment. Due to the lack of capacity of the existing culvert, continued and chronic impacts from flooding, and the presence of suitable habitat above the fish passage barrier in a priority recovery watershed, the immediate replacement of the culvert is necessary.			
Applicable Permits/Plans/Clearance Letters				
Permit/Clearance Letter/Plan	Issued By	Permit/Consultation Number	Applied (Y/N)	Date Obtained
Federal				
CWA Section 404 Nationwide Permit 23	U.S. Army Corps of Engineers	NWS-2019-84	Y	4/3/2019
ESA Section 7 Biological Assessment	Jacobs (on behalf of Corps of Engineers)	N/A	Y	3/1/2019
Letter of Concurrence	U.S. Fish and Wildlife Service	01EWF00-2019-I-0523	Y	1/19/2018
FPRP III Programmatic Biological Opinion (BO)	U.S. Army Corps of Engineers	WCR-2019-11393	Y	2/5/2019
State				
Hydraulic Project Approval (HPA)	Washington Department of Fish and Wildlife	2019-3-12+01	Y	3/20/2019
Letter of Concurrence	Department of Archaeology and Historic Preservation	2018-07-05226	Y	3/27/2019
CWA Section 401 Letter of Verification	Washington State Department of Ecology	See Corps Permit	Y	4/16/2019
Local				
Critical Areas; Shorelines	Kittitas County	N/A	EXEMPT	2/11/2019
SEPA Exemption	Kittitas County	N/A	EXEMPT	2/11/2019

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Environmental Compliance Tasks and Owner		
Item Number	Task	Task Owner
USFWS Letter of Concurrence		
LOC-001	Conditions and minimization measures in the project Biological Assessment incorporated by reference.	CC
LOC-002	The in-water work window will occur from July 16 – October 31.	CC
LOC-003	Worksite isolation and fish exclusion will be conducted by qualified biologists in accordance with WSDOT Protocols.	CC/ES
Biological Assessment		
BA-001	Culvert and channel work below the OHWM will only occur in an isolated condition.	CC
BA-002	All work below the OHWM will be conducted during the identified in-water work window to remain protective of aquatic species.	CC
BA-003	All equipment will be inspected for leaks prior to work each day.	ES
BA-004	All equipment that works below the OHWM will contain vegetable oil or other biodegradable alternative to hydraulic fluid.	CC
BA-005	Equipment staging and fueling will occur more than 50 feet from the OHWM of Story Creek.	CC
BA-006	Worksite isolation and fish exclusion will be conducted by qualified biologists in accordance with the 2016 Washington State Department of Transportation Fish Exclusion Protocols and Standards.	CC
BA-007	Electrofishing will not be used.	CC
BA-008	Small pumps, if used to dewater holding pools prior to full isolation, will be screened to NMFS criteria.	CC
BA-009	Fines will be washed into areas of new streambed prior to the reintroduction of flows to ensure water stays on the surface, and to minimize downstream turbidity during rewatering.	CC
BA-010	Water will be reintroduced to the stream channel slowly during removal of containment measures to minimize turbidity and allow natural equilibration to occur.	CC
BA-011	BMPs such as wattles or silt fence will be used to prevent the discharge of any material into flowing water.	CC
BA-012	Vegetation removal required for access or the temporary detour that is not part of the permanent impact limits will be cut, but not grubbed, to allow natural regeneration.	CC
BA-013	All work will occur outside the calving season (May 15 – June 15) when elk densities in the action area are lowest.	CC
USACE 404/Ecology 401		
UE-001	Perform work in accordance with USACE Section 404 Permit Terms and Conditions (NWP 23).	CC
UE-002	NWP 23, Terms and Conditions printed and located at the project site.	CC
UE-003	Implement and abide by the requirements from the ESA consultations with NMFS and USFWS.	CC
UE-004	Perform work within the approved in-water work window.	CC
UE-005	Implement and abide by the approved riparian planting plan.	CC/CM

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Hydraulic Project Approval (HPA)		
HPA-001	TIMING LIMITATION: You may begin the project on July 15, 2019 and you must complete the culvert replacement construction work by October 31, 2019. All work to remove the existing culvert and construct the new culvert must be done in isolation from flowing water in Story Creek.	CC
HPA-002	RE-VEGETATION: You must complete re-vegetation by no later than May 15, 2020, and you must monitor the success of the re-vegetation through March 15, 2024 at which time at least 80% survival of all woody plantings within disturbed areas must be achieved. Annual monitoring photos and brief summary reports must be provided to WDFW by March 15 for each year this HPA is valid.	CC
HPA-003	APPROVED PLANS: You must accomplish the work per plans and information submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled Teanaway Hydraulic Improvements-Phase 1 Story Creek, dated January 14, 2019, except as modified by this Hydraulic Project Approval. We anticipate more detailed plans for construction that must be reviewed and approved by WDFW for consistency with HPA application materials. You must have a copy of these plans available on site during all phases of the project construction.	CC/CM/ ES/PE
HPA-004	INVASIVE SPECIES CONTROL: Follow Level 1 Decontamination protocol for low risk locations. Thoroughly remove visible dirt and organic debris from all equipment and gear (including drive mechanisms, wheels, tires, tracks, buckets and undercarriage) before arriving and leaving the job site to prevent the transport and introduction of invasive species. Properly dispose of any water and chemicals used to clean gear and equipment. For contaminated or high risk sites please refer to the Level 2 Decontamination protocol. You can find this and additional information in the Washington Department of Fish and Wildlife's Invasive Species Management Protocols, available online at http://wdfw.wa.gov/publications/search.php?Cat=Aquatic Invasive Species .	CC/CM
HPA-005	PRE CONSTRUCTION CONTRACTOR MEETING: Prior to commencement of work within the ordinary high watermark, you, your agent, or contractor must arrange a pre-construction meeting with WDFW and key project personnel to discuss the work plan, project schedule, and key project elements. Permittee must provide WDFW with a copy of the final construction designs and specifications and the contractor's work schedule prior to the pre-construction meeting. Contact Jennifer Nelson at Jennifer.nelson@dfw.wa.gov or (509) 961-6639 to arrange this meeting.	CC/CM
HPA-006	PRE-, DURING, AND POST-CONSTRUCTION NOTIFICATION: You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail at Jennifer.nelson@dfw.wa.gov or by phone (509) 961-6639 at least three business days before starting work, one day before removing the temporary bypass and again within seven days after completing the work. The notification must include the permittee's name, project location, starting date for work or date the work was completed, and the permit number. The Washington Department of Fish and Wildlife may conduct inspections during and after construction; however, the Washington Department of Fish and Wildlife will notify you or your agent before conducting the inspection.	CM
HPA-007	PHOTOGRAPHS: You, your agent, or contractor must take photographs of the job site before the work begins and after the work is completed. You must upload the photographs to the post-permit requirement page in the Aquatic	CM/ES

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	Protection Permitting System (APPS) or mail them to Washington Department of Fish and Wildlife at Post Office Box43234, Olympia, Washington 98504-3234 within 30-days after the work is completed.	
HPA-008	FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.	CC
HPA-009	Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.	CC
HPA-010	Design and locate new temporary access roads to prevent erosion and sediment delivery to waters of the state.	CC
HPA-011	Clearly mark boundaries to establish the limit of work associated with site access and construction.	CC
HPA-012	Limit the removal of native bankline vegetation to the minimum amount needed to construct the project.	CC
HPA-013	This Hydraulic Project Approval authorizes only the removal of the large woody vegetation shown in the approved plan. Clearly mark all large woody vegetation authorized for removal before starting work.	CC
HPA-014	Retain all natural habitat features on the bed or banks including large woody material and boulders. You may move these natural habitat features during construction, but you must place them near the pre-project location before leaving the job site.	CC/CM
HPA-015	Confine the use of equipment to the specific access and work corridor shown in the approved plans.	CC/CM
HPA-016	Equipment used for this project may operate waterward of the ordinary high water line, provided the drive mechanisms (wheels, tracks, tires, etc.) do not enter or operate waterward of the ordinary high water line.	CC/CM
HPA-017	Remove soil or debris from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to operating the equipment waterward of the ordinary high water line.	CC
HPA-018	Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.	CC
HPA-019	Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.	CC
HPA-020	Work area isolation and containment measures must be in place prior to performing excavation or ground disturbing work adjacent to or in Story Creek.	CC
HPA-021	Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the jobsite is complete.	CC

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HPA-022	All erosion control materials that will remain onsite must be composed of 100% biodegradable materials.	CC
HPA-023	Prevent project contaminants, such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment laden water, chemicals, or any other toxic or harmful materials, from entering or leaching into waters of the state.	CC
HPA-024	Route construction water (wastewater) from the project to an upland area above the limits of anticipated floodwater. Remove fine sediment and other contaminants before discharging the construction water to waters of the state.	CC
HPA-025	Deposit waste material from the project, such as construction debris, silt, excess dirt, or overburden, in an upland area above the limits of anticipated floodwater unless the material is approved by the Washington Department of Fish and Wildlife for reuse in the project.	CC
HPA-026	Deposit all trash from the project at an appropriate upland disposal location.	CC
HPA-027	Store all construction and deconstruction material in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.	CC
HPA-028	To prevent leaching, construct forms to contain any wet concrete. Place impervious material over wet concrete that will come in contact with waters of the state. Forms and impervious materials must remain in place until the concrete is cured.	CC
HPA-029	Do not use wood treated with oil-type preservatives (creosote, pentachlorophenol) in any hydraulic project. You may use wood treated with waterborne preservatives (ACZA, ACQ) provided the wood is approved by the Western Wood Preservers Institute for use in the aquatic environment. Any use of treated wood in the aquatic environment must follow guidelines and best management practices available at www.wwpinstitute.org .	CC
HPA-030	Install block nets at an angle to the direction of flow (not perpendicular to the flow) to avoid entrapping fish in the nets. After the first block net is secured at the upstream end, use a second block net to herd fish downstream and out of the project area. Install a downstream block net if fish may reenter the work area from downstream.	CC
HPA-031	To anchor block nets, place bags filled with clean round gravel along the bottom of the nets. Secure block nets along both banks and the channel bottom to prevent failure from debris accumulation, high flows, and/or flanking.	CC
HPA-032	To keep fish out of the job site, leave block nets in place until the temporary bypass is complete and conveying all flow such that conditions are suitable for fish.	CC
HPA-033	Check block nets at least three times a day for entangled fish and accumulated debris while they are installed.	CC
HPA-034	Isolate fish from the work area by using a total bypass to reroute the stream through a temporary channel or pipe prior to initiating work in the channel. The stream bypass must effectively isolate the work area from the flowing water and pass all stream flow to the channel immediately downstream of the work area. The bypass must be only as long as necessary to isolate the work and prevent seepage or backwatering of the work area. The bypass may include a temporary pump bypass system, temporary culvert, flume or temporary channel. The bypass must be of sufficient size to pass flows and debris likely to	CC

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	occur during the period of in-channel work and must be made of clean materials.	
HPA-035	A diversion dam (coffer dam) must be made of clean materials such as sandbags, precast concrete ecology blocks, plastic sheeting, sheet piles, water dams, etc.. If necessary to prevent backwater from entering the work area and to trap turbid water, an equivalent, clean structure must be installed at the downstream end of the isolation area. There must be no in-water use of earth or clay.	CC
HPA-036	Diversion of flow through the bypass must be done incrementally to allow capture and safe removal of fish from the work area. Any fish trapped inside of the work area must be captured and released unharmed upstream or downstream of the project. (Note: Permittee may request assistance from the Department for this task. Assistance will be provided if the Department has personnel available. Please provide as much advanced notice as possible.)	CC
HPA-037	Sequence the work to minimize the duration of dewatering.	CC
HPA-038	During all phases of bypass installation and decommissioning, maintain flows downstream of the project site to ensure survival of all downstream fish.	CC
HPA-039	Return diverted water to the channel immediately downstream of the work area. Dissipate flow energy from the diversion to prevent scour or erosion of the channel and bank.	CC
HPA-040	If the diversion inlet is a gravity diversion that provides fish passage, place the diversion outlet where it facilitates gradual and safe reentry of fish into the stream channel.	CC
HPA-041	If the bypass is a pumped diversion, once started it must run continuously until it is no longer necessary to bypass flows. This requires back-up pumps on-site and twenty-four-hour monitoring for overnight operation.	CC
HPA-042	If the diversion inlet is a pump diversion in a fish-bearing stream, the pump intake structure must have a fish screen installed, operated, and maintained in accordance with RCW 77.57.010 and 77.57.070. Screen the pump intake with one of the following: a) Perforated plate: 0.094 inch (maximum opening diameter); b) Profile bar: 0.069 inch (maximum width opening); or c) Woven wire: 0.087 inch (maximum opening in the narrow direction). The minimum open area for all types of fish screens is twenty-seven percent. The screened intake facility must have enough surface area to ensure that the velocity through the screen is less than 0.4 feet per second. Maintain fish screens to prevent injury or entrapment of fish.	N/A
HPA-043	The fish screen must remain in place whenever water is withdrawn from the stream through the pump intake.	CC
HPA-044	Upon completion of the project, the temporary bypass must be removed incrementally so as to prevent a temporary dewatering of the channel below the project. The stream bypass diversion dam must be opened sufficiently to wet the channel through the new culvert while still retaining at least one half of the flow in the bypass channel. Once the new channel is fully wetted, the remaining flow can be gradually diverted into the new channel. Any fish stranded in the temporary bypass channel must be safely relocated to the flowing stream. The containment dams must be removed and all remaining materials used for the temporary bypass and containment structures (other than washed gravel or specified stream gravel) must be removed from the channel and disposed of offsite. If washed stream gravel was used for the	CC

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	diversion or containment dams, it must be redistributed in the channel so as to not obstruct flows or fish passage.	
HPA-045	All persons participating in capture and removal must have training, knowledge, and skills in the safe handling of fish life. If electrofishing is conducted, a person with electrofishing training must be on-site to conduct or direct all electrofishing activities.	CC
HPA-046	If personnel are available, the Washington Department of Fish and Wildlife will help capture and move fish life from the job site. Please provide as much notice as possible for WDFW assistance.	N/A
HPA-047	Capture and safely move fish life from the work area to the nearest suitable free-flowing water.	CC/CM
HPA-048	The temporary bridge must fully span the channel downstream of the existing crossing. Installation and removal of the temporary bridge must avoid work within the wetted channel.	CC
HPA-049	Temporary bridge sills must be located downstream of the existing crossing and outside the ordinary high watermark of the channel.	CC/CM
HPA-050	The temporary bridge must be set and removed with full suspension such that it does not disturb the bed of Story Creek.	CC/CM
HPA-051	Completely remove the detour bridge and all temporary fill before the end of the in-water timing window. Crushed rock fill must be completely removed with the temporary bridge and the banks must be reshaped and planted as shown in the approved designs.	CC
HPA-052	All components of the existing culvert must be removed and replaced with a concrete box culvert with an inside span not less than 14 feet and inside height not less than 12 feet tall. The length of the culvert must not exceed 50 feet. Work must be per the approved plans and information provided to WDFW, except as modified by this HPA.	CC
HPA-053	Establish the new culvert invert elevation with reference point(s) or benchmark(s) created before starting work on this project. Clearly mark and preserve the reference point(s) for post-project compliance. Before backfilling, confirm the invert elevation, as stated on the plans, relative to the reference points with at least a construction-grade leveling device (such as an optical auto-level or laser level).	CC
HPA-054	All culvert bedding material must be choked with fines and/or wrapped with geotextile fabric to ensure Story Creek flows do not pipe under the new culvert.	CC
HPA-055	Set the stream simulation culvert at the same gradient as the prevailing stream gradient of 1.6 percent.	CC
HPA-056	Countersink the stream simulation culvert a minimum of thirty percent and a maximum of fifty percent of the culvert rise, but not less than two feet.	CC
HPA-057	The interior walls of the culvert structure must be painted or marked prior to filling with streambed material to clearly identify the bed elevation. The banks, bed, and thalweg must be built to look and perform like a natural stream channel. The thalweg must meander through the culvert with pools constructed on the outside bends and gravel bars on the inside bends.	CC
HPA-058	To ensure that low flows are not dispersed across the entire channel width, the streambed must have a narrow thalweg defined to concentrate low flows and provide for fish passage. The thalweg must meander throughout the newly	CC/CM

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	constructed areas. High flow benches must also be constructed within the culvert.	
HPA-059	The new channel streambed must be constructed with the specified mix of streambed boulders, streambed cobbles, and streambed sediment as per in the Final Basis of Design Report dated January 24, 2019. Materials conserved from channel excavation may be used to the extent they are suitable and meet the specifications.	CC
HPA-060	A minimum of 43 inches of streambed material (streambed cobbles and streambed sediment) must be installed in lifts, with streambed boulders extending throughout adjacent lifts. Streambed boulders must be incorporated in the bed such that they are found throughout the vertical and horizontal distribution of the streambed material. During installation of each lift, gravel and fines must be worked into the voids between large cobble and boulders using water to control permeability of the streambed and ensure stream flow remains on the surface of the bed.	CC/ES
HPA-061	Streambed habitat boulders (one man rocks) must be installed outside the thalweg of the channel and exposed above the prevailing bed surface by 50-75% of their diameters. Habitat boulders must provide hydraulic roughness throughout the newly constructed channel and within the new crossing structure such that they provide refuge and flow complexity to improve fish passage through the structure.	CC
HPA-062	After the streambed material has been installed to its final configuration, the bed and banks must be washed with water so as to leave a clean, natural-like surface and wash fine materials down into the voids between the larger bed materials and reduce permeability of the bed. Wastewater from this washing must be captured and pumped to an upland area for disposal.	CC
HPA-063	Large woody material (from the site) must be installed in a grouping downstream of the culvert in Story Creek to help dissipate energy and provide cover for fish entering the culvert. Logs, rootwads, and slash for instream structures must be interacting with high and low flows to provide year round fish habitat.	CC/ES
HPA-064	The owner(s) must maintain the culvert to ensure it provides continued, unimpeded fish passage. If the culvert becomes a hindrance to fish passage, the owner must obtain an Hydraulic Project Approval and provide prompt repair.	CC/ES
HPA-065	Protect structural fill associated with the culvert installation from erosion to the 100-year peak flow.	CC
HPA-066	Approach material must be structurally stable and composed of material that if eroded into the water will not harm fish life.	CC
HPA-067	Upon completion of the project, restore the disturbed bed, banks, and riparian zone to pre-project condition to the extent possible.	CM/ES
HPA-068	Completely remove any temporary fill before the end of the in-water timing window if the fill material could erode and deliver sediment-laden water into waters of the state.	CM/ES
HPA-069	To prevent fish from stranding, backfill trenches, depressions, and holes in the bed that may entrain fish during highwater or wave action.	

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HPA-070	All earth areas on the banks and shorelines of Story Creek which have been exposed or disturbed by this project, must be graded to a stable slope, seeded with a native seed mix or an approved temporary erosion control mix, and protected from erosion with a suitable erosion control blanket, hydro-mulch with bonding agent or other effective BMPs within seven calendar days of completion. Shoreline erosion protection must be capable of protecting soil from spring runoff flows typical for the site.	
HPA-071	Replace native riparian zone vegetation damaged or destroyed by construction with native trees, and native shrubs. Plant the trees and shrubs immediately above the ordinary high water mark at three feet on center. Ensure all live stakes and bare root plants are at least six inches into the low flow water table.	
HPA-072	Complete replanting of riparian vegetation during the first dormant season (late fall through late winter) after project completion per the approved plan. Maintain plantings for at least three years to ensure at least eighty percent of the plantings survive. Failure to achieve the eighty percent survival in year three will require you to submit a plan with follow-up measures to achieve requirements or reasons to modify requirements.	

Appendix A – Permits and Approvals

US Army Corps of Engineers Nation Wide Permit Verification Letter

Nation Wide Permit – 23 Conditions

Department of Ecology – Letter of Verification

WDFW – Hydraulic Project Approval

Project Biological Assessment

USFWS – Letter of Concurrence

NMFS – Letter of Acceptance into RRMP Program

NMFS – FPRP III Programmatic Biological Opinion

Kittitas County – SEPA and Local Exemption Letter



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, SEATTLE DISTRICT
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

Regulatory Branch

April 3, 2019

Mr. Mark Cook
Kittitas County Public Works
411 North Ruby Street, Suite 1
Ellensburg, Washington 98926

Reference: NWS-2019-84
Kittitas County Public
Works
(Story Creek Culvert
Replacement)

Dear Mr. Cook:

We have reviewed your application to remove an undersized culvert and replace with an appropriately sized culvert designed to WDFW stream simulation guidelines by excavating and placing up to 19 cubic yards of stream gravels over 145 square feet of Story Creek near Cle Elum, Kittitas County, Washington. Temporary impacts include the placement of up to 32.4 yards of fill over 370 square feet for a temporary by-pass structure and to provide a temporary detour over an irrigation ditch. Based on the information you provided to us, Nationwide Permit (NWP) 23, Approved Categorical Exclusions (Federal Register January 6, 2017, Vol. 82, No. 4), authorizes your proposal as depicted on the enclosed drawings dated January 24, 2019.

In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed *NWP 23, Terms and Conditions* and the following special conditions:

- a. You must implement and abide by the Endangered Species Act (ESA) requirements and/or agreements set forth in the *Teanaway Hydraulic Improvements Project- Phase 1 Story Creek Culvert Replacement Biological Assessment (BA)*, dated January 21, 2019, in its entirety. The U.S. Fish and Wildlife Service (USFWS) provided a Letter of Concurrence (LOC) with a finding of "may affect, not likely to adversely affect" based on this document on February 21, 2019 (USFWS Reference Number 01EWF00-2019-I-0523). The USFWS will be informed of this permit issuance. Failure to comply with the commitments made in this consultation constitutes non-compliance with the ESA and your U.S. Army Corps of Engineers permit. The USFWS is the appropriate authority to determine compliance with ESA.

- b. In order to meet the requirements of the Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSA) programmatic consultation *Fish Passage and Restoration Actions in Washington State* (FPRP III) (National Marine Fisheries Service (NMFS) Reference Number WCR-2014-1857), you must implement and abide by the ESA requirements and/or agreements set forth in the Biological Opinion (BO) dated June 21, 2017, and the *Project Information Form* dated January 24, 2019 in the enclosed document *Appendix A: FPRP III Guidelines and Implementation Forms*. The BO is available on the U.S. Army Corps of Engineers (Corps) website (Permit Guidebook, Endangered Species, Programmatic Consultations, Fish Passage and Restoration Programmatic Consultations). Within 45 days of completing the permitted work in waters of the U.S., you must provide the Corps the information requested in the *FPRP Action Completion Reporting Form* in the enclosed document *Appendix A: FPRP III Guidelines and Implementation Forms*. If fish salvage occurs as part of your project, you must also provide the Corps the information requested in the *FPRP Fish Salvage Reporting Form* in the enclosed document *Appendix A: FPRP III Guidelines and Implementation Forms*, within 45 days of completing the permitted work in waters of the U.S. All information must prominently display the reference number NWS-2019-84. Failure to comply with these requirements constitutes non-compliance with the ESA and your Corps permit. The NMFS is the appropriate authority to determine compliance with the terms and conditions of their BO and with the ESA. If you cannot comply with the terms and conditions of this programmatic consultation, you must, prior to commencing construction, contact the Corps, Seattle District, Regulatory Branch for an individual consultation in accordance with the requirements of the ESA and/or the MSA.
- c. You must implement and abide by the riparian planting plan shown on Sheet 8 of the project drawings dated January 24, 2019. Plantings shall be installed following project construction. A report, as-built drawing and photographs demonstrating the trees/plants have been installed or a report on the status of project construction must be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch, within 12 months from the date of permit issuance. You can meet this reporting requirement by completing and submitting the enclosed *Report for Mitigation Work Completion* form.

We have reviewed your project pursuant to the requirements of the Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act. We have determined this project complies with the requirements of these laws provided you comply with all of the permit general and special conditions.

Please be reminded that Special Condition “b” of your permit requires that you implement and abide by the Endangered Species Act (ESA) requirements set forth in the programmatic Biological Opinion (BO) for this project. In particular, within 45 days of project completion, you must provide the Action Completion Reporting Form and Fish Salvage Reporting Form, as described in the BO.

The Federal Highway Administration completed National Historic Preservation Act, Section 7 Endangered Species Act (ESA) consultation with the U.S. Fish and Wildlife Service for the proposed activity (reference number: 01EWF00-2019-I-0523). For the purpose of this Department of the Army authorization, we have determined this project will comply with the requirements of these laws provided you comply with all of the permit conditions. We have determined the permit action is sufficiently addressed in their ESA consultation documents. By this letter we are advising you and the Services, in accordance with 50 CFR 402.07 and 50 CFR 600.920(b), that this agency has served as the lead Federal agency for the ESA consultation responsibilities for the activity described above.

We are unable to determine whether or not your project requires individual Water Quality Certification (WQC) determination response from the Washington State Department of Ecology (Ecology). Before you may proceed with the work authorized by this NWP, you must contact Ecology regarding this requirement at: Washington Department of Ecology, Federal Permit Coordinator, P.O. Box 47600, Olympia, Washington 98504-7660; telephone: (360) 407-6076; or email: ecyrefedpermits@ecy.wa.gov.

If more than 180 days pass from when you provide Ecology a copy of this letter and request your individual WQC review and you have not heard from Ecology, your requirement to obtain an individual WQC becomes waived. You may then proceed to construction.

You have not requested a jurisdictional determination for this proposed project. If you believe the Corps does not have jurisdiction over all or portions of your project you may request a preliminary or approved jurisdictional determination (JD). If one is requested, please be aware that we may require the submittal of additional information to complete the JD and work authorized in this letter may not occur until the JD has been completed.

Our verification of this NWP authorization is valid until March 18, 2022, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work has not been completed by that date and you have commenced or are under contract to commence this activity before March 18, 2022, you will have until March 18, 2023, to complete the activity under the enclosed terms and conditions of this NWP. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. You must also obtain all local, State, and other Federal permits that apply to this project.

You are cautioned that any change in project location or plans will require that you submit a copy of the revised plans to this office and obtain our approval before you begin work. Deviating from the approved plans could result in the assessment of criminal or civil penalties. Please note that we may need to reinitiate consultation with the National Marine Fisheries Service and/or U.S. Fish and Wildlife Service in order to authorize any work not already included in the enclosed plans.

Upon completing the authorized work, you must fill out and return the enclosed *Certificate of Compliance with Department of the Army Permit*. Thank you for your cooperation during the permitting process. We are interested in your experience with our Regulatory Program and encourage you to complete a customer service survey. These documents and information about our program are available on our website at www.nws.usace.army.mil, select "Regulatory Branch, Permit Information" and then "Contact Us." If you have any questions, please contact me at david.j.moore@usace.army.mil or (206) 316-3166.

Sincerely,

A handwritten signature in black ink that reads "David Moore". The signature is written in a cursive style with a long, sweeping underline.

David Moore, Project Manager
Regulatory Branch

Enclosures

cc: letter only via email to Washington Department of Ecology, Federal Permit Coordinator at:
ecyrefedpermits@ecy.wa.gov

cc via email: w/drawings only:

U.S. Fish and Wildlife Service, wfwotap@fws.gov

National Marine Fisheries Service, frankie.johnson@noaa.gov



US Army Corps
of Engineers
Seattle District

NATIONWIDE PERMIT 23

Terms and Conditions

Effective Date: March 19, 2017



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- A. Description of Authorized Activities
 - B. U.S. Army Corps of Engineers (Corps) National General Conditions for all NWP
 - C. Corps Seattle District Regional General Conditions
 - D. Corps Regional Specific Conditions for this NWP
 - E. Washington Department of Ecology (Ecology) Section 401 Water Quality Certification (401 Certification): General Conditions
 - F. Ecology 401 Certification: Specific Conditions for this NWP
 - G. Coastal Zone Management Consistency Response for this NWP
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In addition to any special condition that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit (NWP) authorization to be valid in Washington State.

A. DESCRIPTION OF AUTHORIZED ACTIVITIES

Approved Categorical Exclusions. Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:

(a) That agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from the requirement to prepare an environmental impact statement or environmental assessment analysis, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and

(b) The Office of the Chief of Engineers (Attn: CECW-CO) has concurred with that agency's or department's determination that the activity is categorically excluded and approved the activity for authorization under NWP 23.

The Office of the Chief of Engineers may require additional conditions, including pre-construction notification, for authorization of an agency's categorical exclusions under this NWP.

Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letters. (Authorities: Sections 10 and 404)

Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn: CECW-CO). Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are: the Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07, which is available at:

<http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-07.pdf>. Any future approved

categorical exclusions will be announced in Regulatory Guidance Letters and posted on this same web site.

B. CORPS NATIONAL GENERAL CONDITIONS FOR ALL NWPs

To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation. (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States. (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. (b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status. (c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur. (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs. (e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. (f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a

separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required. (g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. (d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether

NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. (e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment. (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal: (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site). (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal. (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-

construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)). (e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses. (f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation. (2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)). (3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation. (4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). (5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided. (6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any

NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs. (h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management. (i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following

statement and signature: “When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include: (a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions; (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(1)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and (c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a “USACE project”), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer’s receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the

permittee cannot begin the activity until receiving written notification from the Corps that there is “no effect” on listed species or “no potential to cause effects” on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWP 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed activity;
- (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
- (4) A description of the proposed activity; the activity’s purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);
- (5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;
- (6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.
- (7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the

proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) **Form of Pre-Construction Notification:** The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals. (d) **Agency Coordination:** (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal. (2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes. (3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act. (5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

District Engineer's Decision: 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2-acre. 2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns. 3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to

submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer. 4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information: 1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP. 2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law. 3. NWPs do not grant any property rights or exclusive privileges. 4. NWPs do not authorize any injury to the property or rights of others. 5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

C. CORPS SEATTLE DISTRICT REGIONAL GENERAL CONDITIONS: The following conditions apply to all NWPs for the Seattle District in Washington State, unless specified.

1. Project Drawings: Drawings must be submitted with pre-construction notification (PCN). Drawings must provide a clear understanding of the proposed project, and how waters of the U.S. will be affected. Drawings must be originals and not reduced copies of large-scale plans. Engineering drawings are not required. Existing and proposed site conditions (manmade and landscape features) must be drawn to scale.

2. Aquatic Resources Requiring Special Protection: Activities resulting in a loss of waters of the United States in mature forested wetlands, bogs and peatlands, aspen-dominated wetlands, alkali wetlands, vernal pools, camas prairie wetlands, estuarine wetlands, wetlands in coastal lagoons, and wetlands in dunal systems along the Washington coast cannot be authorized by a NWP, except by the following NWPs:

- NWP 3 – Maintenance
- NWP 20 – Response Operations for Oil and Hazardous Substances
- NWP 32 – Completed Enforcement Actions
- NWP 38 – Cleanup of Hazardous and Toxic Waste

In order to use one of the above-referenced NWP's in any of the aquatic resources requiring special protection, prospective permittees must submit a PCN to the Corps of Engineers (see NWP general condition 32) and obtain written authorization before commencing work.

3. New Bank Stabilization in Tidal Waters of Puget Sound: Activities involving new bank stabilization in tidal waters in Water Resource Inventory Areas (WRIAs) 8, 9, 10, 11 and 12 (within the areas identified on Figures 1a through 1e on Corps website) cannot be authorized by NWP.

4. Commencement Bay: The following NWP's may not be used to authorize activities located in the Commencement Bay Study Area (see Figure 2 on Corps website):

- NWP 12 – Utility Line Activities (substations)
- NWP 13 – Bank Stabilization
- NWP 14 – Linear Transportation Projects
- NWP 23 – Approved Categorical Exclusions
- NWP 29 – Residential Developments
- NWP 39 – Commercial and Institutional Developments
- NWP 40 – Agricultural Activities
- NWP 41 – Reshaping Existing Drainage Ditches
- NWP 42 – Recreational Facilities
- NWP 43 – Stormwater and Wastewater Management Facilities

5. Bank Stabilization: All projects including new or maintenance bank stabilization activities require PCN to the Corps of Engineers (see NWP general condition 32). For new bank stabilization projects only, the following must be submitted to the Corps of Engineers:

- a. The cause of the erosion and the distance of any existing structures from the area(s) being stabilized.
- b. The type and length of existing bank stabilization within 300 feet of the proposed project.
- c. A description of current conditions and expected post-project conditions in the waterbody.
- d. A statement describing how the project incorporates elements avoiding and minimizing adverse environmental effects to the aquatic environment and nearshore riparian area, including vegetation impacts in the waterbody.

In addition to a. through d., the results from any relevant geotechnical investigations can be submitted with the PCN if it describes current or expected conditions in the waterbody.

6. Crossings of Waters of the United States: Any project including installing, replacing, or modifying crossings of waters of the United States, such as culverts or bridges, requires submittal of a PCN to the Corps of Engineers (see NWP general condition 32). If a culvert is proposed to cross waters of the U.S. where salmonid species are present or could be present, the project must apply the stream simulation design method from the Washington Department of Fish and Wildlife located in the *Water Crossing Design Guidelines* (2013), or a design method which provides passage at all life stages at all flows where the salmonid species would naturally seek passage. If the stream simulation design method is not applied for a culvert where salmonid species are present or could be present, the project proponent must provide a rationale in the PCN sufficient to establish one of the following:

- a. The existence of extraordinary site conditions.
- b. How the proposed design will provide equivalent or better fish passage and fisheries habitat benefits than the stream simulation design method.

If a culvert is proposed to cross waters of the U.S. where salmonid species are present or could be present, project proponents must provide a monitoring plan with the PCN that specifies how the proposed culvert will be assessed over a five-year period from the time of construction completion to ensure its effectiveness in providing passage at all life stages at all flows where the salmonid species would naturally seek passage. Culverts installed under emergency authorization that do not meet the above

design criteria will be required to meet the above design criteria to receive an after-the-fact nationwide permit verification.

7. Stream Loss: A PCN is required for all activities that result in the loss of any linear feet of stream beds. No activity shall result in the loss of any linear feet of perennial stream beds or the loss of greater than 300 linear feet of intermittent and/or ephemeral stream beds. A stream may be rerouted if it is designed in a manner that maintains or restores hydrologic, ecologic, and geomorphic stream processes, provided there is not a reduction in the linear feet of stream bed. Streams include brooks, creeks, rivers, and historical waters of the U.S. that have been channelized into ditches. This condition does not apply to ditches constructed in uplands. Stream loss restrictions may be waived by the district engineer on a case-by-case basis provided the activities result in net increases of aquatic resource functions and services.

8. Mitigation: Pre-construction notification is required for any project that will result in permanent wetland losses that exceed 1,000 square feet. In addition to the requirements of General Condition 23 (Mitigation), compensatory mitigation at a minimum one-to-one ratio will be required for all permanent wetland losses that exceed 1,000 square feet. When a PCN is required for wetland losses less than 1,000 square feet, the Corps of Engineers may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation for impacts to marine waters, lakes, and streams will be determined on a case-by-case basis. If temporary impacts to waters of the U.S. exceed six months, the Corps of Engineers may require compensatory mitigation for temporal effects.

9. Magnuson-Stevens Fishery Conservation and Management Act – Essential Fish Habitat Essential Fish Habitat (EFH) is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. If EFH may be adversely affected by a proposed activity, the prospective permittee must provide a written EFH assessment with an analysis of the effects of the proposed action on EFH. The assessment must identify the type(s) of essential fish habitat (i.e., Pacific salmon, groundfish, and/or coastal-pelagic species) that may be affected. If the Corps of Engineers determines the project will adversely affect EFH, consultation with NOAA Fisheries will be required. Federal agencies should follow their own procedures for complying with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act. If PCN is required for the proposed activity, Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

10. Forage Fish: For projects in forage fish spawning habitat, in-water work must occur within designated forage fish work windows, or when forage fish are not spawning. If working outside of a designated work window, or if forage fish work windows are closed year round, work may occur if the work window restriction is released for a period of time after a forage fish spawning survey has been conducted by a biologist approved by the Washington State Department of Fish and Wildlife (WDFW). Forage fish species with designated in-water work windows include Pacific sand lance (*Ammodytes hexapterus*), Pacific herring (*Clupea pallasii*), and surf smelt (*Hypomesus pretiosus*). This RGC does not apply to NWP 48, *Commercial Shellfish Aquaculture Activities*. Please see specific regional conditions for NWP 48.

11. Notification of Permit Requirements: The permittee must provide a copy of the nationwide permit authorization letter, conditions, and permit drawings to all contractors and any other parties performing the authorized work prior to the commencement of any work in waters of the U.S. The permittee must ensure all appropriate contractors and any other parties performing the authorized work at the project site have read and understand relevant NWP conditions as well as plans, approvals, and documents referenced in the NWP letter. A copy of these documents must be maintained onsite throughout the duration of construction.

12. Construction Boundaries: Permittees must clearly mark all construction area boundaries before beginning work on projects that involve grading or placement of fill. Boundary markers and/or construction fencing must be maintained and clearly visible for the duration of construction. Permittees should avoid and minimize removal of native vegetation (including submerged aquatic vegetation) to the maximum extent possible.

13. Temporary Impacts and Site Restoration

- a. Temporary impacts to waters of the U.S. must not exceed six months unless the prospective permittee requests and receives a waiver by the district engineer. Temporary impacts to waters of the U.S. must be identified in the PCN.
- b. No more than 1/2 acre of waters of the U.S. may be temporarily filled unless the prospective permittee requests and receives a waiver from the district engineer (temporary fills do not affect specified limits for loss of waters associated with specific nationwide permits).
- c. Native soils removed from waters of the U.S. for project construction should be stockpiled and used for site restoration. Restoration of temporarily disturbed areas must include returning the area to pre-project ground surface contours. If native soil is not available from the project site for restoration, suitable clean soil of the same textural class may be used. Other soils may be used only if identified in the PCN.
- d. The permittee must revegetate disturbed areas with native plant species sufficient in number, spacing, and diversity to restore affected functions. A maintenance and monitoring plan commensurate with the impacts, may be required. Revegetation must begin as soon as site conditions allow within the same growing season as the disturbance unless the schedule is approved by the Corps of Engineers. Native plants removed from waters of the U.S. for project construction should be stockpiled and used for revegetation when feasible. Temporary Erosion and Sediment Control measures must be removed as soon as the area has established vegetation sufficient to control erosion and sediment.
- e. If the Corps determines the project will result in temporary impacts of submerged aquatic vegetation (SAV) that are more than minimal, a monitoring plan must be submitted. If recovery is not achieved by the end of the monitoring period, contingencies must be implemented, and additional monitoring will be required.

This RGC does not apply to NWP 48, *Commercial Shellfish Aquaculture Activities*. Please see specific regional conditions for NWP 48.

D. CORPS REGIONAL SPECIFIC CONDITIONS FOR THIS NWP:

A pre-construction notification (PCN) must be submitted to the district engineer prior to commencing the activity (see NWP general condition 32). The PCN must include a statement or form bearing the signature of an official of the Federal agency that issued the categorical exclusion, or of an official with delegated authority from that Federal agency verifying the proposed work is categorically excluded.

E. ECOLOGY 401 CERTIFICATION: GENERAL CONDITIONS

In addition to all the Corps National and Seattle Districts' Regional permit conditions, the following State General Section 401 Water Quality Certification (Section 401) conditions apply to all Nationwide Permits whether **certified** or **partially certified** in the State of Washington.

1. **For in-water construction activities.** Ecology Section 401 review is required for projects or activities authorized under NWPs that will cause, or may be likely to cause or contribute to an exceedance of a State water quality standard (Chapter 173-201A WAC) or sediment management standard (Chapter 173-204 WAC). State water quality standards and sediment management standards are available on Ecology's website. Note: In-water activities include any activity within a wetland and/or activities below the ordinary high water mark (OHWM).

2. Projects or Activities Discharging to Impaired Waters. Ecology Section 401 review is required for projects or activities authorized under NWP's if the project or activity will occur in a 303(d) listed segment of a waterbody or upstream of a listed segment and may result in further exceedances of the specific listed parameter. To determine if your project or activity is in a 303(d) listed segment of a waterbody, visit Ecology's Water Quality Assessment webpage for maps and search tools.

3. Application. For projects or activities that will require Ecology Section 401 review, applicants must provide Ecology with a Joint Aquatic Resources Permit Application (JARPA) along with the documentation provided to the Corps, as described in National General Condition 32, Pre-Construction Notification, including, when applicable: (a) A description of the project, including site plans, project purpose, direct and indirect adverse environmental effects the project would cause, best management practices (BMPs), and any other Department of the Army or federal agency permits used or intended to be used to authorize any part of the proposed project or any related activity. (b) Drawings indicating the Ordinary High Water Mark (OHWM), delineation of special aquatic sites and other waters of the state. Wetland delineations must be prepared in accordance with the current method required by the Corps and shall include Ecology's Wetland Rating form. Wetland rating forms are subject to review and verification by Ecology staff. Guidance for determining the OHWM is available on Ecology's website. (c) A statement describing how the mitigation requirement will be satisfied. A conceptual or detailed mitigation or restoration plan may be submitted. See State General Condition 5 for details on mitigation requirements. (d) Other applicable requirements of Corps Nationwide Permit General Condition 32, Corps Regional Conditions, or notification conditions of the applicable NWP. (e) Within 180 calendar days from receipt of applicable documents noted above and a copy of the final authorization letter from the Corps providing coverage for a proposed project or activity under the NWP Program Ecology will provide the applicant notice of whether an individual Section 401 will be required for the project. If Ecology fails to act within a year after receipt of both of these documents, Section 401 is presumed waived.

4. Aquatic resources requiring special protection. Certain aquatic resources are unique, difficult-to-replace components of the aquatic environment in Washington State. Activities that would affect these resources must be avoided to the greatest extent possible. Compensating for adverse impacts to high value aquatic resources is typically difficult, prohibitively expensive, and may not be possible in some landscape settings. Ecology Section 401 review is required for activities in or affecting the following aquatic resources (and not prohibited by Seattle District Regional General Condition): (a) Wetlands with special characteristics (as defined in the Washington State Wetland Rating Systems for western and eastern Washington, Ecology Publications #14-06-029 and #14-06-030):

- Estuarine wetlands.
- Wetlands of High Conservation Value.
- Bogs.
- Old-growth and mature forested wetlands.
- Wetlands in coastal lagoons.
- Interdunal wetlands.
- Vernal pools.
- Alkali wetlands.

(b) Fens, aspen-dominated wetlands, camas prairie wetlands. (c) Marine water with eelgrass (*Zostera marina*) beds (except for NWP 48). (d) Category I wetlands. (e) Category II wetlands with a habitat score ≥ 8 points. This State General Condition does not apply to the following Nationwide Permits: NWP 20 – *Response Operations for Oil and Hazardous Substances*, NWP 32 – *Completed Enforcement Actions*

5. Mitigation. Applicants are required to show that they have followed the mitigation sequence and have first avoided and minimized impacts to aquatic resources wherever practicable. For projects

requiring Ecology Section 401 review with unavoidable impacts to aquatics resources, adequate compensatory mitigation must be provided.

(a) Wetland mitigation plans submitted for Ecology review and approval shall be based on the most current guidance provided in Wetland Mitigation in Washington State, Parts 1 and 2 (available on Ecology's website) and shall, at a minimum, include the following:

i. A description of the measures taken to avoid and minimize impacts to wetlands and other waters of the U.S.

ii. The nature of the proposed impacts (i.e., acreage of wetlands and functions lost or degraded).

iii. The rationale for the mitigation site that was selected.

iv. The goals and objectives of the compensatory mitigation project.

v. How the mitigation project will be accomplished, including construction sequencing, best management practices to protect water quality, proposed performance standards for measuring success and the proposed buffer widths.

vi. How it will be maintained and monitored to assess progress towards goals and objectives.

Monitoring will generally be required for a minimum of five years. For forested and scrub-shrub wetlands, 10 years of monitoring will often be necessary.

vii. How the compensatory mitigation site will be legally protected for the long term.

Refer to Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology Publication #06-06-011b) and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology Publications #09-06-032 (Western Washington) and #10-06-007 (Eastern Washington)) for guidance on selecting suitable mitigation sites and developing mitigation plans. Ecology encourages the use of alternative mitigation approaches, including credit/debit methodology, advance mitigation, and other programmatic approach such as mitigation banks and in-lieu fee programs. If you are interested in proposing use of an alternative mitigation approach, consult with the appropriate Ecology regional staff person. Information on alternative mitigation approaches is available on Ecology's website.

(b) Mitigation for other aquatic resource impacts will be determined on a case-by-case basis.

6. Temporary Fills. Ecology Section 401 review is required for any project or activity with temporary fill in wetlands or other waters of the state for more than 90 days, unless the applicant has received written approval from Ecology. Note: This State General Condition does not apply to projects or activities authorized under NWP 33, *Temporary Construction, Access, and Dewatering*

7. Stormwater pollution prevention: All projects that involve land disturbance or impervious surfaces must implement stormwater pollution prevention or control measures to avoid discharge of pollutants in stormwater runoff to waters of the State.

(a) For land disturbances during construction, the applicant must obtain and implement permits (e.g., Construction Stormwater General Permit) where required and follow Ecology's current stormwater manual.

(b) Following construction, prevention or treatment of on-going stormwater runoff from impervious surfaces shall be provided.

Ecology's Stormwater Management and Design Manuals and stormwater permit information are available on Ecology's website.

8. State Section 401 Review for PCNs not receiving 45-day response from the Seattle District. In the event the Seattle District Corps does not issue a NWP authorization letter within 45 calendar days of receipt of a **complete** pre-construction notification, the applicant must contact Ecology for Section 401 review prior to commencing work.

F. ECOLOGY 401 CERTIFICATION: SPECIFIC CONDITIONS FOR THIS NWP:

Certified subject to conditions. Ecology Section 401 review is required for projects or activities authorized under this NWP if: The project or activity has fill impacts to waters of the state greater than ½ acre.

G. COASTAL ZONE MANAGEMENT CONSISTENCY RESPONSE FOR THIS NWP:

(Note: This is only applies in the following counties: Clallam, Grays Harbor, Island, Jefferson, King, Kitsap, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston, Wahkiakum and Whatcom)

NWP Specific Response: Ecology concurs that this NWP is consistent with the CZMP, subject to the following condition: An individual Coastal Zone Management Consistency Determination is required for project or activities under this NWP if State Section 401 review is required.

If an individual Coastal Zone Management Consistency Determination is required:

General Conditions: For Non-Federal Permittees

1. Necessary Data and Information. A Coastal Zone Management Program “Certification of Consistency” form is required for projects located within a coastal county. “Certification of Consistency” forms are available on Ecology’s website. The form shall include a description of the proposed project or activity and evidence of compliance with the applicable enforceable policies of the Washington Coastal Zone Management Program (CZMP). Also, a map of the site location is required.
2. Timing. Within 6 months from receipt of the necessary data and information, Ecology will provide a federal consistency determination for the proposed project or activity. If Ecology fails to act within the 6 month period, concurrence with the CZMP is presumed.

General Conditions: For Federal Permittees (Agencies)

1. Necessary Data and Information. Federal agencies shall submit the determination, information, and analysis required by 15 CFR 930.39 to obtain a federal consistency determination.
2. Timing. Within 60 days from receipt of the necessary data and information, Ecology will provide a federal consistency determination for the proposed project or activity. If Ecology fails to act within the 60 day period, concurrence with the CZMP is presumed.



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

April 16, 2019

Mark Cook
Kittitas County Flood Control Zone District
411 North Ruby Street, Suite 1
Ellensburg, WA 98926

**RE: U.S. Army Corps of Engineers Reference # NWS-2019-84
Nationwide Permit #23 for Kittitas County Public Works, Story Creek, Kittitas
County, Washington**

Dear Mark Cook:

The Department of Ecology (Ecology) has received the U.S. Army Corps of Engineers' letter dated April 3, 2019, approving coverage under Nationwide Permit (NWP) #23 for the above project.

Upon review of the JARPA received January 25, 2019, Ecology has determined that the project meets the requirements for Washington State 401 Water Quality Certification and Coastal Zone Management Act Consistency under NWP #23. Therefore, an Individual 401 certification will not be required for this project and you may proceed as directed by the Corps.

Any changes to your project that would impact water quality should be submitted in writing to Ecology before work begins for additional review.

This letter does not exempt you from other requirements of federal, state, and local agencies.

Please contact me if you have any questions regarding this letter at 509-575-2616 or e-mail lori.white@ecy.wa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Lori White", with a long horizontal flourish extending to the right.

Lori White
Wetland/Shoreland/Federal Permit Specialist
Shorelands and Environmental Assistance Program

cc: ecyrefedpermits@ecy.wa.gov
David Moore, Corps of Engineers
Craig Broadhead, Jacobs Engineering Group
Jennifer Nelson, Dept. of Fish and Wildlife





HYDRAULIC PROJECT APPROVAL

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

Issued Date: March 20, 2019
Project End Date: March 15, 2024

Permit Number: 2019-3-12+01
FPA/Public Notice Number: N/A
Application ID: 17271

PERMITTEE

AUTHORIZED AGENT OR CONTRACTOR

Kittitas County Public Works
ATTENTION: Mark Cook
411 North Ruby Street, Suite 1
Ellensburg, WA 98926

Jacobs Engineering Group
ATTENTION: Craig Broadhead
32 N 3rd St
Yakima, WA 98901-2730

Project Name: Teanaway Hydraulic Improvements - Phase 1 Story Creek Culvert Replacement

Project Description: The project replaces an undersized concrete box culvert conveying Story Creek near Cle Elum, Washington (Attachment 1, Sheet 1). The lack of capacity of the existing structure requires constant maintenance and increases flood hazard to adjoining properties and roadway infrastructure. The project will replace a deficient and failing culvert located in high-priority watershed for listed species recovery. The improvements at Story Creek will include the complete removal of the existing 4-foot high by 8-foot wide culvert and the construction of a new 12-foot high by 14-foot wide culvert on the same alignment. Due to the lack of capacity of the existing culvert, continued and chronic impacts from flooding, and the presence of suitable habitat above the fish passage barrier in a priority recovery watershed, the immediate replacement of the culvert is necessary. Teanaway Road serves as access to several rural residences, the Teanaway Community Forest, Washington Department of Natural Resources campgrounds and snow parks, and is one of the main arterials for public access to the Okanogan-Wenatchee National Forest. Replacing this culvert will provide fish passage, protect infrastructure, and allow continued access along the Teanaway Road for residents, recreation, and forestry practices.

PROVISIONS

- 1. TIMING LIMITATION:** You may begin the project on July 15, 2019 and you must complete the culvert replacement construction work by October 31, 2019. All work to remove the existing culvert and construct the new culvert must be done in isolation from flowing water in Story Creek.
- 2. RE-VEGETATION:** You must complete re-vegetation by no later than May 15, 2020, and you must monitor the success of the re-vegetation through March 15, 2024 at which time at least 80% survival of all woody plantings within disturbed areas must be achieved. Annual monitoring photos and brief summary reports must be provided to WDFW by March 15 for each year this HPA is valid.
- 3. APPROVED PLANS:** You must accomplish the work per plans and information submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled Teanaway Hydraulic Improvements-Phase 1 Story Creek, dated January 14, 2019, except as modified by this Hydraulic Project Approval. We anticipate more detailed plans for construction that must be reviewed and approved by WDFW for consistency with HPA application materials. You must have a copy of these plans available on site during all phases of the project construction.
- 4. INVASIVE SPECIES CONTROL:** Follow Level 1 Decontamination protocol for low risk locations. Thoroughly remove visible dirt and organic debris from all equipment and gear (including drive mechanisms, wheels, tires, tracks, buckets and undercarriage) before arriving and leaving the job site to prevent the transport and introduction of invasive species.



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Properly dispose of any water and chemicals used to clean gear and equipment. For contaminated or high risk sites please refer to the Level 2 Decontamination protocol. You can find this and additional information in the Washington Department of Fish and Wildlife's Invasive Species Management Protocols, available online at <http://wdfw.wa.gov/publications/search.php?Cat=Aquatic Invasive Species>.

NOTIFICATION REQUIREMENTS

5. PRE CONSTRUCTION CONTRACTOR MEETING: Prior to commencement of work within the ordinary high water mark, you, your agent, or contractor must arrange a pre-construction meeting with WDFW and key project personnel to discuss the work plan, project schedule, and key project elements. Permittee must provide WDFW with a copy of the final construction designs and specifications and the contractor's work schedule prior to the pre-construction meeting. Contact Jennifer Nelson at Jennifer.nelson@dfw.wa.gov or (509) 961-6639 to arrange this meeting.

6. PRE-, DURING, AND POST-CONSTRUCTION NOTIFICATION: You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail at Jennifer.nelson@dfw.wa.gov or by phone (509) 961-6639 at least three business days before starting work, one day before removing the temporary bypass and again within seven days after completing the work. The notification must include the permittee's name, project location, starting date for work or date the work was completed, and the permit number. The Washington Department of Fish and Wildlife may conduct inspections during and after construction; however, the Washington Department of Fish and Wildlife will notify you or your agent before conducting the inspection.

7. PHOTOGRAPHS: You, your agent, or contractor must take photographs of the job site before the work begins and after the work is completed. You must upload the photographs to the post-permit requirement page in the Aquatic Protection Permitting System (APPS) or mail them to Washington Department of Fish and Wildlife at Post Office Box 43234, Olympia, Washington 98504-3234 within 30-days after the work is completed.

8. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.

STAGING, JOB SITE ACCESS, AND EQUIPMENT

9. Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

10. Design and locate new temporary access roads to prevent erosion and sediment delivery to waters of the state.

11. Clearly mark boundaries to establish the limit of work associated with site access and construction.

12. Limit the removal of native bankline vegetation to the minimum amount needed to construct the project.

13. This Hydraulic Project Approval authorizes only the removal of the large woody vegetation shown in the approved plan. Clearly mark all large woody vegetation authorized for removal before starting work.

14. Retain all natural habitat features on the bed or banks including large woody material and boulders. You may move these natural habitat features during construction but you must place them near the pre-project location before leaving the job site.



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15. Confine the use of equipment to the specific access and work corridor shown in the approved plans.
16. Equipment used for this project may operate waterward of the ordinary high water line, provided the drive mechanisms (wheels, tracks, tires, etc.) do not enter or operate waterward of the ordinary high water line.
17. Remove soil or debris from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to operating the equipment waterward of the ordinary high water line.
18. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.
19. Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.

CONSTRUCTION-RELATED SEDIMENT, EROSION AND POLLUTION CONTAINMENT

20. Work area isolation and containment measures must be in place prior to performing excavation or ground disturbing work adjacent to or in Story Creek.
21. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site is complete.
22. All erosion control materials that will remain onsite must be composed of 100% biodegradable materials.
23. Prevent project contaminants, such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials, from entering or leaching into waters of the state.
24. Route construction water (wastewater) from the project to an upland area above the limits of anticipated floodwater. Remove fine sediment and other contaminants before discharging the construction water to waters of the state.
25. Deposit waste material from the project, such as construction debris, silt, excess dirt, or overburden, in an upland area above the limits of anticipated floodwater unless the material is approved by the Washington Department of Fish and Wildlife for reuse in the project.
26. Deposit all trash from the project at an appropriate upland disposal location.

CONSTRUCTION MATERIALS

27. Store all construction and deconstruction material in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.
28. To prevent leaching, construct forms to contain any wet concrete. Place impervious material over wet concrete that will come in contact with waters of the state. Forms and impervious materials must remain in place until the concrete is cured.
29. Do not use wood treated with oil-type preservatives (creosote, pentachlorophenol) in any hydraulic project. You may use wood treated with waterborne preservatives (ACZA, ACQ) provided the wood is approved by the Western Wood Preservers Institute for use in the aquatic environment. Any use of treated wood in the aquatic environment must follow guidelines and best management practices available at www.wwpinstitute.org.



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IN-WATER WORK AREA ISOLATION USING BLOCK NETS

30. Install block nets at an angle to the direction of flow (not perpendicular to the flow) to avoid entrapping fish in the nets. After the first block net is secured at the upstream end, use a second block net to herd fish downstream and out of the project area. Install a downstream block net if fish may reenter the work area from downstream.

31. To anchor block nets, place bags filled with clean round gravel along the bottom of the nets. Secure block nets along both banks and the channel bottom to prevent failure from debris accumulation, high flows, and/or flanking.

32. To keep fish out of the job site, leave block nets in place until the temporary bypass is complete and conveying all flow such that conditions are suitable for fish.

33. Check block nets at least three times a day for entangled fish and accumulated debris while they are installed.

IN-WATER WORK AREA ISOLATION USING A TEMPORARY BYPASS

34. Isolate fish from the work area by using a total bypass to reroute the stream through a temporary channel or pipe prior to initiating work in the channel. The stream bypass must effectively isolate the work area from the flowing water and pass all stream flow to the channel immediately downstream of the work area. The bypass must be only as long as necessary to isolate the work and prevent seepage or backwatering of the work area. The bypass may include a temporary pump bypass system, temporary culvert, flume or temporary channel. The bypass must be of sufficient size to pass flows and debris likely to occur during the period of in-channel work and must be made of clean materials.

35. A diversion dam (coffer dam) must be made of clean materials such as sandbags, precast concrete ecology blocks, plastic sheeting, sheet piles, water dams, etc.. If necessary to prevent backwater from entering the work area and to trap turbid water, an equivalent, clean structure must be installed at the downstream end of the isolation area. There must be no in-water use of earth or clay.

36. Diversion of flow through the bypass must be done incrementally to allow capture and safe removal of fish from the work area. Any fish trapped inside of the work area must be captured and released unharmed upstream or downstream of the project. (Note: Permittee may request assistance from the Department for this task. Assistance will be provided if the Department has personnel available. Please provide as much advanced notice as possible.)

37. Sequence the work to minimize the duration of dewatering.

38. During all phases of bypass installation and decommissioning, maintain flows downstream of the project site to ensure survival of all downstream fish.

39. Return diverted water to the channel immediately downstream of the work area. Dissipate flow energy from the diversion to prevent scour or erosion of the channel and bank.

40. If the diversion inlet is a gravity diversion that provides fish passage, place the diversion outlet where it facilitates gradual and safe reentry of fish into the stream channel.

41. If the bypass is a pumped diversion, once started it must run continuously until it is no longer necessary to bypass flows. This requires back-up pumps on-site and twenty-four-hour monitoring for overnight operation.

42. If the diversion inlet is a pump diversion in a fish-bearing stream, the pump intake structure must have a fish screen installed, operated, and maintained in accordance with RCW 77.57.010 and 77.57.070. Screen the pump intake with one of the following:

- a) Perforated plate: 0.094 inch (maximum opening diameter);
- b) Profile bar: 0.069 inch (maximum width opening); or



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c) Woven wire: 0.087 inch (maximum opening in the narrow direction).

The minimum open area for all types of fish screens is twenty-seven percent. The screened intake facility must have enough surface area to ensure that the velocity through the screen is less than 0.4 feet per second. Maintain fish screens to prevent injury or entrapment of fish.

43. The fish screen must remain in place whenever water is withdrawn from the stream through the pump intake.

44. Upon completion of the project, the temporary bypass must be removed incrementally so as to prevent a temporary dewatering of the channel below the project. The stream bypass diversion dam must be opened sufficiently to wet the channel through the new culvert while still retaining at least one half of the flow in the bypass channel. Once the new channel is fully wetted, the remaining flow can be gradually diverted into the new channel. Any fish stranded in the temporary bypass channel must be safely relocated to the flowing stream. The containment dams must be removed and all remaining materials used for the temporary bypass and containment structures (other than washed gravel or specified stream gravel) must be removed from the channel and disposed of offsite. If washed stream gravel was used for the diversion or containment dams, it must be redistributed in the channel so as to not obstruct flows or fish passage.

FISH LIFE REMOVAL

45. All persons participating in capture and removal must have training, knowledge, and skills in the safe handling of fish life. If electrofishing is conducted, a person with electrofishing training must be on-site to conduct or direct all electrofishing activities.

46. If personnel are available, the Washington Department of Fish and Wildlife will help capture and move fish life from the job site. Please provide as much notice as possible for WDFW assistance.

47. Capture and safely move fish life from the work area to the nearest suitable free-flowing water.

TEMPORARY STREAM CROSSING

48. The temporary bridge must fully span the channel downstream of the existing crossing. Installation and removal of the temporary bridge must avoid work within the wetted channel.

49. Temporary bridge sills must be located downstream of the existing crossing and outside the ordinary high water mark of the channel.

50. The temporary bridge must be set and removed with full suspension such that it does not disturb the bed of Story Creek.

51. Completely remove the detour bridge and all temporary fill before the end of the in-water timing window. Crushed rock fill must be completely removed with the temporary bridge and the banks must be reshaped and planted as shown in the approved designs.

CULVERT

52. All components of the existing culvert must be removed and replaced with a concrete box culvert with an inside span not less than 14 feet and inside height not less than 12 feet tall. The length of the culvert must not exceed 50 feet. Work must be per the approved plans and information provided to WDFW, except as modified by this HPA.

53. Establish the new culvert invert elevation with reference point(s) or benchmark(s) created before starting work on this project. Clearly mark and preserve the reference point(s) for post-project compliance. Before backfilling, confirm the invert elevation, as stated on the plans, relative to the reference points with at least a construction-grade leveling device (such as an optical auto-level or laser level).



HYDRAULIC PROJECT APPROVAL

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Fish & Wildlife
PO Box 43234
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(360) 902-2200

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FPA/Public Notice Number: N/A

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54. All culvert bedding material must be choked with fines and/or wrapped with geotextile fabric to ensure Story Creek flows do not pipe under the new culvert.
55. Set the stream simulation culvert at the same gradient as the prevailing stream gradient of 1.6 percent.
56. Countersink the stream simulation culvert a minimum of thirty percent and a maximum of fifty percent of the culvert rise, but not less than two feet.
57. The interior walls of the culvert structure must be painted or marked prior to filling with streambed material to clearly identify the bed elevation. The banks, bed, and thalweg must be built to look and perform like a natural stream channel. The thalweg must meander through the culvert with pools constructed on the outside bends and gravel bars on the inside bends.
58. To ensure that low flows are not dispersed across the entire channel width, the streambed must have a narrow thalweg defined to concentrate low flows and provide for fish passage. The thalweg must meander throughout the newly constructed areas. High flow benches must also be constructed within the culvert.
59. The new channel streambed must be constructed with the specified mix of streambed boulders, streambed cobbles, and streambed sediment as per in the Final Basis of Design Report dated January 24, 2019. Materials conserved from channel excavation may be used to the extent they are suitable and meet the specifications.
60. A minimum of 43 inches of streambed material (streambed cobbles and streambed sediment) must be installed in lifts, with streambed boulders extending throughout adjacent lifts. Streambed boulders must be incorporated in the bed such that they are found throughout the vertical and horizontal distribution of the streambed material. During installation of each lift, gravel and fines must be worked into the voids between large cobble and boulders using water to control permeability of the streambed and ensure stream flow remains on the surface of the bed.
61. Streambed habitat boulders (one man rocks) must be installed outside the thalweg of the channel and exposed above the prevailing bed surface by 50-75% of their diameters. Habitat boulders must provide hydraulic roughness throughout the newly constructed channel and within the new crossing structure such that they provide refuge and flow complexity to improve fish passage through the structure.
62. After the streambed material has been installed to its final configuration, the bed and banks must be washed with water so as to leave a clean, natural-like surface and wash fine materials down into the voids between the larger bed materials and reduce permeability of the bed. Wastewater from this washing must be captured and pumped to an upland area for disposal.
63. Large woody material (from the site) must be installed in a grouping downstream of the culvert in Story Creek to help dissipate energy and provide cover for fish entering the culvert. Logs, rootwads, and slash for instream structures must be interacting with high and low flows to provide year round fish habitat.
64. The owner(s) must maintain the culvert to ensure it provides continued, unimpeded fish passage. If the culvert becomes a hindrance to fish passage, the owner must obtain an Hydraulic Project Approval and provide prompt repair.
65. Protect structural fill associated with the culvert installation from erosion to the 100-year peak flow.
66. Approach material must be structurally stable and composed of material that if eroded into the water will not harm fish life.



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DEMOBILIZATION AND CLEANUP

67. Upon completion of the project, restore the disturbed bed, banks, and riparian zone to pre-project condition to the extent possible.

68. Completely remove any temporary fill before the end of the in-water timing window if the fill material could erode and deliver sediment-laden water into waters of the state.

69. To prevent fish from stranding, backfill trenches, depressions, and holes in the bed that may entrain fish during high water or wave action.

70. All earth areas on the banks and shorelines of Story Creek which have been exposed or disturbed by this project, must be graded to a stable slope, seeded with a native seed mix or an approved temporary erosion control mix, and protected from erosion with a suitable erosion control blanket, hydro-mulch with bonding agent or other effective BMPs within seven calendar days of completion. Shoreline erosion protection must be capable of protecting soil from spring runoff flows typical for the site.

71. Replace native riparian zone vegetation damaged or destroyed by construction with native trees, and native shrubs. Plant the trees and shrubs immediately above the ordinary high water mark at three feet on center. Ensure all live stakes and bare root plants are at least six inches into the low flow water table.

72. Complete replanting of riparian vegetation during the first dormant season (late fall through late winter) after project completion per the approved plan. Maintain plantings for at least three years to ensure at least eighty percent of the plantings survive. Failure to achieve the eighty percent survival in year three will require you to submit a plan with follow-up measures to achieve requirements or reasons to modify requirements.

LOCATION #1: Site Name: Story Creek
, , WA

WORK START: July 1, 2019

WORK END: November 1, 2019

<u>WRIA</u>	<u>Waterbody:</u>		<u>Tributary to:</u>			
39 - Yakima (Above Naches R)	Story Cr					Teanaway R
<u>1/4 SEC:</u>	<u>Section:</u>	<u>Township:</u>	<u>Range:</u>	<u>Latitude:</u>	<u>Longitude:</u>	<u>County:</u>
NW 1/4	05	20 N	16 E	47.254704	-120.878632	Kittitas

Location #1 Driving Directions

Exit from Interstate 90 at Exit 85 for WA-970 N toward Wenatchee and turn left onto WA-10/WA-970. In 0.4 miles head East to stay on WA-10/WA-970. Turn left onto Teanaway Rd in 6.9 miles. The project area begins at the culvert that crosses Story Creek.

APPLY TO ALL HYDRAULIC PROJECT APPROVALS



HYDRAULIC PROJECT APPROVAL

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This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person (s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

MINOR MODIFICATIONS TO THIS HPA: You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.



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MAJOR MODIFICATIONS TO THIS HPA: You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.

A. INFORMAL APPEALS: WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.



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A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

Habitat Biologist jennifer.nelson@dfw.wa.gov
Jennifer Nelson 509-961-6639

for Director
WDFW

BIOLOGICAL ASSESSMENT

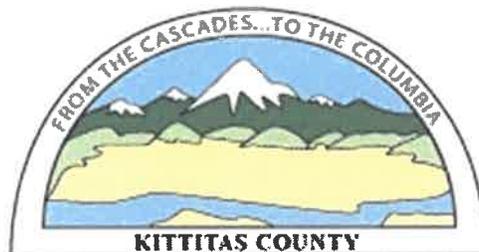
Teanaway Hydraulic Improvements Project– Phase 1 Story Creek Culvert Replacement Kittitas County, Washington

USFWS Consultation Code: 01EWF00-2018-SL1-1021

Prepared for:



Prepared on Behalf of:



Kittitas County Public Works
411 N Ruby Street, Suite 1
Ellensburg, Washington

Prepared by:

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January 21, 2019

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**Teanaway Hydraulic Improvement Project – Phase 1 Story Creek
Culvert Replacement
Biological Assessment**



Document Title: Teanaway Hydraulic Improvement Project – Phase 1, Story Creek Culvert Replacement
Biological Assessment

Date: January 21, 2019

Client Name: Kittitas County Public Works

Author: Jennifer Bader, Biology Team Lead

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- Appendix B. USFWS Species List
- Appendix C. Site Photographs
- Appendix D. Drawings and Site Plans
- Appendix E. 2016 WSDOT Fish Exclusion Protocol and Standards

ACRONYMS AND ABBREVIATIONS

BMP	best management practice
County	Kittitas County
cfs	cubic feet per second
dBA	A-weighted decibel
DBH	diameter at breast height
DPS	Distinct Population Segment
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
FS	Forest Service
Jacobs	Jacobs Engineering Group Inc.
MCR	Middle Columbia River
MM	minimization measure
NMFS	National Marine Fisheries Service
OHWM	ordinary high water mark
Project	Big Boulder Creek Bridge Replacement project
sf	square feet
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WFLHD	Western Federal Lands Highway Division
WSDOT	Washington State Department of Transportation

EXECUTIVE SUMMARY

Jacobs Engineering Group Inc. (Jacobs) has prepared this Biological Assessment on behalf of Kittitas County Public Works for the Western Federal Lands Highway Division of the Federal Highway Administration (FHWA). The project includes funding from the FHWA Federal Lands Access Program Grant process. Therefore, the Project is a federal action, and FHWA is the lead federal agency. Kittitas County Public Works needs to replace an undersized culvert that is currently filled with sediment resulting in a fish passage barrier on Story Creek. Due to the lack of capacity of the existing culvert, continued and chronic impacts from flooding, and the presence of suitable habitat above the fish passage barrier in a priority recovery watershed, the immediate replacement of the culvert is necessary. The Story Creek culvert is located on Teanaway Road approximately 4.5 miles north of Cle Elum, Washington.

The project will replace a deficient and failing culvert located in a high-priority watershed for listed species recovery. The existing 4-foot high by 8-foot wide Story Creek culvert will be replaced with an approximate 14-foot wide by 12-foot high culvert on the same alignment. The improvement project will occur from July through November 2019.

Jacobs acquired a species list from the U.S. Fish and Wildlife Service (USFWS) IPaC system website, on April 25, 2018. The USFWS species and critical habitat identified are presented in **Table ES1**. Based on a review of the 2.17-mile action area, project actions and timing, impact minimization measures, and federally listed species and critical habitat that could occur in the action area, the following determinations are proposed:

Table ES1: Project Effects Summary

Common Name	Listing Status	Potential Presence (IPAC List)	Potential Presence (Action Area)	Determination
Gray wolf	Endangered	Yes	Yes	May affect, not likely to adversely affect
Canada lynx	Threatened	Yes	No	No effect
Yellow-billed cuckoo	Threatened	Yes	No	No effect
Marbled murrelet	Threatened	Yes	No	No effect
Northern Spotted Owl	Threatened	Yes	No	No effect
North American wolverine	Proposed Threatened	Yes	No	Not likely to jeopardize the continued existence of the species
Bull trout – Columbia River DPS	Threatened	Yes	Yes	May affect, not likely to adversely affect
Bull trout – Critical Habitat	Designated	Yes	No	No effect

Note:

DPS = Distinct Population Segment

With this submittal, the Federal Highway Administration is requesting informal consultation on gray wolf and Columbia River DPS bull trout.

1. Project Overview

1.1 Federal Nexus

Jacobs Engineering Group Inc. (Jacobs) has prepared this Biological Assessment on behalf of Kittitas County Public Works (County) for the Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA). The project includes funding from the FHWA Federal Lands Access Program (FLAP) Grant. Therefore, the project is a federal action, and FHWA is the lead federal agency.

This Biological Assessment addresses the proposed action in compliance with Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended. Section 7 of the ESA requires that, through consultation (or conferencing for proposed species) with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species or result in the destruction or adverse modification of critical habitat.

This Biological Assessment evaluates the potential effects of the project on federally-listed species and critical habitats under the jurisdiction of the USFWS. Specific project design elements are identified that avoid or minimize adverse effects of the proposed project on listed species and/or critical habitat.

1.2 Project Location

The project is located approximately 4.5 miles north of Cle Elum in Kittitas County, Washington (Section 05, T 20N, R 16E; Lat. 47.254704, Lon. -120.878632; **Appendix A, Map 1**). The improvement project will occur on Story Creek within Water Resource Inventory Area 39, Upper Yakima River, and in sixth-field hydrologic unit code 170300010205, Teanaway River. Site photographs are provided in **Appendix C**.

1.3 Project Description

The project will replace a deficient and failing culvert located in a high-priority watershed for listed species recovery. The improvements at Story Creek will include the complete removal of the existing 4-foot high by 8-foot wide culvert and the construction of a new 12-foot high by 14-foot wide culvert on the same alignment. Due to the lack of capacity of the existing culvert, continued and chronic impacts from flooding, and the presence of suitable habitat above the fish passage barrier in a priority recovery watershed, the immediate replacement of the culvert is necessary.

Teanaway Road serves as access to several rural residences, the Teanaway Community Forest, Washington Department of Natural Resources campgrounds and snow parks, and is one of the main arterials for public access to the Okanogan-Wenatchee National Forest. Replacing this culvert will provide fish passage and protect private homes and County infrastructure and allow continued access along the Teanaway Road for residents, recreation and forestry practices.

The existing culvert is a split concrete box culvert that is undersized and currently filled with sediment. During flood events Story Creek loses all capacity at the culvert which impacts a local residence prior to flowing across Teanaway Road. The outlet of the culvert has completely aggraded with sediment and is not visible above the water surface elevation. Due to the lack of capacity of the existing culvert, continued and chronic impacts from flooding, and the presence of suitable habitat above the fish passage barrier in a priority recovery watershed, the immediate replacement of the culvert is necessary.

2. Project Details

The improvement project replaces an undersized concrete box culvert with a new, fish passable structure on Story Creek, which is a tributary to the Teanaway River near Cle Elum, Washington (**Appendix A, Map 1**). Project details and construction elements are described in the subsections below.

2.1 Project Timeline and Sequencing

The project will likely begin in July of 2019 and will take up to 5 months to complete. Work below the ordinary high-water mark (OHWM) of Story Creek will require approximately 16 weeks to complete and will occur mid-July through mid-November during low flows and within the Washington Department of Fish and Wildlife (WDFW) approved in-water work window. To maximize flexibility in the construction of the new stream channel and avoid additional construction seasons, the County is requesting a 16 week in-water work window, from July 16 through November 15. Story Creek is historically either dry during this time frame or with very reduced flows.

Project sequencing will likely be mobilization, temporary erosion and sediment control and best management practice (BMP) installation, temporary detour construction, traffic shifts, isolation and dewatering of Story Creek, existing culvert removal, new culvert construction, and streambank grading, roadway reconstruction and paving, guardrail and signage, and demobilization.

2.2 Equipment

Equipment to be used will include but is not limited to: excavators, asphalt grinders, graders, dump trucks, front loaders, vibratory rollers, generators, pumps (for groundwater management), cranes (to place temporary detour bridge), asphalt pavers, and baker tanks.

2.3 Site Preparation

Site preparation work will include delimiting the project area with high-visibility fencing, placing BMPs for sediment and erosion control, and relocating utilities. Clearing existing vegetation will be necessary for the construction of a temporary detour south of the existing culvert (**Appendix D, Sheet 1**). Vegetation will be cut to ground level and not grubbed, and a liner will be placed between the detour fill and existing ground to help reduce unnecessary ground disturbances. Several trees and a utility pole will need to be removed prior to detour construction.

2.4 Construction Access, Staging, and Temporary Detour

Staging of equipment and materials will occur within the project area on the existing closed roadway or widened pull-outs, isolated from traffic. Equipment and material transport to the project site will occur via existing County roads. The contractor is responsible for obtaining permits and clearances for the use of any alternate staging areas.

In order to remove and replace the culvert without road closures or several shifts in traffic patterns that impact the construction schedule, a temporary shoo-fly detour is proposed just to the south of the existing roadway (**Appendix D, Sheet 1**). Fill will be placed to create the

temporary roadway, and a temporary bridge will be used to span Story Creek. The detour bridge will be a 60-foot long modular steel temporary structure that completely spans the OHWM of Story Creek and does not require any in-water support structures (**Appendix D, Sheet 2**). Abutment support for the temporary bridge will be temporary bridge sills that serve to seat the bridge in lieu of full abutment support.

The temporary detour will require the temporary filling of an irrigation ditch that runs parallel to Teanaway Road, leaving Story Creek just downstream from the existing culvert (**Appendix D, Sheet 3**). This ditch was created to convey irrigation water from Story Creek using a now derelict concrete irrigation headworks. There is currently no active water right associated with this ditch, and it is no longer used for irrigation. However, during higher flows, the ditch conveys water from Story Creek to the Teanaway River, and as such likely meets the criteria of a jurisdictional ditch.

To minimize impacts to this irrigation ditch, the contractor will be required to cut but not grub vegetation in the detour alignment footprint, and place geotextile fabric prior to fill being placed. A culvert will be placed in the ditch to allow flows to pass through the detour roadway, and clean rock material will be placed over the culvert and geotextile fabric to protect the ditch during construction. Once complete, all material will be removed back to native ground. No excavation will occur within the irrigation ditch or adjacent vegetated area.

Approximately 5,250 square feet (sf) of upland and riparian vegetation will be cleared for the temporary detour and culvert excavation. Clearing for the temporary detour includes the potential removal of six alder (*Alnus spp.*), three Douglas hawthorns (*Crataegus douglasii*), and three Pacific willow (*Salix lucida ssp. lasiandra*) with a diameter at breast height (DBH) of approximately 6 inches. One larger black cottonwoods (*Populus balsamifera*, 10 DBH) may also require removal. Vegetation under 6-inch DBH that will be cut and covered for the construction of the temporary detour will include willow, woods' rose (*Rosa woodsii*), common snowberry (*Symphoricarpos albus*), and roadside grasses.

The contractor will be required to clear vegetation to ground level but will not grub in the footprint of the temporary detour route. This will allow natural regeneration to occur after the detour is removed. After the new culvert and roadway is open to traffic, all temporary detour fill will be removed to native ground elevation and the culvert and geotextile fabric removed. The temporary detour could be in place for approximately four months.

2.5 Stream Bypass and Culvert Removal

Once traffic has been shifted to the temporary detour alignment, excavation of the existing roadway and culvert will begin. Story Creek will be left in the existing culvert while excavation to the final elevation of the new culvert is completed. This will result in over-excavation on both sides of the culvert (**Appendix D, Sheet 5**). A temporary bypass culvert, likely 24-inch diameter, will be placed in the excavated footprint of the new culvert. The isolation structure will be placed outside the new culvert footprint to construct the culvert and reposition streambed material within the channel (**Appendix D, Sheet 7**). Story Creek will then be diverted into the bypass culvert, using a coffer dam of temporary sandbags to divert flows. In order to build the left bank wing walls and complete the transitional grading from the wingwalls to the creek bottom, the stream isolation structure will be need to moved to the center of the channel (**Appendix D, Sheet 7**). This can be accomplished by connecting a new bypass pipe to the existing isolated

section and will not require additional in-water work or have any impacts or cause turbidity to downstream sections.

If surface water is present when the creek is diverted from the existing to the new culvert, qualified biologists will first set an upstream block net and seine the existing channel to remove fish prior to the diversion. Biologists will use nets and small sump pumps to dewater any remnant pools during dewatering. This will allow all fish to be removed as the work area dewatered without the use of electrofishing. Approximately 500 sf of Story Creek will be dewatered during construction, including the area within the existing culvert.

Once the stream is placed into the bypass culvert and the work area is isolated, the existing culvert will be removed likely by breaking and removing in pieces. The area below the existing culvert will be excavated and prepared for placement of the new culvert. By working in isolation, there will be no impacts to Story Creek from turbidity or elevated pH. Any groundwater encountered during excavation or removal of the culvert will be pumped to an upland area such as roadside ditches for infiltration. At no time will sediment-laden groundwater be pumped directly into the stream channel.

The excavation for the culvert removal will require the removal of up to twelve trees at or greater than 6-inch DBH from the north side of the roadway. This includes four Douglas-fir (*Pseudotsuga menziesii*) and two ponderosa pine (*Pinus ponderosa*) trees that range in size from 6-inch to 18-inch DBH. Six black cottonwoods to include two 6-inch DBH, one 8-inch DBH, two 18-inch DBH, and one 40-inch DBH. Three Douglas-fir trees will be left on site for habitat along Story Creek and the irrigation ditch (**Appendix D, Sheet 5**).

2.6 Culvert Construction

After Story Creek is isolated and the existing culvert is removed, the area beneath the new culvert will be over-excavated one foot below the bottom elevation of the new culvert and backfilled with gravel (**Appendix D, Sheet 5**). Total excavation depth required for the new culvert will be approximately 18.5 feet below the existing roadway surface. Any groundwater intercepted during excavation for the culvert will be pumped to an upland location for infiltration. No turbid water will be allowed to enter the stream.

The new box culvert will measure 12 feet high by 14 feet wide by 50 feet long and will be constructed on site from pre-cast sections (**Appendix D, Sheet 6**). These sections will be sized to allow an appropriately sized crane or excavator to position and lift them without requiring additional roadway width. Approximately 4.5 feet of streambed mix material will be placed in the new culvert. The streambed mix gradation will be sized to match the reference reach of adjacent Story Creek. The streambed material will be mixed off-site to ensure an adequate mix during placement. Material will be placed to match the existing stream elevations up and downstream of the culvert. This material can be placed from above before putting the concrete top on the box culvert. A high-pressure hose will be used to wash in the fines and ensure surface flow is maintained throughout the newly-constructed channel, which will also develop a thalweg. Any turbid water will be intercepted and re-used for additional washing or pumped to an upland area and infiltrated prior to entry into the stream.

Once the bypass structure is moved to the stream channel, the wing walls will be placed on the upstream and downstream sides of the new culvert. The wing walls will be embedded to match the depth of the new culvert to prevent saturation and scour of road fill. Over-excavation and placement of quarry spalls will be required under the wing walls to prevent settling, as described above for the new culvert.

When the culvert and wingwalls are in place, a process of ramping will occur to slowly reintroduce water to the new stream channel. The coffer structure will be breached a small amount at a time to control flows. Flows will be reintroduced slowly to minimize turbidity and ensure stream flows remain on top of the new stream bed areas in the developed thalweg. Once flows are entirely in the new channel, any remaining sandbags and the bypass will be removed from the stream. Common borrow backfill will be placed to the roadway elevation, crushed base course will be placed, and paving will occur. Guardrail placement, signage, and striping will be completed to finish the project.

2.7 Site Restoration

After removal of the temporary detour bridge and imported fill, the roadway side slope will be returned to the pre-project condition. Native plants, such as willow and cottonwood, will be planted in the detour footprint and areas adjacent to Story Creek as needed (**Appendix D, Sheet 8**). If the contractor can clear but not grub the detour footprint, natural regeneration will occur. Planting immediately after construction will help offset the temporal loss of vegetation in the functional stream buffer.

The area at the new culvert that are transitionally graded to the new culvert will be minimal and will not require planting below the OHWM (**Appendix D, Sheet 4**). Disturbed roadside and new embankment areas that are not rock will be seeded with a native roadside and erosion control mix and stabilized with mulch cover prior to project completion.

3. Project Action Area

The action area includes all areas that could be affected directly or indirectly by the proposed action and is not limited to the actual work area (project area). The action area represents the geographic extent of the physical, biological, and chemical impacts of the project. The project area and secondary project features are considered when defining the action area. Secondary project features include staging areas.

The project area is defined as the project footprint, work area, and immediate vicinity of the proposed actions. The project area includes the roadway associated with the culvert replacement, the adjacent detour footprint, and those areas below the OHWM where the stream bypass into the new culvert and grading will occur.

The project action area will include potential effects from visual and audible disturbance, terrestrial habitat impacts, and impacts to aquatic environments. Work below the OHWM will occur, which includes worksite isolation and diversion at Story Creek. The project will remove the existing culvert that is currently acting as a fish passage barrier. The project will not provide access to currently inaccessible lands or facilitate future growth.

3.1 Terrestrial Zone of Impact

To determine the project's terrestrial noise impacts, three noise attenuation distances were calculated: 1) construction noise to ambient noise, 2) construction noise to traffic noise, and 3) traffic noise to ambient noise.

3.1.1 Ambient Noise

The ambient sound level used in this noise analysis is based on population density in the project area. Based on the number of houses in the general vicinity of the proposed project, this rural community has an estimated average population of less than 100 people per square mile (**Appendix A, Map 2**). Using data from the WSDOT Biological Assessment Preparation for Transportation Projects–Advanced Training Manual–Version 2018 (WSDOT 2018), this population density correlates to an estimated ambient noise level of 35 decibels using an A-weighted scale (dBA).

3.1.2 Construction Noise

The culvert replacements will require numerous types of equipment. Table 1 includes a list of potential project equipment, their use, and the typical maximum noise level as measured from 50 feet away (WSDOT 2018). Based on this equipment and using the WSDOT rules for combining noise levels (WSDOT 2018), the project is expected to have a combined maximum noise level of 94 dBA at 50 feet from project activities.

Table 1: Construction Equipment, Use, and Reference Maximum Noise Levels

Equipment	Use	Lmax (dBA)*
Concrete Saw	Cutting roadway	90
Grader	Roadway work	89
Pavement Scarifier	Asphalt removal	89
Chain Saw	Clearing and grubbing	84
Compactor (ground)	Temporary detour route and rebuild roadway	83
Crane	Temporary detour bridge placement	81
Excavator	Demolition and new construction	81
Generator	Portable power for power tools and lighting on site	81
Pumps	Dewater cofferdams	81
Roller	Pave detour route and rebuild roadway	80
Front End Loader	General purpose new construction	79
Backhoe	General purpose demolition and new construction	78
Compressor (air)	Provide compressed air for pneumatic construction tools	78
Paver	Hot mix asphalt	77
Dump Truck	Material removal and delivery	76
Pickup Truck	Personnel, equipment and material transport	75
Flat Bed Truck	Equipment and material transport	74

*Noise levels are based on Table 7-4 Average maximum noise levels at 50 feet from common construction equipment (WSDOT 2018)

3.1.3 Traffic Noise

Traffic noise associated with Teanaway Road is estimated to be 59.7 dBA at 50 feet from the roadway based on County data for average vehicles per day and the posted speed limits (WSDOT 2018).

3.1.4 Noise Attenuation Calculations

The following noise attenuation measurements were calculated to determine the appropriate noise impact zone. Noise attenuation was calculated using the Base 10-Log equation, per the WSDOT noise assessment methodology (2018). For all calculations, the action area was assumed to be a soft site due to the forested habitat and riparian vegetation in the project vicinity.

Distance from Construction Noise to Ambient Noise

$$\text{Distance (D)} = 50 * 10^{((\text{construction} - \text{ambient})/25)}$$

$$D = 50 * 10^{((94 - 35)/25)}$$

$$D = 11,454 \text{ feet (2.17 miles)}$$

Distance from Traffic Noise to Ambient Noise

$$\text{Distance (D)} = 50 * 10^{((\text{traffic} - \text{ambient})/15)}$$

$$D = 50 * 10^{((59.7 - 35)/15)}$$

$$D = 2,216 \text{ feet (0.42 miles)}$$

Distance from Construction Noise to Traffic Noise

$$\text{Distance (D)} = 50 * 10^{((\text{construction} - \text{traffic})/10)}$$

$$D = 50 * 10^{((94 - 59.7)/10)}$$

$$D = 134,577 \text{ feet (25.49 miles)}$$

Because traffic noise attenuates to ambient noise levels closer than construction noise attenuates to ambient noise levels, the traffic noise attenuation of 2,216 feet cannot be used as the project noise impact zone (WSDOT 2018). The distance where construction noise and traffic noise are the same is 25.49 miles, which is farther than the distance where construction noise attenuates to ambient noise (2.17 miles). Therefore, this distance is not appropriate either. Based on the calculations above, the project noise impact zone extends 2.17 miles from the project corridor, or the area where construction noise attenuates to expected ambient sound levels. **Appendix A, Map 2** provides a graphic representation of the physical extent of the action area based on the information above. Note this representation is extremely conservative, as it doesn't take into effect vegetation, topography, or other factors that reduce noise attenuation at distance.

3.2 Aquatic Zone of Impact

The project will require work below the OHWM where minimal to no surface flows may occur in Story Creek during the in-water work window. Dewatering and bypassing potential flows through the work area will minimize the size and duration of downstream effects. If flows are present, the potential exists for turbidity to extend downstream during installation and removal of the isolation and bypass and reintroduction of water to the stream. However, this turbidity will be localized and BMPs will be used to minimize the zone of impact. The bottom substrate within the work area is clean cobble and gravels, so it is unlikely sediment will be mobilized from the stream bottom.

There are no stream gauges on Story Creek; however, it is estimated flows in the creek at the time of construction (July through November) will likely range from 0 to 5 cubic feet per second (cfs). Based on lower flows during construction and the requirement for minimization measures to be used to maintain water quality, turbidity will return to baseline relatively quickly. Through active BMP management and construction methods, the Contractor will be required to prevent any turbidity from extending beyond 100 feet from the project area. This will maintain compliance with state water quality standards as described in Chapter 201A of Title 173 of the Washington Administrative Code (WAC 173-201A), which allow a 100-foot mixing zone from the project area when flows are between 1 and 10 cfs.

Elevated turbidity will not be allowed to extend beyond this mixing zone. In addition, there may be a slight backwater effect from the isolation structure, but this will be minimal due to allowing flows to bypass the work area.

Based on the above, the aquatic zone of impact includes the area below the OHWM of Story Creek, extending downstream approximately 100 feet from the project area and upstream 50 feet from the isolation structure. The total aquatic zone of impact is approximately 250 linear feet of Story Creek (**Appendix A, Map 2**).

3.3 Action Area Determination

The action area is defined as the furthest extent of the project's physical, chemical, or biological impacts. Water quality impacts are expected to extend no farther than 50 feet upstream and 100 feet downstream from the project isolation area on Story Creek. Terrestrial noise impacts extend the farthest distance of all project-related impacts (up to 2.17 miles); therefore, the project action area extent is based on the terrestrial noise impact zone (**Appendix A, Map 2**).

4. Impact Avoidance and Minimization Measures

The Contractor will be required to implement several minimization measures (MM) to avoid or minimize impacts to species, habitats, and the environment. A summary of these measures is below.

MM 1 – Culvert and channel work below the OHWM will only occur in an isolated condition.

MM 2 – All work below the OHWM will be conducted during the identified in-water work window to remain protective of aquatic species.

MM 3 – All equipment will be inspected for leaks prior to work each day.

MM 4 – All equipment that works below the OHWM will contain vegetable oil or other biodegradable alternative to hydraulic fluid.

MM 5 – Equipment staging and fueling will occur more than 50 feet from the OHWM of Story Creek.

MM 6 – Worksite isolation and fish exclusion will be conducted by qualified biologists in accordance with the 2016 Washington State Department of Transportation Fish Exclusion Protocols and Standards (**Appendix E**).

MM 7 – Electrofishing will not be used.

MM 8 – Small pumps, if used to dewater holding pools prior to full isolation, will be screened to NMFS criteria.

MM 9 – Fines will be washed into areas of new streambed prior to the reintroduction of flows to ensure water stays on the surface, and to minimize downstream turbidity during rewatering.

MM 10 – Water will be reintroduced to the stream channel slowly during removal of containment measures to minimize turbidity and allow natural equilibration to occur.

MM 11 – BMPs such as wattles or silt fence will be used to prevent the discharge of any material into flowing water.

MM 12 – Vegetation removal required for access or the temporary detour that is not part of the permanent impact limits will be cut, but not grubbed, to allow natural regeneration.

MM13 – All work will occur outside the calving season (May 15 – June 15) when elk densities in the action area are lowest.

5. Environmental Baseline

5.1 Aquatic Resources

Story Creek joins the Teanaway River approximately 0.3 miles downstream of the project area, and then flows as the Teanaway River into the Yakima River. The Teanaway River is a left-bank (north) tributary to the upper Yakima River, entering at river mile (RM) 176.1. Story Creek is approximately 4.6 miles long and classified as perennial on the National Hydrography Database; however, it has minimal to no surface flows by mid-summer. The streambed material consists of cobbles and gravels. Story Creek flows through a narrow draw before reaching a relatively broad alluvial plain at approximately RM 0.3 near the project site.

Annual precipitation at the closest weather stations averages between approximately 20 inches (Cle Elum, WA) and 34 inches (Lake Cle Elum, WA), which occurs primarily as winter snowfall. The upper Story Creek watershed is largely undeveloped with only a handful of houses above the project site. The project area is in the lower portion of the Story Creek watershed, where the riparian condition has been impacted by agriculture and private residences.

According to the WDFW SalmonScape database, the Teanaway River supports salmon, steelhead, and bull trout; however, there is no documented or presumed presence within Story Creek (WDFW, n.d.). Story Creek likely supports resident salmonids such as rainbow, cutthroat, and brook trout, and other non-salmonids. The existing culvert at the project site acts as a fish passage barrier and limits fish access to the upper Story Creek watershed.

The Teanaway River is a priority watershed for salmon and steelhead recovery (USFWS 2015). The main factors limiting production have been identified as low flows and associated high water temperatures, loss of natural floodplain function, and variation in runoff patterns due to the likelihood of rain-on-snow events (Haring 2001). The US Forest Service, Yakama Nation, National Marine Fisheries Service, Washington Department of Fish and Wildlife, US Fish and Wildlife Service, and Washington Department of Natural Resources have coordinated on projects throughout the watershed. There have been several habitat improvement projects in North Fork Teanaway sub-watersheds, and there is currently \$1 million in funded wood loading projects planned for the NF Teanaway River upstream of the proposed culvert location.

Story Creek, is not listed as an impaired water by the Washington State Department of Ecology; however, the Teanaway River approximately 11 miles downstream near the confluence with the Yakima River has Total Maximum Daily Load (TMDL) for turbidity, total suspended solids (TSS), organochlorine pesticide (OCP), and temperature. The closest downstream 303(d) impaired water is the Yakima River near Thorp, WA.

5.2 Uplands Overview

The project area is east of the Cascade Range near the Kittitas Valley, which is characterized by cold winters, and hot, dry summers. The majority of precipitation occurs as winter snowfall with occasional isolated thunderstorms in the spring and summer. The immediate project area is generally characterized by a few rural residences, agricultural fields, and some managed timber lands with the land immediately adjacent to the project in private ownership. The lowlands within the Story Creek watershed consist of residences and agricultural fields, whereas the upper

watershed is primarily public lands (Teanaway Community Forest) with one large undeveloped privately-owned parcel.

The vegetation and habitat in the action area is characterized as Northern Rocky Mountain dry-mesic montane mixed conifer forest. Vegetation and topography in the action area are lower elevation foothills with ponderosa pine and Douglas-fir associated ecotypes. Lowlands within the Teanaway River riparian area are primarily agricultural fields interspersed with remnant riparian vegetation. Riparian buffers in the action area are narrow and somewhat altered from previous land uses, but in general are intact and consist of willow (*Salix* spp), cottonwood, and aspen, and Douglas hawthorn.

6. Federally Proposed and Listed Species and Designated Critical Habitat

The following section provides the justification for a **No Effect** determination for Canada lynx, yellow-billed cuckoo, marbled murrelet, northern spotted owl, North American wolverine, and designated critical habitat for bull trout. The project may affect gray wolf and Columbia River Distinct Population Segment (DPS) bull trout, which is addressed and justified below.

6.1 Species Excluded from Further Assessment

Canada Lynx: Canada lynx (*Lynx canadensis*) is listed as threatened in Washington State. The distribution of lynx in Washington State is closely associated with the high elevation forest that are generally above 4,500 feet (WDFW 2016a). Canada lynx are most likely to occur in areas that receive deep snow and have high-density populations of snowshoe hare (*Lepus americanus*), the principal prey of lynx. The largest contiguous block of this type of habitat occurs in north-central Washington along the east slope of the Cascade Mountain range. Further south, these habitats become smaller and disjunct, making them unsuitable to support resident populations of lynx (WDFW 1993).

The project area is located at about 2,240 feet in elevation. The action area ranges from approximately 2,100 feet to 3,320 feet in elevation and contains low- to mid-elevation coniferous forest with relatively open Douglas-fir and ponderosa pine, developed agricultural fields, and rural residences. The project action area does not contain suitable habitat for Canada lynx. The project will have **No Effect** on Canada lynx, and they are not addressed further in this assessment.

Yellow-billed Cuckoo: The Western United States DPS Yellow-billed cuckoo (*Coccyzus americanus*) is listed as threatened in Washington State. In the breeding range, yellow-billed cuckoos prefer open lowland deciduous woodlands with clearings and shrubby vegetation. No nesting records exist for eastern Washington, despite the presence of apparently suitable riparian corridors, occasional past sightings during the summer, and documented breeding in eastern Oregon and southern Idaho (WDFW 2017a).

Reports of individual cuckoos have been very rare in recent decades, with only 20 records made between 1950 and 2016 (16 in eastern Washington; Tweit 2005; WDFW 2017a). Yellow-billed cuckoo require large tracts of willow-cottonwood or mesquite forest or woodland for their nesting season habitat. Western yellow-billed cuckoos rarely nest at sites less than 50 acres (20 hectares) in size, and sites less than 37 acres (15 hectares) are considered unsuitable habitat (79 FR 48551).

The action area includes narrow bands of cottonwood and willow riparian habitat interspersed with Douglas-fir and ponderosa pine. The project will remove approximately 5,250 sf of riparian trees and shrubs that are not suitable as nesting habitat. Due to the lack of suitable nesting habitat in the project action area, the project will have **No Effect** on Yellow-billed cuckoo, and they are not addressed further in this assessment.

Marbled Murrelet: Marbled murrelet (*Brachyramphus marmoratus*) is listed as threatened in Washington State. Murrelet forage in the marine environment and may fly up to 55 miles inland where they nest and rear a single young on large tree limbs in mature and old conifer forests

(WDFW 2016b; Desimone 2016). Marbled murrelet nesting habitat includes conifer stands that are a minimum of 5 acres in size with an overstory cover of at least 60 percent. Nest tree requirements include a minimum DBH of 15 inches and a nesting platform that is at least 33 feet above the ground and 4 inches wide. While there are records for marbled murrelet in the County, they are further west near Snoqualmie Pass.

WSDOT guidance determines non-blasting projects with no pile driving that occur more than 0.25 miles from marbled murrelet suitable nesting and foraging habitat and are more than 70 miles inland from foraging habitat to have No Effect on the species. The project action area is located approximately 78 miles inland from potential foraging areas. In addition, the coniferous forest within 0.25 miles of the project does not contain suitable nesting habitat. The project will have **No Effect** on marbled murrelet, and they are not addressed further in this assessment.

Northern Spotted Owl: Northern spotted owl (*Strix occidentalis caurina*) is listed as threatened in Washington State. There are two known territories that overlap the action area which are approximately 1.6 miles and 1.7 miles from the project limits which were last active in 1993 and 1994, respectively (WDFW 2018). The closest documented active nesting territory is located approximately 4 miles from the project and it is anticipated this project shouldn't impact this species (S. Downes, personal communication, September 12, 2018). Northern spotted owls require habitat characteristics associated with older forests for nesting, roosting, and foraging. Nesting substrate requirements include large trees or snags with deformities that have a minimum DBH of 20 inches. These trees and snags occur within stands providing greater than 60 percent canopy cover that have at least 5 contiguous acres of multi-layered coniferous forest. A relatively open understory is also necessary for flight and foraging.

WSDOT guidance determines non-blasting projects with no pile driving that occur more than 0.25 miles from northern spotted owl suitable nesting and foraging habitat to have No Effect on the species. Coniferous forest within 0.25 miles of the project does not contain suitable nesting, roosting, or foraging habitat. The project will have **No Effect** on northern spotted owls, and they are not addressed further in this assessment.

North American Wolverine: North American wolverine (*Gulo gulo*) is proposed to be listed as threatened in Washington State. In Washington State, wolverine historically occupy alpine and subalpine habitats of the Cascades, Blue Mountains, and Rocky Mountains (WDFW 2012). Wolverine occur in very low densities and are associated year-round near areas with permanent snow pack.

The project area is located at about 2,240 feet in elevation. The action area ranges from approximately 2,100 feet to 3,320 feet in elevation and contains low- to mid-elevation coniferous forest with Douglas-fir and ponderosa pine, developed agricultural fields, and rural residences. The project action area does not contain suitable habitat for wolverine. The project **will not jeopardize the continued existence** of wolverine. Should wolverine be listed prior to the completion of the project, the project will have **No Effect** on wolverine, and they are not addressed further in this assessment.

Bull Trout-Designated Critical Habitat: The USFWS finalized the revised critical habitat designation for bull trout on October 18, 2010. Critical habitat Unit 11 includes the Upper Yakima River and its tributaries. However, there is no critical habitat designated within Story Creek (USFWS 2015). Designated critical habitat occurs within the Teanaway River; however, this is outside the aquatic zone of impact. The project will have **No Effect** on bull trout-designated critical habitat and it is not addressed further in this assessment.

6.2 Gray Wolf

The gray wolf (*Canis lupus*) is listed as endangered under the ESA in Kittitas County. USFWS is the lead regulatory agency for this listing.

6.2.1 Status/Presence in the Action Area

Washington State has 22 known wolf packs with at least 122 known wolves (WDFW 2017b). Most of the wolf packs are in northern Washington with a few known packs in the southeast corner of the state. The action area is within the territory for the Teanaway wolf pack, which is the only known wolf pack in central Washington (WDFW 2016c). As of December 2016, the Teanaway wolf pack had a confirmed breeding pair and minimum pack size of 5 individuals (WDFW 2017b).

Gray wolves are highly social and live in packs. Packs tend to hunt, feed, rest, and travel together. The gray wolf is a habitat generalist and opportunistic carnivore, which feeds on large and small mammals, fish, carrion, and vegetation. They are often associated with mid to high-elevation habitat with an abundance of prey species. Human disturbance is of greatest concern near active den sites where wolves may abandon the den and move their pups (WDFW 2017b). Den sites tend to be located near the core of the pack territory. Pack activity is centered around the den site and surrounding rendezvous sites through September or early October as adults hunt and bring food to pups.

The action area is located within the Teanaway elk calving area near the southern boundary of the Teanaway pack territory. Vegetation in the action area consists of mid-elevation coniferous forest, with developed agricultural fields, and rural residences at the lower elevations. The project area is located at about 2,240 feet in elevation and is adjacent to rural residences, paved County roads, and agricultural fields. The project will occur outside the Teanaway pack core area when it is anticipated pack activity will still be centered around the den sites. There are no active den or rendezvous sites near the project.

Elk calving occurs late May to early June at which time cow elk remain isolated from the herd for about 2 weeks until the calves can effectively outrun predators. The project will occur in late summer/early fall outside the elk calving season when it is anticipated abundant prey species will be at higher elevations. In addition, Teanaway Road carries high volumes of summer recreational traffic, as it is the only access to the Teanaway Community Forest and it is also a main access route to the Okanogan-Wenatchee National Forest. While there is the potential for gray wolves within the action area, this species is highly transient, and due to the developed nature of the project area and high levels of ambient disturbance, it is likely this species will be at higher elevations during project activities.

6.3 Columbia River DPS Bull Trout

The Columbia River DPS bull trout (*Salvelinus confluentus*) is listed as threatened under the ESA in Washington State. USFWS is the lead regulatory agency for this listing.

6.3.1 Status/Presence in the Action Area

The action area is within the bull trout Yakima River Core Area of the MCR Recovery Unit. In the Yakima core area some populations exhibit life history forms different from what they were

historically. Migration between local populations and to and from spawning habitat is generally prevented or impeded by: 1) headwater storage dams on irrigation reservoirs; 2) connectivity between tributaries and reservoirs; and 3) altered flow patterns, low instream flows, high water temperatures, and other habitat impediments within lower portions of spawning and rearing habitat and the main stem Yakima River. Currently, the connectivity in the Yakima Core area is truncated to the degree that not all populations are able to contribute gene flow to a functional metapopulation.

Bull trout have the most specific habitat requirements of salmonids. Bull trout require colder water temperature than most salmonids—below 59 degrees Fahrenheit (15 degrees Celsius) throughout their lifecycle. Resident and fluvial bull trout were historically present in the Teanaway River (Haring 2001); however, there is no recent documentation of use. This could be due in part to TMDLs for temperature on reaches of the Teanaway River and NF Teanaway River.

Bull trout use within Story Creek has not been documented and is extremely unlikely given the poor habitat conditions, warmer temperatures, and variable flows. The WDFW SalmonScape database indicates the Teanaway River within the action area as documented bull trout presence (WDFW, n.d.); however, this river is not within the aquatic zone of impact. In addition, the local Fish and Wildlife Habitat Biologist has indicated while extirpation is difficult to prove, there are currently no known bull trout in this river (S. Downes, personal communication, September 12, 2018). Higher water temperatures in late summer, sporadic flows, and the lack of recent known use within the Teanaway River indicate bull trout presence in Story Creek is highly unlikely.

7. Effects Analysis

7.1 Direct Effects

A direct effect is the direct or immediate effect of the project on a species or its habitat. According to ESA regulatory definitions, direct effects occur at or close to the time of the action itself. Direct effects of the project are noise associated with construction, in-water work, fish handling and removal, water quality impacts, vegetation removal, and aquatic habitat alteration.

7.1.1 Terrestrial Noise

Construction noise from the project is conservatively expected to extend approximately 2.17 miles from the project area before returning to baseline conditions. Any listed terrestrial species within this area during construction would be exposed to elevated noise levels, and, if not habituated, could be displaced from the area. The action area may contain suitable winter and spring habitat of gray wolf; however, the project will be completed in late summer and fall when even transient presence of gray wolf is unlikely. The chance of exposure to elevated sound levels by any listed terrestrial species is discountable. In addition, based on timing, the effect from an increase in sound levels is insignificant.

7.1.2 In-Water Work

If surface water is present at the time of construction, in-water work will include placement and removal of the isolation structure and bypass on Story Creek. The isolation structure will be placed after the project area has been seined and blocked with nets to remove any fish that may be present. The isolation structure will be partially placed from the bank, where possible, prior to any equipment entering the wetted width of the stream channel. Equipment will only operate in the quiet area behind the isolation structure and will not enter actively flowing water.

Species present in the aquatic zone of impact during this in-water work could be exposed to the direct effect of equipment operation. Bull trout presence in Story Creek is discountable based on potential extirpation from the Teaway River and likely low flows in Story Creek. Qualified biologists will seine the work area and place block nets prior to in-water work occurring. If any bull trout were present, impacts will be insignificant since no handling will occur.

7.1.3 Fish Handling and Removal

The project area will be seined and isolated prior to work below the OHWM. The potential for bull trout presence in the aquatic zone of impact during construction is discountable, based on potential extirpation from the Teaway River, low flows, and elevated summer temperatures. Any bull trout that is in the dewatered area will be herded by nets and likely voluntarily leave the work area during dewatering activities. Construction of the isolation structure and dewatering will proceed slowly, to allow any fish to voluntarily leave as flows recede. If necessary, any pools will be pumped with small-capacity, screened pumps to remove any remaining fish by hand. Electrofishing will not be used. Knotless nylon sanctuary-type nets will be used, and handling will be minimized. All fish will be released downstream of the project area.

7.1.4 Water Quality

The culvert will be replaced in the dry, after isolation and bypass measures are placed and the area is dewatered. This will minimize the frequency, extent, and duration of potential turbidity events. There will likely be short-term and localized turbidity during the isolation and diversion structure placement and again during removal. The substrate of the project action area is large gravels to medium cobble, with minor sediment deposition due to increased velocities during flood events. Short-term impacts to water quality will not extend beyond 100 feet downstream of the project area, but any bull trout in this area during construction would be exposed to insignificant elevated turbidity.

There is no potential for elevated pH levels during the construction of the new culvert. The culvert and wing walls will be precast concrete constructed offsite.

Work will occur after the project area has been isolated from flowing water. It is likely that hyporheic flows will be present, and groundwater could be encountered during excavation activities. The Contractor will be required to pump any groundwater or hyporheic flows to an upland area for infiltration. No turbid water will be allowed to enter flows downstream at any time.

Based on project timing and low densities in the Teanaway River, bull trout presence is discountable in the aquatic zone of impact during construction. Bull trout presence in the aquatic zone of impact during construction is also discountable based on low densities of prey species, lower flows, distance from the Yakima River, and warmer water temperatures.

7.1.5 Vegetation Removal

The construction of the temporary detour and grading at the corners of the new culvert will require vegetation removal. Approximately 5,250 sf of riparian vegetation will be removed, some of which provides some function to habitat within the irrigation ditch and Story Creek. The riparian vegetation in these areas is mostly cottonwood, willow, aspen, and hawthorn. Willow, cottonwood, and dogwood cuttings will be incorporated in the riparian zone during construction and over time will replace the lost riparian function. Vegetation in the detour area that is not permanently altered will be cut, but not grubbed, to promote natural regeneration.

Tree removal on Story Creek for the temporary detour may include the removal of 13 trees and shrubs to include alders, hawthorns, pacific willows, and one cottonwood that range in size from 6-inch to 10-inch DBH. An additional 12 trees adjacent to the existing culvert to include Douglas-fir, ponderosa pine, and cottonwoods that range in size from 6-inch to 40-inch DBH may also require removal. If possible, the detour alignments will be sited to avoid these trees. However, if the trees need to be taken down for access, they will be left on-site, if possible, in the riparian area to provide some riparian habitat value. Effects from vegetation removal are short-term and localized and are an insignificant effect to the habitat value for bull trout based on the extremely low chance for presence in Story Creek. Overall the project will replace riparian vegetation in temporarily impacted areas, as needed.

7.1.6 Short-Term Aquatic Habitat Loss and Alteration

The direct effect to aquatic habitat will be the short-term displacement caused by isolating and dewatering approximately 610 sf of active Story Creek channel. Bull trout, if present, will not

have access to this section of Story Creek for the duration of the project. Habitat loss will also occur within the footprint of the detour alignment to include access to the adjacent irrigation ditch. This will be short term, lasting approximately 16 weeks.

Bull trout would not have access upstream past the project area during construction; however, given the current state of the failing culvert, species are unable to pass through or utilize this area. This short-term habitat loss is an insignificant effect to bull trout based on the small size of the impact, timing during low flows and warmer temperatures, and discountable chance for bull trout presence.

The project will have a beneficial effect on available channel for listed species. Depending on the presence of upstream barriers, there is the potential over four miles of in-stream habitat will be available to listed species once the fish passage barrier associated with this project is removed.

7.2 Indirect Effects

Indirect effects are caused by the action and occur after the action is completed. The project does not create a new facility, does not increase access or use, does not increase capacity, and does not have new development contingent on it.

7.2.1 Effects from New Impervious Surface

No new impervious surface is associated with this project as the result is returning a structurally deficient culvert to standard underneath the existing roadway.

7.2.2 Altered Predator-Prey Relationships

The project will not impact suitable food items or prey species of any listed species. It is unknown if brook trout currently occur above the existing culvert on Story Creek. There is the potential the project will open new habitat to brook trout and other predators. There may be a short-term displacement to access and foraging during the project, but the amount of displaced area is insignificant when compared to the amount of suitable habitat elsewhere in the project action area.

7.2.3 Long-Term Habitat Alteration

The project will increase the width of the channel within the culvert by 6 feet and will provide a larger hydraulic opening for natural stream processes. Over the long-term, this is a beneficial effect. In addition, the project will replace a fish passage barrier, allowing access to additional habitat higher in the watershed.

7.2.4 Indirect Land Use Impacts

No land use impacts are associated with the project, as the result is replacing a culvert in kind. The project will not increase access or result in any changes to land use. No indirect effects from land use are associated with project construction.

7.3 Interrelated and Interdependent Actions and Activities

No interrelated or interdependent actions or activities are associated with project construction.

8. Effect Determinations

The project will not jeopardize the continued existence of North American wolverine. Should North American wolverine be listed prior to completion of the project, the project will have **No Effect** on wolverine. In addition, the project will have **No Effect** on Canada lynx, yellow-billed cuckoo, marbled murrelet, northern spotted owl, or designated critical habitat for bull trout. Refer to Section 7.1 for the justification of these effect determinations.

8.1 Effect Determinations for Listed Species

8.1.1 Gray Wolf

The project May Affect, but is Not Likely to Adversely Affect, gray wolf.

The project **May Affect** gray wolf because:

- Gray wolf presence cannot be precluded within the action area because it is within the Teaway wolf pack boundary.
- The project will increase noise above ambient levels within 2.17 miles of the project site.
- Prey species for wolf may be temporarily displaced in the project vicinity.
- Approximately 5,250 sf of riparian and upland vegetation will be cleared for the temporary detour and grading at the corners of the new culvert.

However, the project is **Not Likely to Adversely Affect** gray wolf because:

- The project will occur between July and November when wolf activity will be centered around the active den and rendezvous sites near the core of the Teaway pack territory. Since the action area is near the southern edge of the territory, wolves are not anticipated to use this habitat until later in the year. The potential for wolf presence in the action area is discountable.
- The project will occur after the elk calving season when elk are expected to be using higher elevation portions of their ranges.
- Gray wolves are highly transient and habitat generalists that are able to adapt to human disturbance. The effect of a slight increase in ambient noise and disturbance is insignificant.
- The project will occur when there are higher levels of recreational traffic within the action area, which will likely result in prey species occurring at higher elevations that are further from designated roads, which indicates construction noise is unlikely to further affect the distribution of prey species.
- The temporary loss of approximately 5,250 sf of vegetation is insignificant compared to the amount of suitable habitat in the Teaway pack territory. Vegetation in the detour area that is not permanently altered will be cut, but not grubbed, to promote natural regeneration. Willow, cottonwood, and birch will be incorporated into the riparian areas where permanent vegetation removal is proposed. Over time, this vegetation will restore riparian function.

8.1.2 Columbia River DPS Bull Trout

The project May Affect, but is Not Likely to Adversely Affect, Columbia River DPS bull trout.

The project **May Affect** bull trout because:

- Bull trout presence cannot be precluded in Story Creek during construction due to the potential that surface flows may be present which would provide connectivity to the Teanaway River.
- The project will require in-water work.
- If surface waters are present, construction will temporarily limit access to approximately 610 sf of aquatic habitat.
- A minor and short-term increase in turbidity will be associated with potential in-water work.
- Approximately 5,250 sf of riparian vegetation will be removed.

However, the project is **Not Likely to Adversely Affect** bull trout because:

- Bull trout have not been documented in the aquatic zone of impact.
- Story Creek is typically mostly dry with only isolated pockets of flow from June through late summer. There is little to no hydrologic connectivity to the Teanaway River during construction.
- The project will be completed from July through October. The chance for bull trout presence in the aquatic zone of impact is discountable due to no recent known bull trout use of the Teanaway River or NF Teanaway River, little to no surface water, and warmer temperatures that may act as a thermal barrier.
- The loss of access will be short term and temporary, occurring for 16 weeks. Exclusion from the project area will be an insignificant effect when compared to the amount of suitable habitat elsewhere.
- Turbidity will be limited to within 100 feet of project activities. Any increases in turbidity will be localized and short term in nature. The effect of turbidity will be insignificant due to BMPs and construction methods that will limit the extent and duration. In addition, the likelihood of bull trout being exposed to increased turbidity is discountable due to no recent known bull trout use of the Teanaway River or NF Teanaway River and elevated water temperatures acting as a thermal barrier in the lower watershed.
- The temporary loss of 5,250 sf of riparian trees and shrubs is insignificant compared to the amount of riparian habitat in the Story Creek corridor. Vegetation in the detour area that is not permanently altered will be cut, but not grubbed, to promote natural regeneration. Willow, cottonwood, and birch will be incorporated into the riparian areas where permanent vegetation removal is proposed. Over time, this vegetation will restore riparian function.
- Electrofishing will not occur.

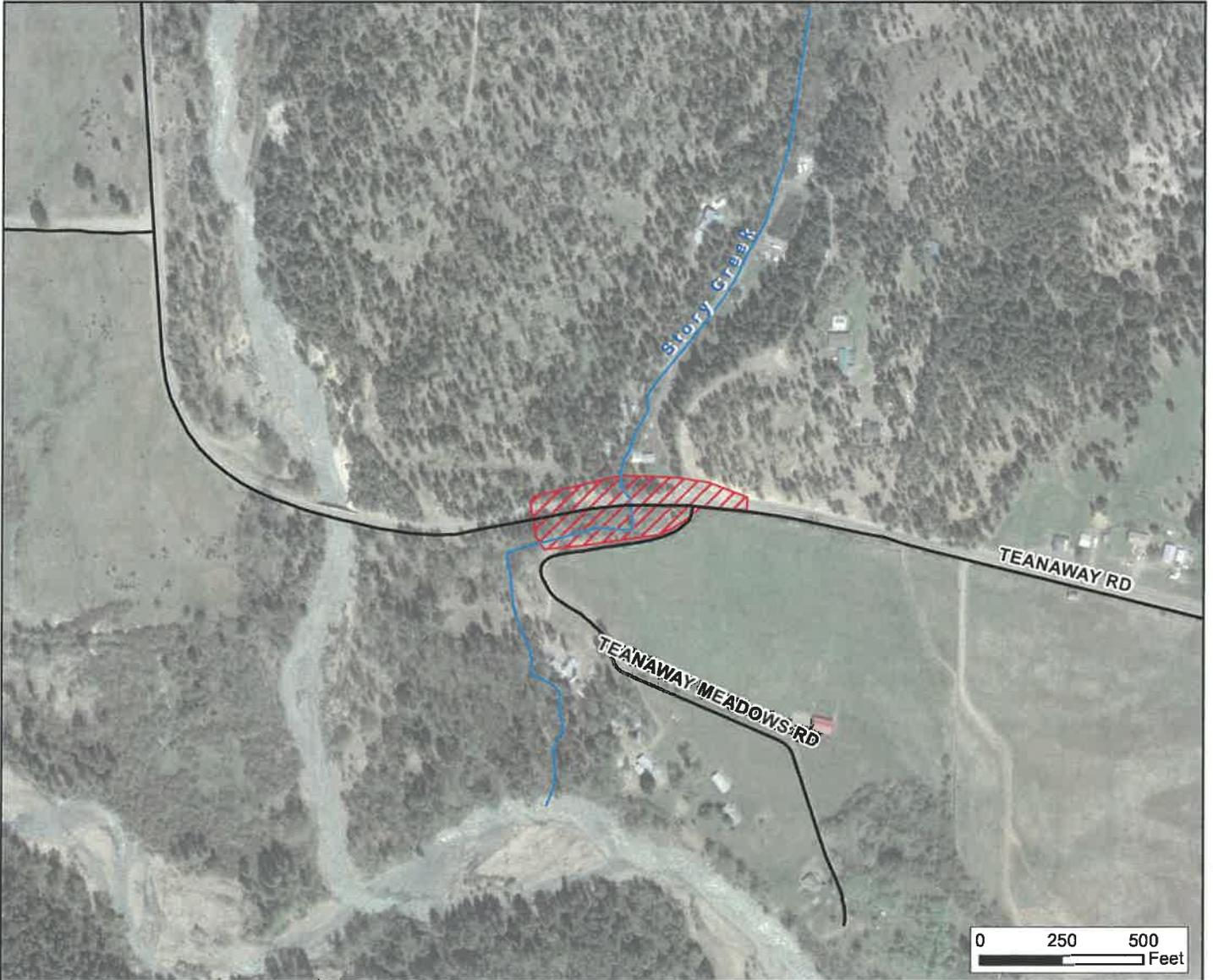
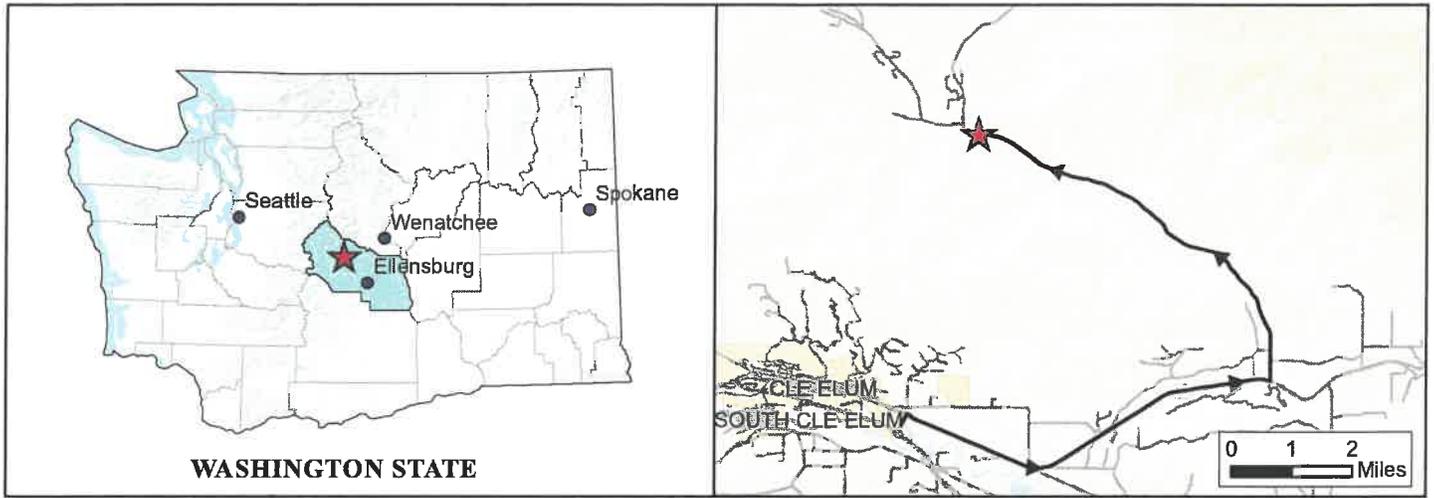
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**Appendix A
Project Maps**

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**Vicinity Map: Teanaway Hydraulic Improvements Project
Phase 1 - Story Creek Culvert Replacement**



- Project Location
- Story Creek
- Kittitas County
- Project Area

Map Date: Dec 27, 2018
ESRI Imagery Date: 2016



Map 2: Story Creek Culvert Replacement Action Area

JACOBS

★ Project Location	⋯ Action Area (2.17 mile buffer)	■ Aquatic Zone of Impact	↑
— River/Creek			

Map Date: Dec 17, 2018
 ESRI Imagery Date: 2015

**Appendix B
USFWS Species List**

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

Washington Fish And Wildlife Office

510 Desmond Drive Se, Suite 102

Lacey, WA 98503-1263

Phone: (360) 753-9440 Fax: (360) 753-9405

<http://www.fws.gov/wafwo/>

In Reply Refer To:

January 29, 2019

Consultation Code: 01EWF00-2018-SLI-1021

Event Code: 01EWF00-2019-E-00724

Project Name: Teanaway Hydraulic Improvements Project - Phase 1 Story Creek Culvert Replacement

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website: <http://wdfw.wa.gov/mapping/phs/> or at our office website: http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at <http://www.fws.gov/pacific/eagle/for> information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: <http://www.nmfs.noaa.gov/pr/laws/mmpa/>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:

National Marine Fisheries Service: http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office

510 Desmond Drive Se, Suite 102

Lacey, WA 98503-1263

(360) 753-9440

Project Summary

Consultation Code: 01EWF00-2018-SLI-1021

Event Code: 01EWF00-2019-E-00724

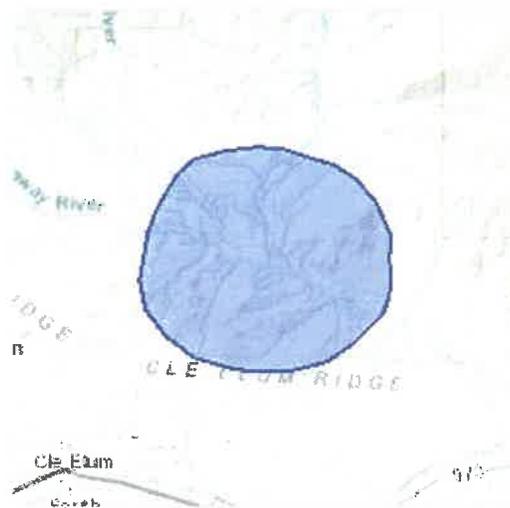
Project Name: Teanaway Hydraulic Improvements Project - Phase 1 Story Creek Culvert Replacement

Project Type: TRANSPORTATION

Project Description: Culvert replacement planned for construction in 2019 to replace a fish passage barrier with a passable structure.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/47.25358090205242N120.87948903169288W>



Counties: Kittitas, WA

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf <i>Canis lupus</i> Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered
North American Wolverine <i>Gulo gulo luscus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Birds

NAME	STATUS
Marbled Murrelet <i>Brachyramphus marmoratus</i> Population: U.S.A. (CA, OR, WA) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout <i>Salvelinus confluentus</i> Population: U.S.A., conterminous, lower 48 states There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Bull Trout <i>Salvelinus confluentus</i> https://ecos.fws.gov/ecp/species/8212#crithab	Final

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**Appendix C
Site Photographs**

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Figure 1. Teanaway Road at culvert crossing looking east.



Figure 2. Teanaway Road at culvert crossing looking west.

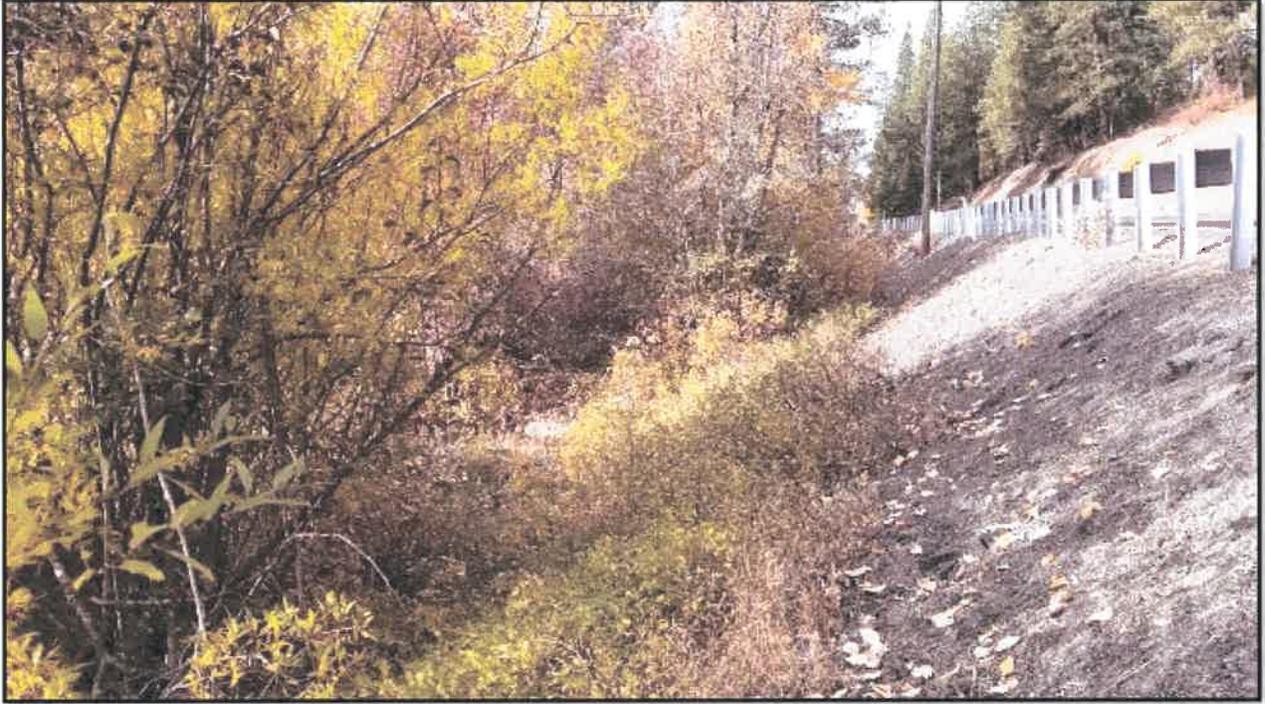


Figure 3. Vegetation on south side of Teanaway Rd looking west.



Figure 4. Culvert conveying Story Creek, upstream side looking south.



Figure 5. Irrigation ditch, south side of Teanaway Road looking west.



Figure 6: Culvert crossing of Story Creek and Teanaway Road-downstream side.

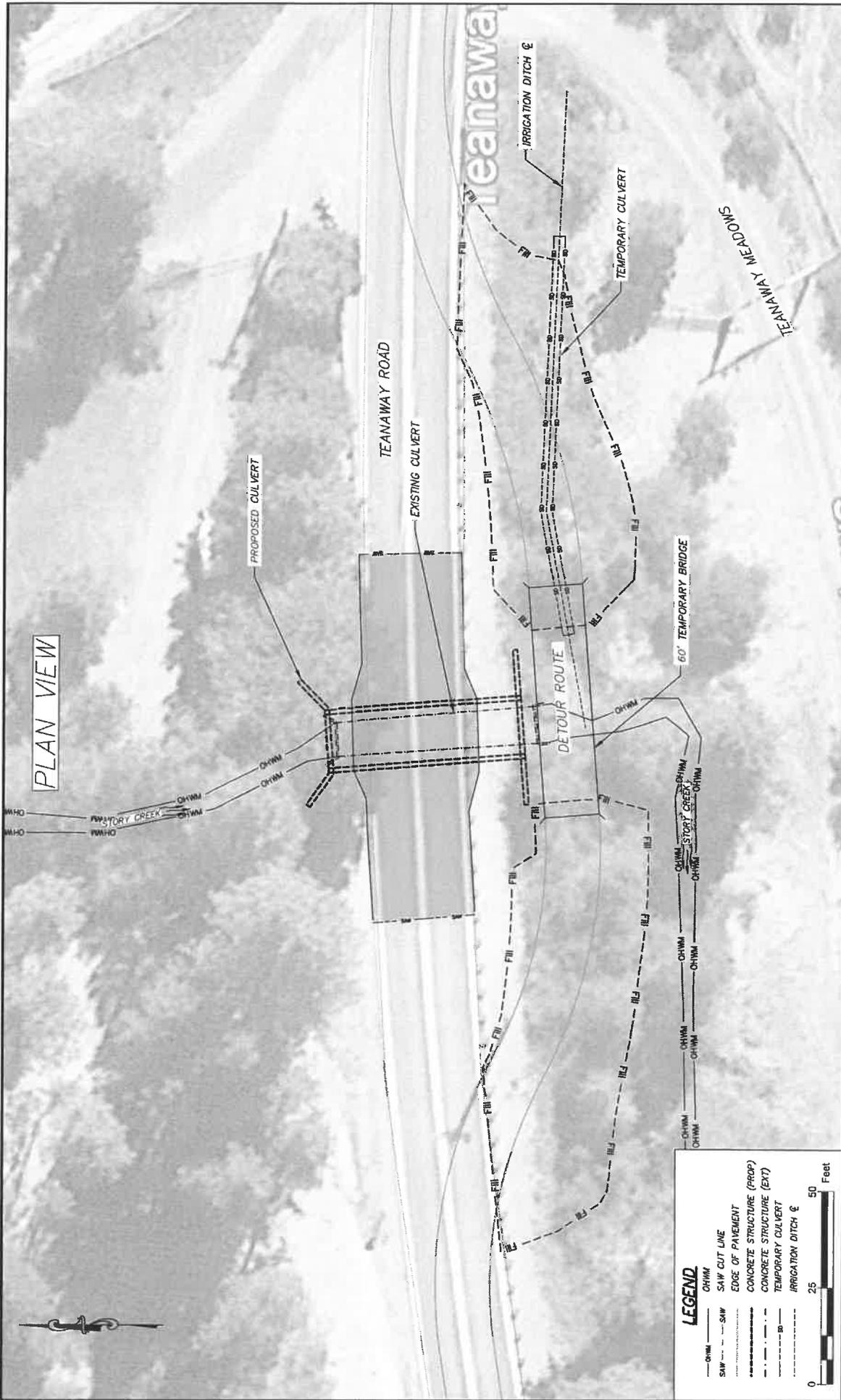


Figure 7: Derelict concrete irrigation headworks downstream of the existing culvert that used to divert water from Story Creek into the ditch paralleling Teanaway Road.

**Appendix D
Drawings and Site Plans**

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PLAN VIEW



LEGEND

- OHWM ——— OHWM
- SAW ——— SAW
- EDGE OF PAVEMENT ——— SAW
- CONCRETE STRUCTURE (PROP) ———
- CONCRETE STRUCTURE (EXT) ———
- TEMPORARY CULVERT ———
- IRRIGATION DITCH & ———

0 25 50 Feet

FILE NAME: WSK78603_BA_001_PLAN.dwg		FEDERAL AID PROJECT NO.		KXAXXX	
DATE:		CRP NO.		XXX-XX	
DESIGNED BY: G. HOOKER		DATE BY:			
ENTERED BY: G. HOOKER		REVISION			
COUNTY ENGINEER: MARK COOK, PE					
P.W. DIRECTOR: MARK COOK, PE					

DEPARTMENT OF PUBLIC WORKS

411 N. RUBY ST., ELLENBURG WA 99228
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www.dpw.state.wa.us

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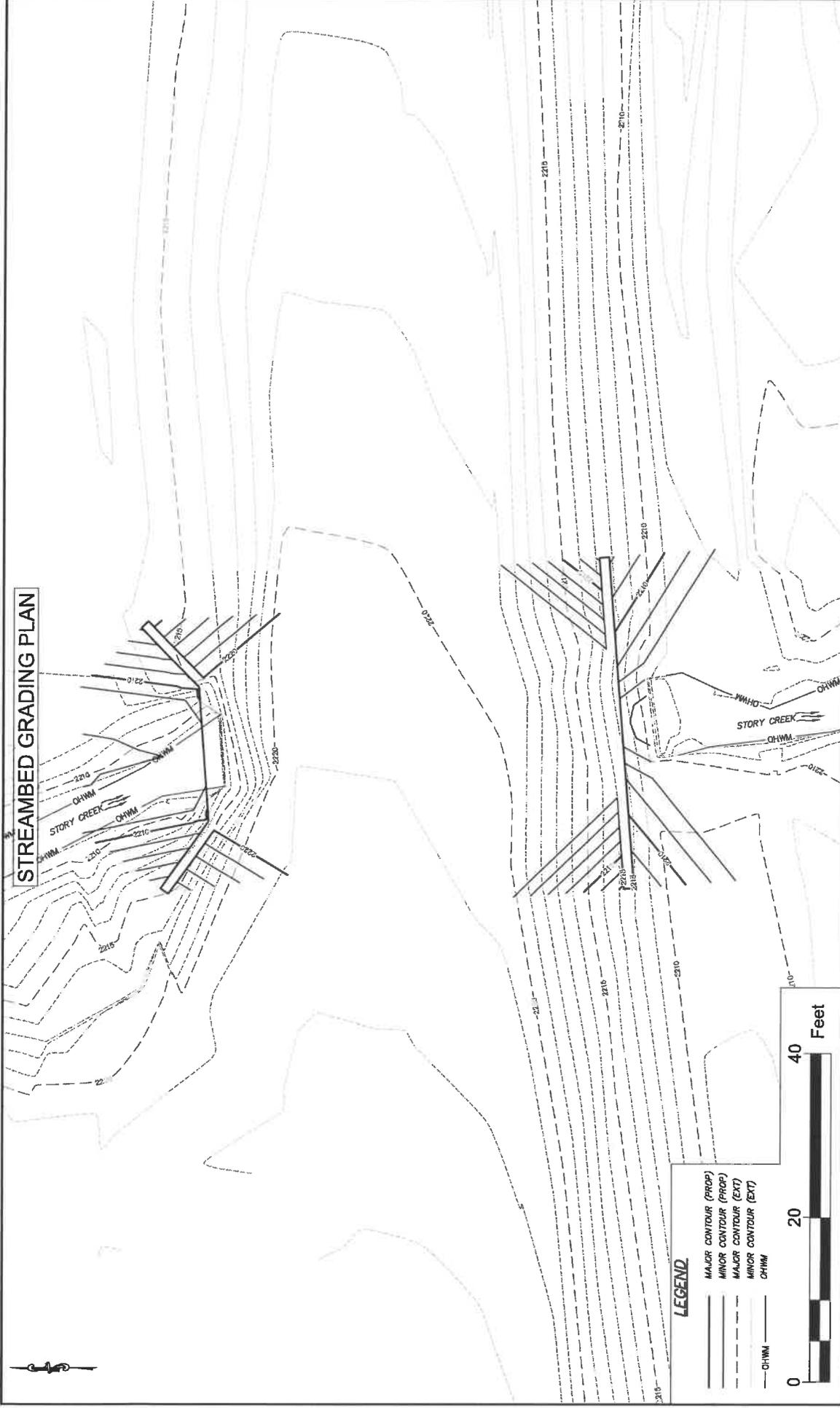
22 South Hill Street, Suite 304 | Everett, WA 98201
TEL: (425) 941-1111 FAX: (425) 941-1112

811

Know what's below.
Call before you dig.

TEANAWAY ROAD HYDRAULIC IMPROVEMENTS - P.1: STORY CR.		PLAN	
KITTITAS COUNTY		1	of
PLAN VIEW		8	

STREAMBED GRADING PLAN



LEGEND

- MAJOR CONTOUR (PROP)
- MINOR CONTOUR (PROP)
- MAJOR CONTOUR (EXT)
- MINOR CONTOUR (EXT)
- OHWM



FILE NAME: W3X76803_BA_003_GRADING.dwg

DATE:

DESIGNED BY: G. HOOKER

ENTERED BY: G. HOOKER

COUNTY ENGINEER: MARK COOK, PE

P. W. DIRECTOR: MARK COOK, PE

REVISION

DATE BY

FEDERAL AID PROJECT NO.

XXXXXX

C.R.P. NO.

XX-XX

DEPARTMENT OF PUBLIC WORKS



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INCORPORATED
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DENVER, CO 80202-0200
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TEANAWAY ROAD HYDRAULIC IMPROVEMENTS - P.1: STORY CR.

KITTITAS COUNTY

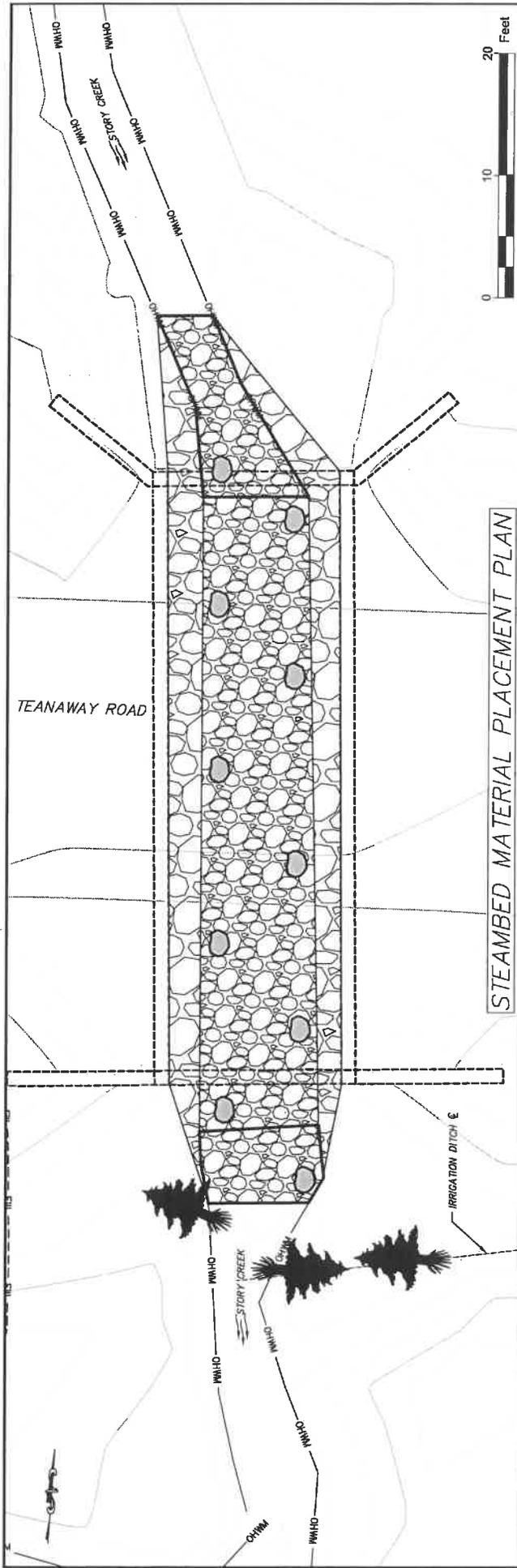
GRADING PLAN

GRAD

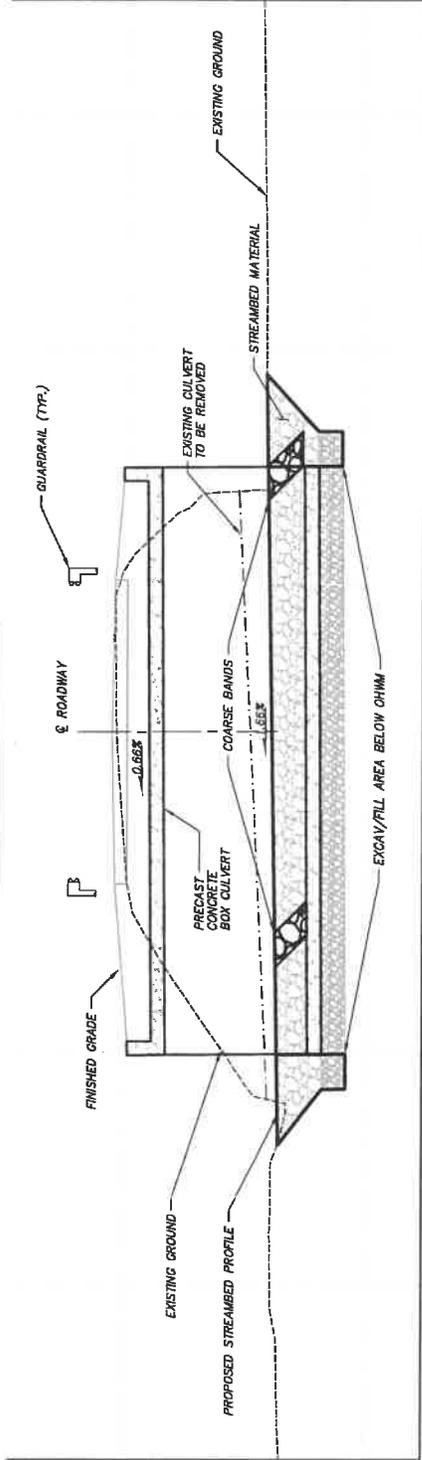
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STREAMBED MATERIAL PLACEMENT PLAN

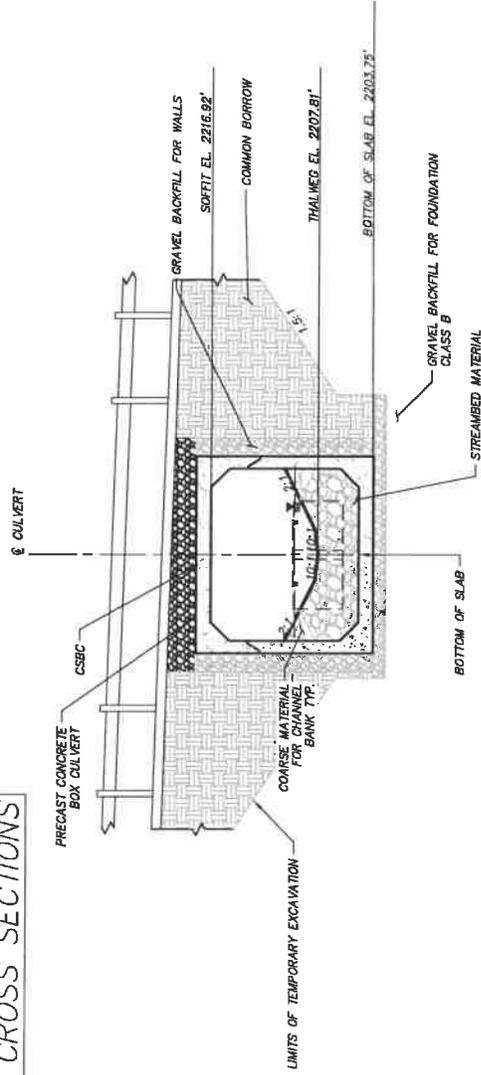


STREAM PROFILE

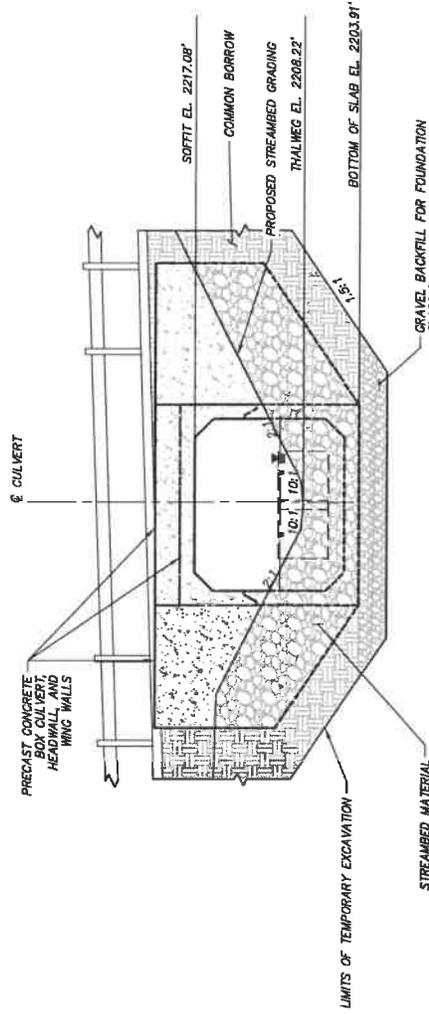
- LEGEND**
- MAJOR CONTOUR (PROP)
 - MINOR CONTOUR (PROP)
 - IRRIGATION DITCH & OHWM
 - EDGE OF PAVEMENT
 - CONCRETE STRUCTURE (PROP)
 - CONCRETE STRUCTURE (EXT)
 - LOG WITH ROOTWAT AND BRANCHES
 - ONE MAN BOULDER
 - STREAMBED MATERIAL
 - STREAMBED MATERIAL (COARSE)

FILE NAME: V3X78803_5A_008_STREAMBED.dwg	FEDERAL AID PROJECT NO.	STR
DATE:	XXXXXX	5
DESIGNED BY: G. HOOKER	CRP. NO.	or
ENTERED BY: G. HOOKER	DATE BY	8
COUNTY ENGINEER: MARK COOK, PE	REVISION	
P. W. DIRECTOR: MARK COOK, PE		
DEPARTMENT OF PUBLIC WORKS 411 N. RUBY ST., BLENHEIM WA, 98844 (509) 925-7328 www.kittitas.gov		
Know what's below, Call before you dig.		
JACOBS 1400 15th Street, Suite 300 Bellevue, WA 98005 (206) 465-1000 www.jacobs.com		
TEANAWAY ROAD HYDRAULIC IMPROVEMENTS - P.1: STORY CR. KITTITAS COUNTY STREAMBED MAT. PLAC. PLAN		

CULVERT CROSS SECTIONS



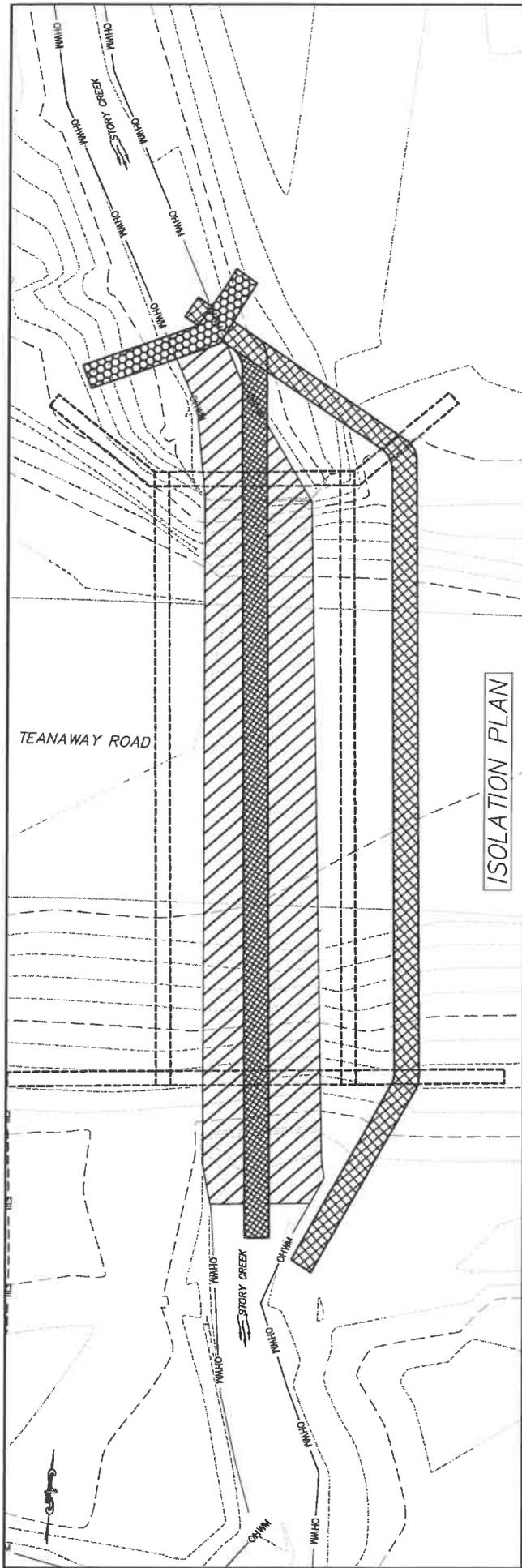
TYPICAL CULVERT SECTION
STA. 5 1+88.30



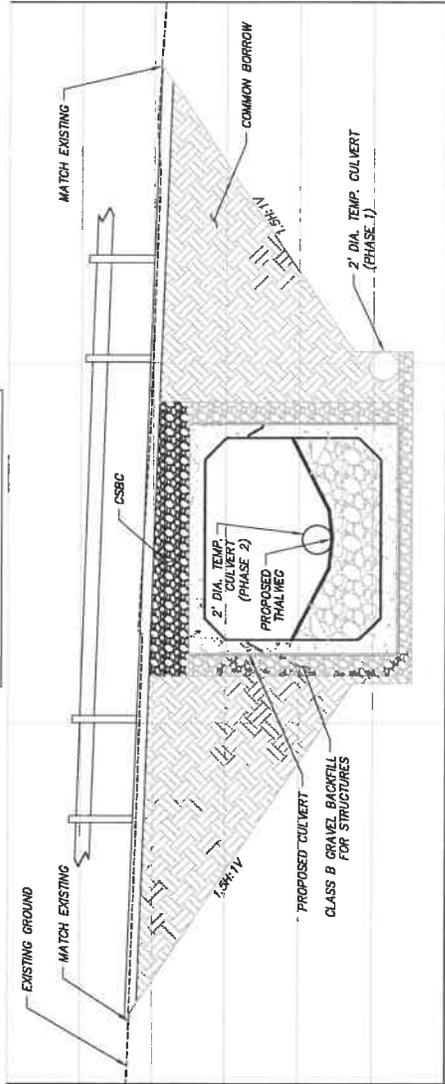
TYPICAL STREAM SECTION
STA. 2+70.12

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ENTERED BY: G. HOOKER	DATE BY		CULVERT CROSS SECTIONS	or
COUNTY ENGINEER: MARK COOK, PE	REVISION			8
P. W. DIRECTOR: MARK COOK, PE				





ISOLATION PLAN



ROADWAY PROFILE

LEGEND

- MAJOR CONTOUR (EXT)
- MINOR CONTOUR (EXT)
- OHWM
- EDGE OF PAVEMENT
- CONCRETE STRUCTURE (PROP)
- ISOLATION STRUCTURE
- BYPASS STRUCTURE PHASE 1
- BYPASS STRUCTURE PHASE 2
- DEWATERED AREA

0 10 20 Feet

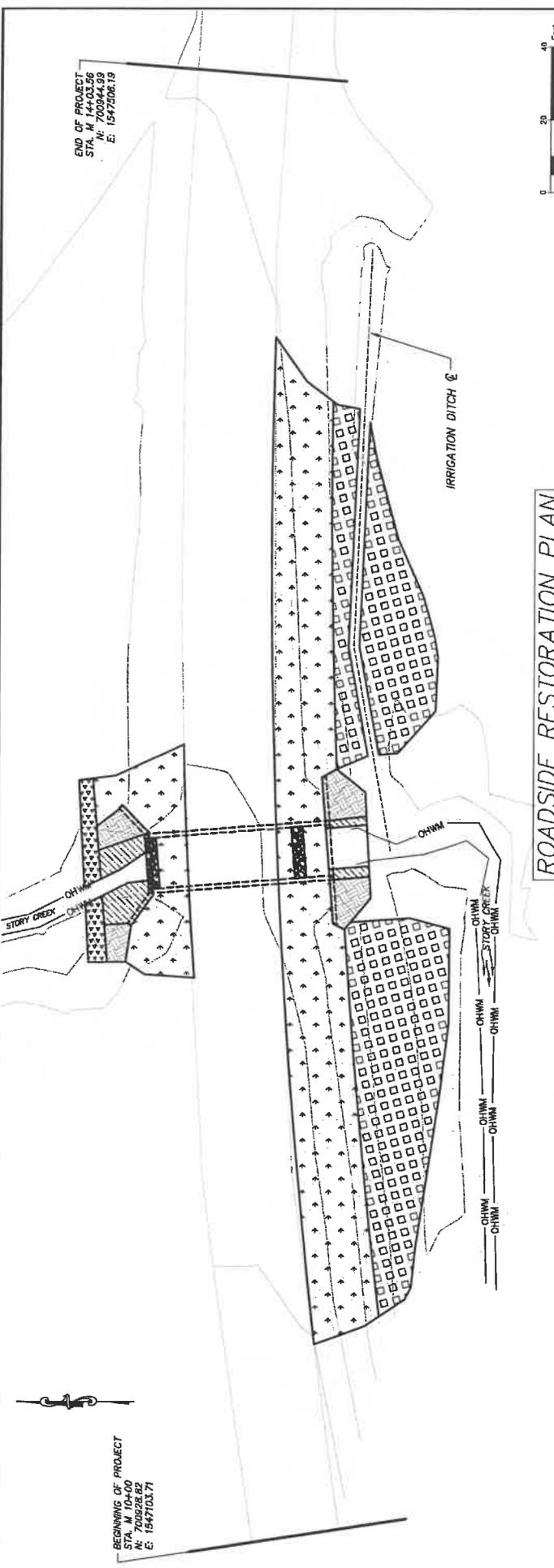
FILE NAME: W0378603_BA_004_ISD.dwg	FEDERAL AID PROJECT NO.	X00000
DESIGNED BY: G. HOOKER	CRP NO.	X00-XX
ENTERED BY: G. HOOKER	DATE BY	
COUNTY ENGINEER: MARK COOK, PE	REVISION	
P.W. DIRECTOR: MARK COOK, PE		

TEANAWAY ROAD HYDRAULIC IMPROVEMENTS - P.1: STORY CR.		150
KITTITAS COUNTY		7
ISOLATION PLAN		8

DEPARTMENT OF PUBLIC WORKS
 KITTITAS COUNTY
 411 N. RUBY ST., ELLensburg, WA 99028
 (509) 838-7935
 www.co.kit.wa.us

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ROADSIDE RESTORATION PLAN

LEGEND

- MAJOR CONTOUR (PROP)
- MINOR CONTOUR (PROP)
- OHWM
- EDGE OF PAVEMENT
- CONCRETE STRUCTURE (PROP)
- IRRIGATION DITCH
- SEEDING AND MULCHING
- COYOTE WILLOW LINE POLE PLACEMENT
- CONTAINER PLANTS WILL BE INTERPLANTED AMONG EXISTING VEGETATION
- CONTAINER WOODS' ROSE AND SNOWBERRY INTERPLANTED WHERE NEEDED
- COTTONWOOD LIVE POLE PLACEMENT

GENERAL NOTES

1. COYOTE WILLOW TO BE PLANTED AT AND JUST BELOW OHWM ALONG ENTIRE PLANTING AREA. ALL OTHER SPECIES LISTED ARE TO BE PLANTED ABOVE OHWM.
2. DUE TO POTENTIAL FOR NATURAL REGENERATION, SPECIES ABOVE OHWM WILL BE PLANTED AS NEEDED.

LIVE STAKES

BOTANICAL NAME	COMMON NAME	SIZE	SEASONING
SALIX ENGELM.	COYOTE WILLOW	STAKE	2- FEET O.C.

PLANTS

BOTANICAL NAME	COMMON NAME	SIZE	SPACING
ROSA WOODSII	WOODS' ROSE	#1 CONTAINER	8- FEET O.C.
SYMPHORICARPUS ALBUS	SNOWBERRY	#1 CONTAINER	8- FEET O.C.
SAMBUCUS NIGRA	BLUE ELDERBERRY	#1 CONTAINER	8- FEET O.C.
HOLDISCUS DISCOLOR	OCEANSPRAY	#1 CONTAINER	8- FEET O.C.
ALNUS INCANA	THINLEAF ALDER	#1 CONTAINER	8- FEET O.C.
CRATAEGUS DOUGLASII	DOUGLAS HAWTHORN	#1 CONTAINER	10- FEET O.C.
POPULUS BALSAMIFERA	BLACK COTTONWOOD	#1 CONTAINER	10- FEET O.C.

PLANTING DETAIL
NOT TO SCALE

FILE NAME: W0278603_BA_007_PLANTING_NEW.dwg		FEDERAL AID PROJECT NO.		DEPARTMENT OF PUBLIC WORKS		KITTITAS COUNTY		TEANAWAY ROAD HYDRAULIC IMPROVEMENTS - P.1: STORY CR.		PLT	
DATE:		XXXXXX		411 N. RUBY ST., ELLensburg WA 99028 (509) 886-7325		KITTITAS COUNTY		Know what's below. Call before you dig.		8	
DESIGNED BY: G. HOOKER		CRP. NO.		www.dpi.wa.gov		KITTITAS COUNTY		ROADSIDE RESTORATION PLAN		OF	
COUNTY ENGINEER: MARK COOK, PE		DATE BY:		411 N. RUBY ST., ELLensburg WA 99028 (509) 886-7325		KITTITAS COUNTY		ROADSIDE RESTORATION PLAN		07	
P. W. DIRECTOR: MARK COOK, PE		REVISION		411 N. RUBY ST., ELLensburg WA 99028 (509) 886-7325		KITTITAS COUNTY		ROADSIDE RESTORATION PLAN		0	

Appendix E
2016 WSDOT Fish Exclusion Protocol and Standards

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WSDOT Fish Exclusion Protocols and Standards

Work below the Ordinary High-Water Mark (or Mean Higher High-Water Mark) shall, in general, be conducted in isolation from flowing waters. Exceptions to this general rule or performance measure include: 1) implementation of the work area isolation and fish capture and removal protocols described in this document; 2) placement or removal of small quantities of material (e.g., wood or rock), or structural best management practices (e.g., turbidity curtain), under site conditions where potential exposures and effects to fish life are minimized without isolation from flowing waters¹; and, 3) work conducted under a declared emergency, under emergency conditions, or where flow conditions prevent safe implementation of work area isolation and fish capture and removal protocols.

Implementation of the work area isolation and fish capture and removal protocols shall be planned and directed by a WSDOT biologist, or qualified biologist under contract to WSDOT, possessing all necessary knowledge, training, and experience (the directing biologist). If electrofishing will or may be used as a means of fish capture, the directing biologist shall have a minimum of 100 hours electrofishing experience in the field using similar equipment, and any individuals operating electrofishing equipment shall have a minimum of 40 hours electrofishing experience under direct supervision. All individuals participating in fish capture and removal operations shall have the training, knowledge, skills, and ability to ensure safe handling of fish, and to ensure the safety of staff conducting the operations. (See Appendix A for requirements)

The directing biologist shall work with Maintenance, Construction, and/or Environmental staff (as appropriate) to plan the staging and sequence for work area isolation, fish capture and removal, and dewatering. This plan should consider the size and channel characteristics of the area to be isolated, the method(s) of dewatering (e.g., diversion with bypass flume or culvert; diversion with sandbag, sheet pile or similar cofferdam; etc.), and what sequence of activities will provide the best conditions for safe capture and removal of fish. Where the area to be isolated is small, depths are shallow, and conditions are conducive to fish capture, it may be possible to isolate the work area and remove all fish life prior to dewatering or flow diversion. Where the area to be isolated is large, depths are not shallow, where flow volumes or velocities are high, and/or conditions are not conducive to easy fish capture, it may be necessary to commence with dewatering or flow diversion staged in conjunction with fish capture and removal. The directing biologist shall use his/her best professional judgment in deciding what sequence of activities is likely to minimize exposure of fish to conditions causing stress or injury (including stranding, exposure to extremes of temperature or reduced dissolved oxygen, risk of injury resulting from electrofishing, etc.).

¹ WSDOT shall make this determination with consultation or input from the regulatory agencies with jurisdiction, including the Washington State Department of Fish and Wildlife (WDFW), U.S. Fish and Wildlife Service (FWS), and NOAA-National Marine Fisheries Service (NMFS) as appropriate; also, this exception shall not permit work that requires in-water excavation or that presents a risk of increased turbidity beyond the immediate work area or for a duration of more than 15 minutes.

The directing biologist shall plan work area isolation, fish capture and removal, and dewatering with consideration for the following: habitat connectivity and fish habitat requirements; the duration and extent of planned in-water work; anticipated flow and temperature conditions over the duration of planned in-water work; and, the risk of exposure to turbidity or other unfavorable conditions during construction. If the area to be isolated includes only a portion of the wetted channel width (e.g., large or deep rivers where diversion from the entirety of the wetted channel is difficult or impossible), or if the bypass flume or culvert will effectively maintain connectivity and fish passage for the duration of construction activities, it may be less important whether the fish are herded (and/or captured and released) upstream or downstream of the isolated work area. However, if the area to be isolated includes the entire wetted channel width, and especially if conditions make it unlikely that connectivity (i.e., upstream/downstream fish passage) can be effectively maintained for the duration of construction activities, then the directing biologist should carefully consider whether to herd fish (and/or capture and release fish) upstream or downstream of the isolated work area.

If conditions upstream of the isolated work area will or may become unfavorable during construction then fish should be herded or released to a downstream location; this situation is probably most common where the waterbody in question is small, where seasonal flows are substantially diminished, and conditions of elevated temperature and/or reduced dissolved oxygen are foreseeable. However, the directing biologist shall also consider whether planned in-water work presents a significant risk of downstream turbidity and sedimentation; fish herded or released to a downstream location may be exposed to these conditions.

If large numbers of fish are to be herded (and/or captured and released), and in order to avoid overcrowding or concentrating fish in areas where their habitat needs cannot be met, it may be appropriate to relocate fish both upstream and downstream of the isolated work area. At locations where habitat connectivity or quality is poor, including along reaches upstream and/or downstream of the isolated work area, the directing biologist should carefully consider whether relocated fish can meet their minimum habitat requirements for the duration of planned in-water work. On rare occasions it may be appropriate to relocate fish at a greater distance upstream and/or downstream (e.g., thousands of feet or miles), so as to ensure fish are not concentrated in areas where their habitat needs cannot be met, or where they may be exposed to unfavorable conditions resulting from construction. On those rare occasions where relocation to a greater distance is deemed necessary, the WSDOT shall provide notice to the agencies with jurisdiction in advance of the operations.

Plans for staging work area isolation, fish capture and removal, and dewatering must comply with WSDOT safety requirements. Safe implementation is a high priority. The directing biologist shall design and adjust the plan as necessary to ensure the safety of all individuals implementing the plan. Under some conditions it may be appropriate to conduct work without isolation from flowing waters, without placement of block nets, fish capture or removal; for a discussion of this topic see page 1.

In order to comply with WSDOT safety requirements, work in or around water outside of daylight hours is not generally permissible. If, under unusual circumstances, the directing biologist identifies work that will or may be necessary outside of daylight hours, he/she shall coordinate and gain approval for this work with appropriate managers (including the WSDOT safety officer and/or supervisors with authority).

Work Area Isolation

The directing biologist shall determine appropriate locations for the placement of block nets, based on site characteristics and a consideration of the type and extent of planned in-water work. Sites that exhibit reduced flow volume or velocity, uniformity of depth, and good accessibility are preferred; sites with heavy vegetation, large cobble or boulders, undercut banks, deep pools, etc. should be avoided due to the difficulty of securing and/or maintaining nets. Sites with a narrow channel cross-section (“constriction”) should be avoided if foreseeable flow conditions might overwhelm or dislodge the block nets, posts, or anchors.

Except when planning and intending to herd fish upstream, and upstream block net shall be placed first. With a block net secured to prevent movement of fish into the work area from upstream, a second block net should be used as a seine to herd fish in a downstream direction. Where the area to be isolated includes a culvert(s), deep pools, undercut banks, or other cover attractive to fish (e.g., thick overhanging vegetation, rootwads, logjams, etc.) it may be appropriate to isolate a portion or portions of the work area, rather than attempting to herd fish from the entirety of the work area in a single downstream pass. Fish capture and removal will be most successful if an effort is made to strategically focus and concentrate fish in areas where they can be easily seined and netted. Care shall be taken not to concentrate fish where they are exposed to sources of stress or to leave them concentrated in such areas for a long duration (e.g., more than 30 minutes).

Depending upon site characteristics, and the planned staging and sequence for work area isolation and dewatering, it may or may not be necessary to place a downstream block net. Typically, however, site characteristics and/or the duration of planned in-water work will necessitate placement of a net(s) to prevent movement of fish into the work area from downstream. If groundwater seepage or site drainage has a tendency to re-wet the area, if the area to be isolated is low-gradient or subject to a backwatering influence, or if the area to be isolated is large and considerable effort will be expended in capturing and removing fish life, a downstream block net should be placed. If foreseeable flow conditions over the duration of planned in-water work might enable fish to re-enter the work area from downstream, a downstream block net should be placed.

In most instances where gradual dewatering or flow diversion is staged in conjunction with fish capture and removal, it is appropriate to delay installation of the downstream block net(s) until after fish have been given sufficient time to move downstream by their own choosing. If flows are reduced gradually over the course of several hours, or the length of an entire workday, some (perhaps many) fish will make volitional movements downstream beyond the area to be isolated. Gradual dewatering can be an effective

means by which to reduce the risk of fish stress or injury. Gradual dewatering and the encouragement of volitional movement are particularly important where the area to be isolated is large and may hold many fish. However, where the area to be isolated includes a culvert(s), deep pools, undercut banks, or other cover attractive to fish, some (perhaps many) fish will not choose to move downstream regardless of how gradually flows are reduced. The directing biologist should use his/her best professional judgment in deciding what sequence of activities is likely to minimize fish stress or injury (including stranding).

Where the area to be isolated is small, depths are shallow, and conditions are conducive to fish capture, it may be possible to remove all fish life prior to dewatering, or to implement plans for dewatering staged with fish capture over a relatively short timeframe (e.g., 1-2 hours). Where the area to be isolated is large, depths are not shallow, where flow volumes or velocities are high, and/or conditions are not conducive to easy fish capture, dewatering or flow diversion should be staged in conjunction with fish capture and removal over a longer timeframe (e.g., 3-6 hours). The largest areas and/or most difficult site conditions may warrant or require that plans for dewatering and fish capture proceed over the length of an entire workday, or multiple workdays. Where this is the case, fish should be given sufficient time and a means to move downstream by their own choosing so as to reduce the total number of fish exposed to sources of stress and injury (including fish handling).

The directing biologist shall select block nets that are appropriate for the site and fish species present. Type of material, length, and depth may vary based on site conditions. It may be necessary and appropriate to contact other WSDOT Regions or offices with access to nets (or other materials) suitable for placement under unique or unusual circumstances. Typically block nets will be composed of 9.5 millimeter stretched nylon mesh and should be installed at an angle to the direction of flow (i.e., not directly perpendicular to flow) so as to reduce the risk of impinging fish. Anchor bags filled (or half-filled) with clean, washed gravel are preferred over sandbags, especially for nets and anchors that will or may remain in-place for a long duration (i.e., more than two weeks). Any use or movement of native substrates or other materials found on-site should be incidental and shall not appreciably affect channel bed or bank conditions.

Block nets shall remain in place until work affecting fish habitat in that reach of stream is complete and conditions are suitable for the reintroduction of fish². Block nets require frequent inspection and debris removal. A qualified biologist, or other field staff trained in safe fish handling, shall be assigned the responsibility of inspecting the nets and safely capturing and relocating any impinged fish. The frequency of these inspections shall be determined on a case-by-case basis. However, block nets shall, at a minimum, be

² If plans for work area isolation and fish capture and removal include the installation of temporary cofferdams, and once the directing biologist has confirmed fish life have been successfully excluded from the entire area enclosed by the cofferdam(s), it may be appropriate to remove block nets and allow fish to re-enter the previously isolated work area; this approach is particularly relevant and appropriate where many weeks or months of construction are planned for completion within temporary cofferdams (i.e., isolated from flowing waters).

inspected for impinged fish (especially juvenile fish) at least three times daily or when requested by the Engineer. On working days, these inspections shall be performed at the start, middle and end of the work day. On non-working days, these activities shall be performed between 6:00 am and 8:00 am, between 11:00 am and 1:00 pm and between 4:00 pm and 6:00 pm. They may need to be checked more frequently for the first 24 hours after a significant rainfall (or change in flow volume or velocity). In the event fish are found impinged on the net(s), or if weather or flow conditions change significantly, the directing biologist shall reconsider and adjust the frequency of net inspections so as to minimize the risk of impinging and injuring fish.

Field staff shall be assigned the responsibility of frequently checking and maintaining the nets for accumulated debris, general stability, and proper function. The frequency of these inspections shall be determined on a case-by-case basis, dependent upon the site, seasonal, and weather conditions. Block nets must be secured along both banks and the channel bottom to prevent failure as a result of debris accumulation, high flows, and/or flanking. Some locations may require additional block net support (e.g., galvanized hardware cloth, affixed metal fence posts, etc.).

Fish Capture and Removal

If dewatering and/or flow diversion is deemed necessary, this work (including related fish capture and removal operations) shall comply with any provisions contained in the Hydraulic Project Approval (HPA), or applicable General HPA, issued by the WDFW. If the FWS and/or NMFS have provided relevant Terms and Conditions from a Biological Opinion addressing the work (or action), this work shall also comply with those Terms and Conditions.

If pumps are used to temporarily bypass water or to dewater residual pools or cofferdams, pump intakes shall be screened to prevent aquatic life from entering the intake. Fish screens or guards shall comply with Washington State law (RCW 77.57.010 and 77.57.070), with guidelines prescribed by the NMFS³, and any more stringent requirements contained in the HPA or General HPA issued by the WDFW. If pumps are to be used on a more permanent basis, as the primary or secondary method for diverting flow around the isolated work area, plans for dewatering shall address contingencies (i.e., extremes of flow or weather). These plans shall include ready access to a larger or additional “back-up” pump with appropriately screened intake. If the directing biologist has confirmed that all fish life has been successfully excluded from the area, there is no risk of entraining fish, and adequate plans are in-place to address contingencies (including a routine schedule for inspection), then pumps may be operated without a screened intake.

³ National Marine Fisheries Service. 2011. Anadromous Salmonid Passage Facility Design. Chapter 11: Fish Screen and Bypass Facilities. NMFS Northwest Region, July 2011, 140 p..

Fish Capture and Removal Methods:

Methods for safe capture and removal of fish from the isolated work area are described below. These methods are given in order of preference. At most locations, a combination of methods will be necessary. In order to avoid and minimize the risk of injury to fish, attempts to seine and/or net fish should always precede the use of electrofishing equipment. Visual observation techniques (e.g. snorkeling, surveying with polarized glasses or Plexiglas bottomed buckets, etc.) may be used to assess the effectiveness of these methods, to identify locations where fish are concentrating, or otherwise adjust methods for greater effectiveness.

If the planned fish capture and removal methods have not been addressed through consultation (or programmatic consultation), if seining and netting are impracticable (i.e., electrofishing is deemed the only viable means of fish capture), and fish listed under the ESA may be present, the directing biologist shall provide notice to the FWS and/or NMFS (as appropriate). This notice shall be provided in advance of the operations, and shall include an explanation of the unique site conditions or circumstances. Work conducted under a declared emergency (or emergency conditions) shall follow established ESA notification protocols.

Where fish listed under the ESA will or may be present, the directing biologist shall insure that fish capture and removal operations adhere to the following minimum performance measures or expectations:

- 1) Only dip nets and seines composed of soft (non-abrasive) material shall be used.
- 2) The operations shall not resort to the use of electrofishing equipment unless other less injurious methods have removed most or all of the adult and sub-adult fish (i.e., fish in excess of 300 millimeters); the operations shall conduct a minimum of three complete passes without capture using seines and/or nets.
- 3) The operations shall confirm success of fish capture and removal before completely dewatering or commencing with other work within the isolated work area; the operations shall conduct a minimum of two complete passes without capture using electrofishing equipment.
- 4) Fish listed under the ESA shall not be held in containers for more than 10 minutes, unless those containers are dark-colored, lidded, and fitted with a portable aerator.
- 5) A plan for achieving efficient return to appropriate habitat will be developed before the capture and removal process.
- 6) Every attempt will be made to release ESA-listed specimens first.

- **Seining** shall be the preferred method for fish capture. Other methods shall be used when seining is not possible, or when/after attempts at seining have proven ineffective. Seines, once pursed, should remain partially in the water while fish are removed with dip nets. Seines with a “bag” minimize handling stress and are preferred. Seines with a bag are also preferred where obstructions make access to the water (or deployment/retrieval of the seine) difficult.

In general, seining will be more effective if fish, especially juvenile fish, are moved (or “flushed”) out from under cover. Methods which may increase effectiveness and/or efficiency include conducting seining operations at dawn or dusk (i.e., during low-light conditions), in conjunction with snorkeling, and/or flushing of the cover. In flowing waters and especially where flow volume or velocity is high or moderately-high, seines that employ a heavy lead line and variable mesh size are preferred. Small mesh sizes are more effective across the full range of fish size (and age class), but also increase resistance and can make deployment/retrieval more difficult in flowing waters. Seines which use a small mesh size in the bag (or body), and a larger, less resistant mesh size in the wings may under some conditions be most effective and efficient.

- **Baited Minnow Traps** are typically used before and in conjunction with seining. Traps may be left in the isolated work area overnight. Traps shall be inspected at least four times daily to remove captured fish and thereby minimize predation within the trap. Traps should be checked more frequently if temperatures are in excess of 15 degrees C (59 F).

Predation within the trap may be an unacceptable risk when minnow traps are left in-place overnight; large sculpin and other predators that feed on juvenile fish are typically much more active at night. The directing biologist shall consider the need and plan for work outside daylight hours (i.e., inspection and removal) before leaving minnow traps in-place overnight.

- **Dip Nets** shall be used in conjunction with seining. This method is particularly effective when employed during gradual dewatering or flow diversion. To be most effective and to minimize stress and risk of injury to fish (including stranding), the directing biologist shall coordinate fish capture operations with plans for dewatering or flow diversion. Plans for dewatering and/or flow diversion should proceed at a measured pace (within constraints), to encourage the volitional downstream movement of fish, and reduce the risk of stranding. Plans for dewatering and/or flow diversion shall not proceed unless there are sufficient staff and materials on-site to capture and safely remove fish in a timely manner. Generally, this will require a minimum of two persons (three if electrofishing), but the directing biologist may find that some sites (especially large or complicated sites) warrant or require a more intensive effort (i.e., additional staffing).

Once netted, fish shall remain partially in water until transferred to a bucket, cooler, or holding tank. Dip nets which retain a volume of water (“sanctuary nets”) are preferred. However, sanctuary nets may be ineffective where flow volume or velocity is high or moderately-high (i.e., increase resistance lessens ability to net or capture fish). In

addition, where water depths are very shallow and/or fish are concentrated in very small receding pools or coarse substrate, “aquarium” nets may be a better, more effective choice. Use of dip nets in conjunction with snorkeling, flushing of the cover, or around the hours of dawn or dusk (i.e., during low light conditions), can be effective for capturing fish sheltered below cover.

- **Connecting Rod Snakes** may be used to flush fish out of stream crossing structures (i.e., culverts). Connecting rod snakes are composed of wood sections approximately three feet in length. Like other cover attractive to fish, culverts (especially long culverts), can present a challenge to fish capture and removal operations. The directing biologist should plan a strategy for focusing and concentrating fish in areas where they can be easily seined and netted, and should take active steps to prevent fish from evading capture. When first implementing plans for work area isolation, fish capture and removal, and dewatering, it may be appropriate to place block nets immediately upstream and/or downstream of culverts so as to minimize the number of fish that might seek cover within the culvert(s). Once most or all of the fish have been removed from other parts of the work area, the block net placed downstream of the culvert(s) should be removed to encourage volitional downstream movement of fish.

- **Electrofishing** shall be performed only when other methods of fish capture and removal have proven impracticable or ineffective at removing all fish. The directing biologist shall ensure that attempts to seine and/or net fish always precede the use of electrofishing equipment. Larger fish (i.e., adult and sub-adult fish with comparatively longer spine lengths) are more susceptible to electrofishing injury than smaller fish. To minimize the risk of injury (and the number of fish potentially injured), the directing biologist shall confirm that other methods have been effective in removing most or all of the adult and sub-adult fish before resorting to the use of electrofishing equipment; see the related performance measure appearing on page 6. As a general rule or performance measure, electrofishing should not be conducted under conditions that offer poor visibility (i.e., visibility of less than 0.5 meter).

The following performance measures shall apply to the use of electrofishing equipment as a means of fish capture and removal:

1. If the planned fish capture and removal operations have not been addressed through consultation (or programmatic consultation), and fish listed under the ESA may be present, WSDOT shall provide notice to the FWS and/or NMFS prior to the initiation of electrofishing attempts. Upon request, the WSDOT shall permit the FWS, NMFS, and/or their designated representative to observe fish capture and removal operations. Work conducted under a declared emergency (or emergency conditions) shall follow established ESA notification protocols.
2. Electrofishing shall only be conducted when a biologist with at least 100 hours of electrofishing experience is on-site to conduct or direct all related activities. The directing biologist shall be familiar with the principles of electrofishing, including the effects of voltage, pulse width and pulse rate on fish, and associated risk of injury or

mortality. The directing biologist shall have knowledge regarding galvanotaxis, narcosis and tetany, their relationships to injury/mortality rates, and shall have the ability to recognize these responses when exhibited by fish.

3. The directing biologist shall ensure that electrofishing attempts use the minimum voltage, pulse width, and rate settings necessary to create the desired response (galvanotaxis). Water conductivity shall be measured in the field prior to each electrofishing attempt to determine appropriate settings. Electrofishing methods and equipment shall comply with guidelines outlined by the NMFS⁴.

4. The initial and maximum settings identified below shall serve as guidelines when electrofishing in waters that may support ESA-listed fish. Only DC or pulsed DC current shall be used. [Note: some newer, late-model electrofishing equipment includes a “set-up” or initialization function; the directing biologist shall have the discretion to use this function as a means to identify proper initial settings.]

Guidelines for initial and maximum settings for backpack electrofishing.⁵

	Initial Settings	Conductivity ($\mu\text{S}/\text{cm}$)	Maximum Settings
Voltage	100 V	≤ 300 >300	800 V 400 V
Pulse Width	500 μs		5 ms
Pulse Rate	15 Hz		60 Hz (In general, exceeding 40 Hz will injure more fish)

Each attempt shall begin with low settings for pulse width and pulse rate. If fish present in the area being electrofished do not exhibit a response, the settings shall be gradually increased until the appropriate response is achieved (galvanotaxis). The lowest effective settings for pulse width, pulse rate and voltage shall be used to minimize risks to both personnel and fish. Safe implementation is a high priority. The directing biologist shall ensure the safety of all individuals assisting with electrofishing attempts; this includes planning for and providing all necessary safety equipment and materials (e.g., insulated waders and gloves, first aid/CPR kit, a current safety plan with emergency contacts and phone numbers, etc.). Only individuals that are trained and familiar with the use of electrofishing equipment should provide direct assistance during electrofishing attempts.

5. Electrofishing shall not be conducted where spawning adults or redds with incubating eggs may be exposed to the electrical current. As a general rule or performance measure, waters that support anadromous salmon should not be electrofished from October 15

⁴ National Marine Fisheries Service. 2000. Guidelines for electrofishing waters containing salmonids listed under the Endangered Species Act

⁵ Adapted from NMFS Backpack Electrofishing Guidelines, June 2000, and WDFW Electrofishing Guidelines for Stream Typing, May 2001

through May 15, and resident waters from November 1 through May 15. If located within waters that may support bull trout, especially waters located within a local bull trout population (i.e., that support spawning and rearing), seasonal limitations on the use of electrofishing equipment may be more restrictive; if you have questions, contact the FWS. If any, more restrictive work windows have been identified through consultation, those windows shall apply. The directing biologist shall ensure that electrofishing attempts are made only during appropriate times of year, and not where spawning adults or redds with incubating eggs may be exposed to the electrical current.

6. An individual shall be stationed at the downstream block net(s) during electrofishing attempts to recover stunned fish in the event they are flushed downstream and/or impinged against the block net(s).

7. The operator shall use caution so as to prevent fish from coming into direct contact with the anode. Under most conditions, the zone of potential fish injury extends approximately 0.5 meter from the anode. Netting shall not be attached to the anode, as this practice presents an increased risk of direct contact and injury. Extra care shall be taken near in-water structures or undercut banks, in shallow waters, or where fish densities are high. Under these conditions fish are more likely to come into close or direct contact with the anode and/or voltage gradients may be intensified. Voltage and other settings shall be readjusted to accommodate changing conditions in the field, including channel depth. When electrofishing areas near undercut banks, overhanging vegetation, large cobble or boulders, or where structures provide cover, fish that avoid capture may be exposed to the electrical current repeatedly. Repeated or prolonged exposures to the electrical current present a higher risk of injury, and therefore galvanotaxis should be used to draw fish out of cover.

8. Electrofishing shall be conducted in a manner that minimizes harm to fish. Once an appropriate fish response (galvanotaxis) is achieved, the isolated work area shall be worked systematically. The number of passes shall be kept to a minimum, but is dependent upon the numbers of fish and site characteristics and shall be at the discretion of the directing biologist. Electrofishing shall not be conducted unless there are sufficient staff and materials on-site, to both minimize the number of passes required and to locate, net, recover, and release fish in a timely manner. Generally, this will require a minimum of three persons, but the directing biologist may find that some sites (especially large or complicated sites) warrant or require a more intensive effort (i.e., additional staffing). Care shall be taken to remove fish from the electrical field immediately and to avoid exposing the same fish repeatedly. Fish shall not be held in dip nets while electrofishing is in progress (i.e., while continuing to capture additional fish). [Note: where flow velocity or turbulence is high or moderately-high (e.g., within riffles) it may be difficult to see and net fish; these fish may evade capture (resulting in repeated exposure), or may become impinged on the downstream block net(s); a “frame” net, or small portable block net approximately 3 feet in width, can be effective under these conditions when held downstream in close proximity to the anode.]

9. The condition of captured fish shall be carefully observed and documented. Dark bands on the body and/or extended recovery times are signs of stress or injury. When such signs are noted, settings for the electrofishing unit may require readjustment. The directing biologist should also review and consider changes to the manner in which the electrofishing attempt is proceeding. If adjustments to the electrofishing attempt do not lessen the frequency (or severity) of observed stress, the directing biologist shall have the authority to postpone fish capture and removal operations⁶. Each fish shall be capable of remaining upright and actively swimming prior to release, and will be completely revived in holding tanks as necessary (*See Fish Handling, Holding and Release*).

10. Electrofishing shall not be conducted when turbidity reduces visibility to less than 0.5 meter, when water conductivity exceeds 350 $\mu\text{S}/\text{cm}$, or when water temperature is above 18°C (64 F) or below 4°C (39 F).

Fish Handling, Holding and Release:

- Fish handling shall be kept to the minimum necessary to remove fish from the isolated work area. Fish capture and removal operations shall be planned and conducted so as to minimize the amount and duration of handling. The operations shall maintain captured fish in water to the maximum extent possible during seining/netting, handling, and transfer for release.
- The directing biologist shall document and maintain accurate records of the operations, including: fish species, number, age/size class estimate, condition at release, and release location. Fish shall not be sampled or anesthetized, unless for valid purposes consistent with the WSDOT's Section 10 scientific collection permits.
- Individuals handling fish shall ensure that their hands are free of harmful and/or deleterious products, including but not limited to sunscreen, lotion, and insect repellent.
 - The operations shall ensure that water quality conditions are adequate in the buckets, coolers, or holding tanks used to hold and transfer captured fish. The operations shall use aerators to provide for clean, cold, well-oxygenated water, and/or shall stage capture, temporary holding, and release to minimize the risks associated with prolonged holding. The directing biologist shall ensure that conditions in the holding containers are monitored frequently and operations adjusted appropriately to minimize fish stress. If fish listed under the ESA will or may be held for more than a few minutes prior to release, the directing biologist should consider using dark-colored, lidded containers only. Fish listed under the ESA shall not be held in containers for more than 10 minutes, unless those containers are dark-colored, lidded, and fitted with a portable aerator; small

⁶ If the FWS and/or NMFS have provided an Incidental Take Statement from a Biological Opinion addressing the work (or action), the directing biologist shall ensure limits on take have not been exceeded; if the limits on take are exceeded, or if take is approaching these limits, the directing biologist shall postpone fish capture and removal operations and immediately notify the federal agency (or agencies) with jurisdiction.

coolers meeting this description are preferred over buckets. Fish will be held for the shortest time necessary for recovery and release.

- The operations shall provide a healthy environment for captured fish, including low densities in holding containers to avoid effects of overcrowding. Large fish shall be kept separate from smaller fish to avoid predation. The operations shall use water-to-water transfers whenever possible.
- The release site(s) shall be determined by the directing biologist. The directing biologist should consider both site characteristics (e.g., flow, temperature, available refuge and cover, etc.) and the types of fish captured (e.g., out-migrating smolt, kelt, prespawn migrating adult, etc.) when selecting a release site(s). More than one site may be designated to provide for varying needs, and to separate prey-sized fish from larger fish. The directing biologist shall consider habitat connectivity and fish habitat requirements, seasonal flow and temperature conditions, and the duration and extent of planned in-water work when selecting a fish release site(s). If conditions upstream of the isolated work area will or may become unfavorable during construction, then fish should not be released to an upstream location. However, the directing biologist shall also consider whether planned in-water work presents a significant risk of downstream turbidity and sedimentation; fish released to a downstream location may be exposed to these conditions. Site conditions may warrant releasing fish both upstream and downstream, or relocating fish at a greater distance (e.g., thousands of feet or miles), so as to ensure fish are not concentrated in areas where their habitat needs cannot be met. For a fuller discussion of this topic see page 2.
- The directing biologist shall ensure that each fish is capable of remaining upright and has the ability to actively swim upon release.
- Any ESA-listed fish incidentally killed as a result of fish capture and removal operations shall be preserved and delivered to the appropriate authority upon request (see Documentation).
- If the limits on take of ESA-listed species are exceeded (harm or harassment), or if incidental take is approaching and may exceed specified limits, the directing biologist shall postpone fish capture and removal operations and immediately notify the federal agency (or agencies) with jurisdiction. If dewatering or flow diversion is incomplete and still in-progress, WSDOT shall take remedial actions directed at maintaining sufficient quantity and quality of flow and lessening sources of fish stress and/or injury. If conditions contributing to fish stress and/or injury may worsen before the federal agency with jurisdiction can be contacted, WSDOT should attempt to move fish to a suitable location near the capture site while keeping fish in water and reducing stress as much as possible.

Reintroduction of Flow and Fish to the Isolated Work Area

If conducting work in isolation from flowing waters has required placement of a block net(s), fish capture and removal, and temporary dewatering, the directing biologist shall ensure that the block net(s) remain in place until work is complete and conditions are suitable for the reintroduction of fish. Flows shall be gradually reintroduced to the isolated work area, so as to prevent channel bed or bank instability, excessive scour, or turbidity and sedimentation. The directing biologist shall inspect the work area and downstream reach to ensure no fish are stranded or in distress during reintroduction of flows. If conditions causing or contributing to fish stress and/or injury are observed, WSDOT shall take remedial actions directed at lessening these sources of stress. This may include a more gradual reintroduction of flow, so as to reduce resulting turbidity and sedimentation.

All temporary structures and materials (e.g., block nets, posts, and anchors; bypass flume or culvert; sandbag, sheet pile or similar cofferdam; etc) shall be removed at the completion of work. The directing biologist shall document in qualitative terms the final condition of the isolated work area (including temporary bypass). The directing biologist shall identify and document any obvious signs of channel bed or bank instability resulting from the work, and shall report these conditions to the appropriate Maintenance, Construction, and/or Environmental staff for remedy. WSDOT shall document any additional actions taken to correct channel instability, and the final condition of the isolated work area (including temporary bypass).

To avoid and minimize the risk of introducing or spreading nuisance or invasive species, aquatic parasites, or disease, the directing biologist shall ensure that all equipment and materials are cleaned and dried to protocol before transporting them for use at another site or waterbody. Once equipment is fully dried, it should stay dry for at least 48 hours before using in Washington waters. Biologists should avoid the use of felt-soled shoes since they are difficult to decontaminate.

Documentation

- All work area isolation, and fish capture and handling shall be documented in a log book with the following information: project location, date, methods, personnel, water temperature, conductivity, visibility, electrofishing equipment settings, and other comments.
- All fish captured or handled shall be documented: species, number of each species, age/size class estimate, condition at release, and location of release.
- If at any time, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), the directing biologist, if they are a consultant shall immediately notify WSDOT who shall provide immediate notification to the WDFW consistent with any provisions contained in the HPA (or applicable General HPA). Notification shall consist of a phone call or voice mail message directed to the

Area Habitat Biologist identified on the HPA and/or the Washington Military Department Emergency Management Division at (800) 258-5990, as appropriate.

- Any ESA-listed species incidentally killed as a result of fish capture and removal operations shall be documented with the notification provided to the appropriate authority (FWS and/or NMFS) within two working days. If the directing biologist is a consultant, they shall immediately notify WSDOT, who will notify the Services. The consultant shall not independently contact other agencies. Initial notifications shall consist of a phone call or voice mail message. Initial notifications shall be directed to the following: (FWS) the nearest FWS Law Enforcement Office, and the Washington Fish and Wildlife Office at (360) 753-9440; (NMFS) the NMFS Office of Law Enforcement at (800) 853-1964, and the Washington State Habitat Office at (360) 753-9530. Any dead specimens shall be kept whole and preserved on-ice or frozen until WSDOT receives a response and further directions from the appropriate authority; if WSDOT receives no response within 5 working days, the directing biologist shall have the discretion to dispose of specimens. Initial notifications shall be followed by a second notification in writing. All notifications shall provide at a minimum the following: date, time, WSDOT point-of-contact (the directing biologist and/or supervisor), project name (and FWS and/or NMFS tracking number if available), precise location of any incidentally killed or injured and unrecovered fish, number of specimens and species, and cause of death or unrecoverable injury. If the limits on incidental take are exceeded (harm or harassment), the written notification shall also include an explanation of the circumstances causing or contributing to observed levels of take.
- The final condition of the isolated work area (including temporary bypass) shall be documented in qualitative terms, including any obvious signs of channel bed or bank instability resulting from the work. WSDOT shall document any additional actions taken to correct channel instability, and the final condition of the isolated work area (including temporary bypass).

Appendix A

Requirements for Designated Lead Fish Moving Biologist (Directing Biologist)

- Completion of a minimum of a two day electrofishing class.
- Training in fish ecology and identification
- 100 hours of electrofishing experience in the Pacific Northwest, at least 20 hours of which should have been in the last 5 years in the PNW.
- Possession of a current CPR certification
- Possession of a current first aid certification
- Demonstrated understanding of aquatic invasive species and the appropriate decontamination methods necessary to prevent introducing aquatic invasive species into the work area.
- Demonstrated ability to interpret contract plan sheets/specification, contractor schedule and plans prepared by the contractor (e.g. Temporary Steam Diversion Plan and Spill Prevention Control and Countermeasure Plan)
- Ability to move fish per the most current version of the “**WSDOT Fish Exclusion Protocols and Standards**”
- Must develop and deliver on site field training for individuals assisting with fish moving.

Requirements for Trained Personnel

- Possess training, knowledge, skills and ability to ensure safe handling of fish and to ensure the safety of staff conducting the operations.
- Have a current first aid certification.
- Training must be conducted on site by the Designated Lead Fish Moving Biologist prior to initiation of the fish moving and must cover the following:
 - Review of site specific pre- activity safety plan
 - A site specific job site analysis and fish exclusion plan.
 - A discussion of roles, responsibilities, permit requirements, and species expected.
 - Review of electrofishing guidelines and equipment manufactures recommendations.
 - Definitions of basic terminology (galvanotaxis, narcosis, and tetany) and an explanation of how electrofishing attracts fish.
 - A demonstration and discussion of the proper use of electrofishing equipment (including an explanation of how gear can injure fish and how to recognize signs of injury) and the role of each crew member.
 - A demonstration of proper fish handling including proper netting, sorting by size, keeping buckets cool, releasing small and large fish

in different pools, not overcrowding buckets, avoiding sunscreens/
insect repellants etc on hands moving fish.

- A review of common mistakes.
- A discussion of the use of personal floatation devices.
- A discussion of aquatic invasive species and the decontamination methods necessary to prevent introducing aquatic invasives into the work area.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Washington Fish and Wildlife Office
Central Washington Field Office
215 Melody Lane, Suite 103
Wenatchee, WA 98801-8122

FEB 21 2019

In Reply Refer To:
01EWF00-2019-I-0523
Hydrologic Unit Code (HUC): 170300010205 (Teaway River)

Scott Smithline, Environmental Manager
Federal Highway Administration
Western Federal Lands Highway Division
610 E. Fifth Street
Vancouver, Washington 98661

Dear Mr. Smithline:

This letter responds to your request for informal consultation for the Teaway Hydraulic Improvements Project - Phase 1 Story Creek Culvert Replacement (Project), located in Kittitas County, Washington. On February 12, 2019, the U.S. Fish and Wildlife Service (Service) received your cover letter and a Biological Assessment (BA), prepared by Jacobs Engineering Group Inc. on behalf of Kittitas County Public Works. Your letter requested Service concurrence with the determinations of "may affect, not likely to adversely affect" for the bull trout (*Salvelinus confluentus*) and the gray wolf (*Canis lupus*) in accordance with section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

Project Description

The Project is located approximately 4.5 miles north of the city of Cle Elum on the Teaway Road. The Teaway Road crosses Story Creek approximately 0.3 stream miles upstream from the Story Creek and Teaway River confluence. The Project proposes to replace the existing four foot high by eight foot wide split concrete box culvert with a single-opening box culvert that is approximately 14 feet wide by 12 feet high on the same alignment. The outlet of the culvert has aggraded with sediment and is unable to convey flood flows.

The Project will take approximately five months to complete; beginning in July of 2019. Work below the ordinary high-water mark (OHWM) will occur over a four month period, specifically July 16 to November 15, 2019. Story Creek is historically either dry during this time frame or with very reduced flows.

Project elements and sequencing include: 1) mobilization and staging; 2) installation of erosion and sediment control features; 3) temporary detour construction and traffic shifts; 4) isolation and dewatering of Story Creek; 5) existing culvert removal; 6) new culvert construction and streambed grading; 7) roadway reconstruction, paving, guardrail and sign installation; 8) rehabilitation of temporary detour route; and 9) site restoration and planting. A detailed description of these project elements is provided in the Project BA (pages 3-6).

Construction equipment will include excavators, asphalt grinders, graders, dump trucks, front loaders, vibratory rollers, generators, pumps, cranes, asphalt pavers, and baker tanks.

The Project also includes Best Management Practices (BMPs) and Minimization Measures (MMs) that, together, will likely be effective in reducing effects of the Project on listed species and their habitats. For a more detailed description of the proposed action and BMPs, refer to the Project BA (page 11).

Action Area

The action area is defined as the furthest extent of the Project's physical, biological, and chemical impacts. Physical modifications to the aquatic, riparian, and upland environments are limited to the construction footprint of the Project. Water quality impacts are expected to extend 50 feet upstream and 100 feet downstream of the construction footprint, therefore the action area for effects to bull trout is 250 linear feet of Story Creek (Figure 1). The terrestrial action area includes potential visual and audible disturbance, and terrestrial habitat impacts. Noise-related disturbance from construction activities has the farthest reaching potential to effect terrestrial species, and was determined based on the extent of noise-related disturbance from the construction activities in excess of ambient noise levels at the construction site. This distance was determined to extend 2.17 miles from the construction footprint before attenuating to expected ambient sound levels, therefore defining the terrestrial action area (Figure 1).

Vegetation in the action area varies from low- to mid-elevation coniferous forest with relatively open Douglas-fir and ponderosa pine, developed agricultural fields, and rural residences. Riparian buffers along Story Creek and the Teanaway River are relatively narrow consisting of willow, cottonwood, aspen, and Douglas hawthorn. The action area elevations range between 2,100 feet to 3,320 feet with the project occurring at approximately 2,240 feet.

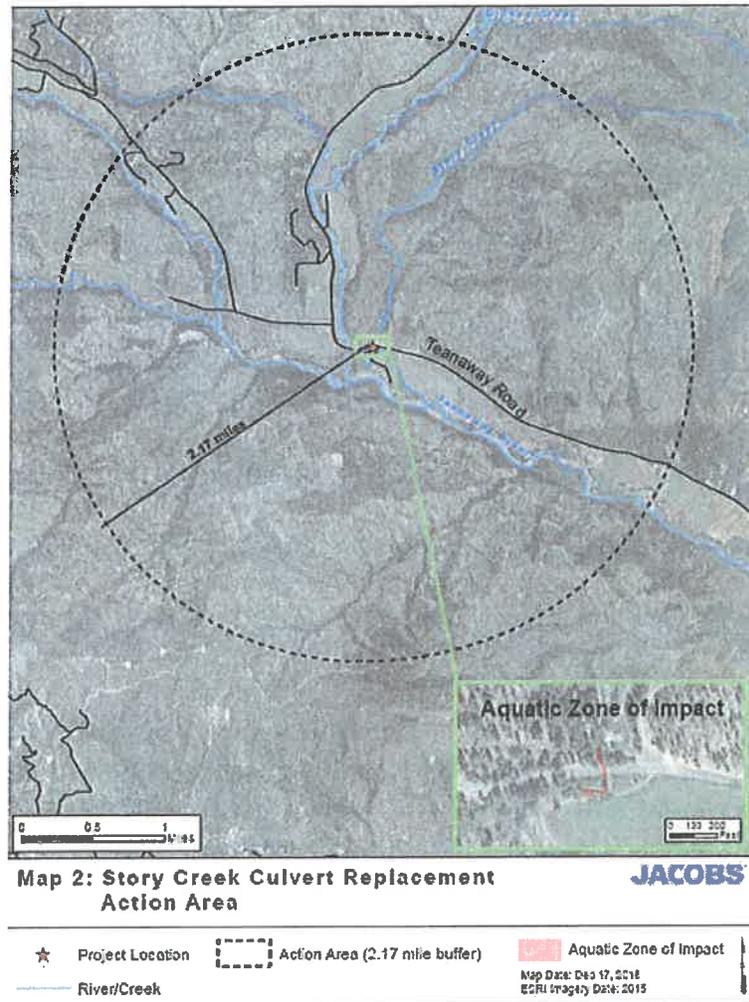


Figure 1. Terrestrial and Aquatic Action Areas. Source: Biological Assessment for the Teanaway Hydraulic Improvements Project – Phase 1 Story Creek Culvert Replacement. January 21, 2019.

Effects to Bull Trout

Bull trout observations have occurred infrequently in the Teanaway River system; only five redds have been found during spawning surveys conducted between 2005 and 2013. During the mid-1990’s, snorkel surveys confirmed the presence of a few larger, fluvial bull trout (approx. 16+ inches), presumably migrating from the main stem Teanaway River or Yakima River, and a few smaller resident forms as well (Anderson 2016). However, snorkel surveys conducted in recent years have not detected any juvenile, subadult, or adult bull trout. Although difficult to prove, the Teanaway River local population appears to be functionally extirpated. Critical habitat for the bull trout is not designated within the action area.

The Project will require in-water work and may result in minor and short-term increases in turbidity. If surface water is present at the time of construction, work below the OHWM will include placement of a stream isolation and bypass system on Story Creek. The isolation structure will be placed after the work site has been seined and blocked with nets to remove any fish that may be present. Fish will be removed from the work area utilizing Washington State

Department of Transportation fish exclusion protocols and standards (BA, Appendix E); electrofishing will not be employed.

Construction activities will remove approximately 5,250 square feet of riparian trees and shrubs. Willow, cottonwood, and birch will be planted where permanent vegetation removal is proposed, where possible some vegetation will be cut but not grubbed to promote natural regeneration.

The new culvert has the potential to benefit bull trout by removing the current culvert that is a fish passage barrier, and providing access to in-stream habitat upstream of the culvert.

It is highly unlikely that bull trout will be present in Story Creek during Project activities due to high water temperatures, limited flow, and the lack of recent known use within the Teanaway River, therefore the potential for a bull trout to be handled during fish removal activities is discountable. During the long construction window, we expect that bull trout, if present, will disperse to suitable habitat elsewhere resulting in insignificant effects. Insignificant beneficial effects are expected due to the increase in in-stream habitat that will be available at the completion of Project activities, however the suitability of this habitat for bull trout may be temporal due to the existing low flows and high summer temperatures.

Effects to Gray Wolf

Gray wolves are wide-ranging predators that can exist in a variety of habitat types and are fairly tolerant of human disturbance, with the exception of the denning and rendezvous period. During this period (generally between March 15 and July 1) pack activity is centered at or near the den or rendezvous site as adults hunt and bring food to the less mobile pups. The action area is located near the southern boundary of the Teanaway pack territory. There are no confirmed den or rendezvous sites that occur near the Project site.

We expect the timing of the Project (July to November) to reduce the potential for noise disturbance during the denning and rendezvous period to discountable levels. During construction activities, we expect dispersing individuals will avoid the relatively small footprint of the Project by moving into adjacent areas where human presence is imperceptible, thereby limiting disturbance effects to insignificant levels.

The action area is located within the Teanaway elk calving area near the southern boundary of the Teanaway pack territory. Project activities occur outside the elk calving period (late May to early June), thus we do not expect noise and human disturbance associated with Project activities to result in changes in survivorship or reproductive success that could influence the availability of prey for gray wolves.

The potential for temporary displacement and noise disturbance in the action area is likely to be insignificant to the survival, reproduction or distribution of the gray wolf.

Conclusion

The Project BA describes effects that are either extremely unlikely to occur and/or are very small in scale. The Service agrees that implementation of the Project will result in insignificant and discountable effects to individuals and the habitats of the species analyzed above. Therefore,

based on the information you provided in your BA, the Service concurs with your determinations of "may affect, not likely to adversely affect" for the bull trout and gray wolf. Our concurrence is based on the Project being implemented as described in the BA and the Service's current understanding of the species' use of the action area.

This concludes informal consultation pursuant to the implementing regulations of the Endangered Species Act, 50 C.F.R. § 402.13. This Project should be reanalyzed if new information reveals effects of the action that may affect listed or proposed species or designated or proposed critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to a listed or proposed species or designated or proposed critical habitat that was not considered in this consultation; and/or, if a new species is listed or critical habitat is designated that may be affected by this Project.

Thank you for your assistance in the conservation of listed species. If you have questions or comments regarding this letter or your responsibilities under the Act, please contact Cindy Raekes at the Central Washington Field Office in Wenatchee at (509)665-3508, extension 2009, or via e-mail at cynthia_raekes@fws.gov or Sierra Franks at (509)665-3508, extension 1880 (e-mail Sierra_Franks@fws.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Brad Thompson" with a stylized flourish at the end. The word "For" is written in small letters above the final part of the signature.

Brad Thompson, Acting State Supervisor
Washington Fish and Wildlife Office

cc:

FHWA, Vancouver, WA (J. Chariarse)
FHWA, Vancouver, WA (N. Christensen)
WDFW, Ellensburg, WA (S. Downes)

LITERATURE CITED

Anderson, E. 2016. Yakima basin bull trout stock assessment report. Washington Department of Fish and Wildlife, District 8. Yakima and Kittitas Counties.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, OR 97232

March 6, 2019

Mark Cook, Director
Kittitas County Public Works
411 N. Ruby, Suite #1
Ellensburg, Washington 98926

Dear Director Cook:

The National Marine Fisheries Service (NMFS) received and reviewed the Routine Road Maintenance Program (RRMP) Part 3 application package the Kittitas County Department of Public Works submitted to us on December 10, 2018 under Limit 10ii of the applicable 4(d) Rule (July 10, 2000, 65 FRN 42422). In coordination with the Regional Road Maintenance Forum (Regional Forum) created by RRMP, we concluded that the Kittitas County Department of Public Works has undertaken the necessary actions to participate in the RRMP as a member of the Regional Forum, will implement the program in its entirety as a member of the Regional Forum, and will abide by the commitment made in the department's Part 3 application. Therefore, your Road Maintenance program qualifies under the July 10, 2000 4(d) rule. The RRMP does not apply to insecticide, herbicide, or fertilizer applications.

By completing the Part 3 application, you are committed to monitoring the adequacy of Best Management Practices (BMPs), development or implementation of checklists, review of implemented BMPs and their effectiveness, the evaluation of BMP performance through adaptive management, and adopting the changes developed by the Regional Forum through this process in your road maintenance program. Additionally, scientific research will serve to verify the effectiveness of BMPs and to recommend changes to BMPs based on the latest technologies.

The following are conditions for the Department's continuing qualification:

1. A representative of your agency with road maintenance knowledge, technical expertise and the authority to implement program changes must participate in the Regional Forum;
2. The Regional Forum will submit biennial reports to the Services on the status of all ten elements of the Regional Program. At a minimum, the reports will include the following:
 - Status reports and updates for each program element.
 - Training program, review and updates.
 - Review of scientific research.
 - Implementation review.
 - Adaptive Management reports, including recommended changes to the Guidelines.



Please send the reports to the following:
National Marine Fisheries Service, Oregon-Washington Coastal Office
510 Desmond Drive SE, Suite 103
Lacey, WA 98503

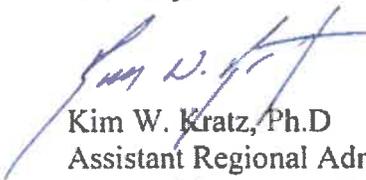
Periodically, NMFS can evaluate the Regional Road Maintenance Program for its effectiveness in maintaining and achieving program implementation that provides for the conservation of listed species. Whenever warranted, NMFS will identify to the Regional Forum ways in which the program needs to be altered or strengthened. If no response occurs within a year, NMFS can publish notification in the Federal Register, announcing intention to disqualify your participation in the program under limit 10;

3. Agencies will identify known or discovered chronic sediment deposit locations and potential sources of excess sediment, making the information available to agency watershed planning groups, regulatory agencies, and/or agency Capital Improvement Project programs for permanent solutions;
4. Shore defense activities require the issuance of a Hydraulic Project Approval (HPA) by the Washington Department of Fish and Wildlife (WDFW). Agencies will commit to incorporate into the design of shore defense activities the relevant considerations as stated in the Integrated Streambank Protection Guidelines or its equivalent, as required by WDFW in the HPA.

Take prohibitions under section 9 of the ESA and applicable 4(d) rules will not apply to the routine road maintenance practices carried out by Kittitas County in accordance with that plan, and are implemented in accordance with the requirements of this letter.

Thank you for the time you and your agency have invested in seeking participation in the RRMP. NMFS looks forward to working collaboratively with you to recognize management programs that conserve and meet the biological requirements of salmonids, and to strengthen other programs toward conservation of listed salmonids. For implementation follow-up and any questions, please contact Scott E. Anderson at (360) 753-5828 or scott.anderson@noaa.gov.

Sincerely,



Kim W. Kratz, Ph.D
Assistant Regional Administrator
Oregon Washington Coastal Office

cc: Mark Cook, Kittitas Public Works
Gregor Myhr, WSDOT

ENDANGERED SPECIES ACT - SECTION 7

BIOLOGICAL OPINION

and

**MAGNUSON-STEVENSON FISHERY CONSERVATION
AND MANAGEMENT ACT CONSULTATION**

Proposed Qualification of the Regional Road Maintenance Program Submitted by 25
Jurisdictions in Washington State for 12 Threatened Salmonid ESUs, Pursuant to Limit No.
10(ii) of the NMFS 4(d) Rule

NMFS Tracking No.: 2003/00313

Agency: National Marine Fisheries Service

Consultation
Conducted By: National Marine Fisheries
Northwest Region
Washington State Branch Office

Approved by: 

Date: August 15, 2003

D. Robert Lohn
Regional Administrator

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1.0 INTRODUCTION

1.1 Background and Consultation History

NOAA's National Marine Fisheries Service (NOAA Fisheries) published an Endangered Species Act (ESA) section 4(d) rule adopting regulations necessary and advisable to conserve listed species (July 10, 2000, 65 FR 42422). The 4(d) rule creates a mechanism by which application of ESA section 9(a)(1) take prohibitions may be limited for land and water activities that NOAA Fisheries has found will conserve listed salmonids' habitat, yet may incidentally take. The 4(d) rule includes thirteen enumerated limits upon the extent of the general take prohibition for 14 threatened Evolutionarily Significant Units (ESUs). Limit No. 10 covers routine road maintenance activities. For a state, city, county or port program to qualify under Limit No.10(ii), it must adopt a road maintenance program that contributes to the attainment and persistence of properly functioning habitat condition (PFC).

In 1999, in response to several listings of salmonids under the ESA, local governments in the Puget Sound area formed a coalition, known as the "Tri-County ESA Response Effort" (Tri-County Group), to implement programs to conserve listed species. The Tri-County ESA Response Effort identified several government agency program areas with the potential to contribute to conservation. Road maintenance was one of those program areas. At the same time, the Washington State Department of Transportation (WSDOT) began to develop their own road maintenance program. In the fall of 2001, after two years of collaborative effort, WSDOT joined with the Tri-County Group to become the Regional Road Maintenance Technical Working Group. This union expanded the Regional Program to include the entire State of Washington. In January 2002, 25 jurisdictions (24 local jurisdictions and WSDOT) jointly submitted the Regional Road Maintenance ESA Program (RRMP) for qualification under Limit No. 10(ii).

On January 25, 2002, a Federal Register Notice was published (January 25, 2002, 67 FR 3688) announcing the availability of the RRMP for public comment. A 30-day extension of the public comment period was announced on March 13, 2002 (March 13, 2002, 67 FR 11285). The public comment period closed on April 12, 2002. NOAA Fisheries completed its review and response to public comments in late-January 2003. NOAA Fisheries initiated ESA section 7 consultation with itself on March 28, 2003.

The RRMP may affect 12 ESUs of threatened salmonids: Ten of the 14 ESUs addressed in the 4(d) Rule, and two additional ESUs (Snake River (SR) Fall-run and SR spring/summer-run chinook), not addressed in the 4(d) Rule. The 12 ESUs include: Puget Sound (PS), Lower Columbia River (LCR), SR fall-run, SR spring/summer-run, and Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*); Hood Canal (HC) summer-run and Columbia River (CR) chum salmon (*O. keta*); Ozette Lake (OL) sockeye salmon (*O. nerka*), and; Snake River Basin (SRB), LCR, UWR, and Middle Columbia River (MCR) steelhead (*O. mykiss*).

The 4(d) Rule specifically excludes endangered species from its limits on the application of the ESA section 9(a)(1) take prohibitions. NOAA Fisheries, therefore, is not extending 4(d) Limit No. 10 coverage to RRMP activities within the delineated geographic boundaries of the three endangered ESUs Upper Columbia River (UCR) spring-run chinook salmon, UCR steelhead, and SR sockeye salmon. However, these three endangered salmonid ESUs migrate outside the geographic boundaries of their ESUs through a portion of the RRMP's action area. The effects of RRMP activities (primarily conducted in tributary watersheds) on endangered salmonids migrating through the middle and lower mainstem Columbia River would likely be insignificant or discountable and thus not be likely to adversely affect the UCR spring-run chinook salmon, UCR steelhead, or SR sockeye salmon.

1.2 Description of the Proposed Action

NOAA Fisheries proposes to approve 25 Limit No. 10 programs for 25 state and local jurisdictions in Washington State. NOAA Fisheries decided to group these actions in a single consultation pursuant to 50 CFR 402.14(c) because the 25 routine road maintenance programs are similar in nature and duration.

The State of Washington, through WSDOT, together with King, Pierce, Snohomish, Clallam, Kitsap, Mason, and Thurston Counties, and the Cities of Bellevue, Bremerton, Burien, Covington, Edgewood, Everett, Kenmore, Kent, Lake Forest Park, Lakewood, Maple Valley, Newcastle, Renton, Sammamish, Shoreline, Tacoma, and University Place developed the RRMP so that routine road maintenance activities would be protective of salmonids and their habitat.

The RRMP defines what activities are routine road maintenance. As defined on page "x" of the RRMP (RRM-TWG 2001), covered maintenance activities are "conducted on currently serviceable structures, facilities, and equipment, involve no expansion of or change in use, and do not result in significant negative hydrological impact."

The RRMP is divided into three parts. In Part 1, the RRMP describes the program framework including the 10 program elements that comprise the program (Regional Forum, Program Review, Best Management Practices (BMPs) and Conservation Outcomes (element 10), Training, Compliance Monitoring, Research, Adaptive Management, Emergency Response, Biological Data Collection, and Reporting). In Part 2, the RRMP elaborates on the BMPs in much greater detail and provides detailed instructions to crews, supervisors, environmental support staff, design personnel, and managers. Part 3 describes a process by which additional counties, cities, and ports in Washington State may develop routine road maintenance programs by adopting RRMP Parts 1 and 2, and then submit their RRMP to NOAA Fisheries for review, public comment, and approval or disapproval.

Finally, the RRMP includes a biological review (BR) of the RRMP prepared by WSDOT and the other entities named above. The BR analyzes the effects of the RRMP on the 12 threatened salmonid ESUs and their habitat statewide. The BR concludes that the identified routine road maintenance activities conducted throughout Washington State under the RRMP will not impair

properly functioning habitat, nor appreciably reduce the functioning of already impaired habitat, nor retard the long-term progress of impaired habitat toward PFC.

The Federal action of approving the RRMP under Limit No. 10 required environmental review under the National Environmental Policy Act (NEPA). Two environmental assessments (EA) were prepared to meet NOAA Fisheries' environmental documentation requirements under NEPA: a programmatic EA for Limit No. 10 (NMFS 2003a) and a sequential EA that evaluated the environmental consequences associated with the RRMP submitted by the 25 Washington jurisdictions (NMFS 2003b).

1.3 Action Area

The action area is defined in 50 CFR 402.02 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The 25 state and local jurisdictions applying for qualification of the RRMP under Limit No. 10 of the 4(d) Rule carry out routine road maintenance activities out on roads in urban and rural areas throughout the State of Washington. Because of potential direct and indirect effects on listed salmonids from implementation of the RRMP, the action area extends from southeastern Washington and crosses the Columbia Plateau, Cascade Mountains, and the Pacific Border provinces spanning Washington. It consists of the Columbia River basin downstream of Priest Rapids Dam, all coastal watersheds between the Columbia River in the south and the Canadian border in the north, and watersheds that drain to Puget Sound. Part or all of 28 counties fall within the action area, out of a total of 39 counties in Washington.

2.0 ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Status of ESUs and Habitat

The 12 threatened salmonid ESUs are in decline. The decline has been attributed to many different factors, including harvest, operation of hatcheries, hydropower development, and destruction of habitat (Federal Caucus 2000). Additionally, municipal and agricultural water withdrawals cause water shortages throughout the West, creating passage barriers, water quality declines, and eliminating habitat. Though less measurable, the effects of introduced aquatic nuisance species, which compete for habitat and prey on salmon, have caused a decline in salmon populations (He and Kitchell 1990). Recent research has shown that ocean conditions play a profound role in survival to spawning age, and contribute substantially to total salmon population numbers (Beamish *et al.* 2000).

The listing status, biological information, and critical habitat designations for the 15 threatened and endangered species are described in Table 1.

Table 1. References to Federal Register Notices and Status Reviews Containing Additional Information Concerning Listing status, Biological Information, and Critical Habitat Designations for Listed Species Considered in this Opinion.

Species	Listing Status Reference	Critical Habitat Reference	Biological Information
Puget Sound chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	Threatened Species, (March 24, 1999, 64 FR 14308	No Critical Habitat Designated	Myers <i>et al</i> 1998
Lower Columbia River (LCR) chinook salmon (<i>O. tshawytscha</i>)	Threatened Species, (February 16, 2000, 65 FR 7764)	No Critical Habitat Designated	Myers <i>et al.</i> 1998
Snake River fall-run (SRF) chinook salmon (<i>O. tshawytscha</i>)	Threatened Species, (April 22, 1992, 57 FR 14653). See correction: (June 3, 1992, 57 FR 23458)	Designated Critical Habitat, (December 28, 1993, 58 FR 68543)	Waples <i>et al.</i> 1991b
Snake River spring/summer-run (SRSS) chinook salmon (<i>O. tshawytscha</i>)	Threatened Species, (April 22, 1992, 57 FR 14653). See correction:(June 3 1992, 57 FR 23458)	Designated Critical Habitat,(December 28, 1993, 58 FR 68543). See update: (October 25, 1999, 64 FR 57399)	Matthews and Waples 1991
Upper Columbia River (UCR) spring-run chinook salmon (<i>O. tshawytscha</i>)	Endangered Species, (March 24, 1999, 64 FR 14308)	No Critical Habitat Designated	Myers <i>et al.</i> 1998
Upper Willamette River (UWR) chinook salmon (<i>O. tshawytscha</i>)	Threatened Species, (March 24, 1999, 64 FR 14308)	No Critical Habitat Designated	Myers <i>et al.</i> 1998
Hood Canal (HC) summer-run chum salmon (<i>O. keta</i>)	Threatened Species, (March 25, 1999, 64 FR 14508)	No Critical Habitat Designated	Johnson <i>et al.</i> 1997
Columbia River (CR) chum salmon (<i>O. keta</i>)	Threatened Species, (March 25, 1999, 64 FR 14508)	No Critical Habitat Designated	Johnson <i>et al</i> 1997

Ozette Lake sockeye (<i>O. nerka</i>)	Threatened Species, (March 25, 1999, 64 FR 14508)	No Critical Habitat Designated	Gustafson <i>et al.</i> 1997
Snake River (SR) sockeye (<i>O. nerka</i>)	Endangered Species, (November 20, 1991, 58 FR 58619)	Designated Critical Habitat, (58 FR 68543, December 28, 1993)	Waples <i>et al.</i> 1991a
Upper Willamette River (UWR) steelhead (<i>O. mykiss</i>)	Threatened Species (March 25, 1999, 64 FR 14517)	No Critical Habitat Designated	Busby <i>et al.</i> 1995; Busby <i>et al.</i> 1996
Snake River Basin (SRB) steelhead (<i>O. mykiss</i>)	Threatened Species, (August 18, 1997, 62 FR 43937)	No Designated Critical Habitat	Busby <i>et al.</i> 1995; Busby <i>et al.</i> 1996
Lower Columbia River (LCR) steelhead (<i>O. mykiss</i>)	Threatened Species, (March 19, 1998, 63 FR 13347)	No Critical Habitat Designated	Busby <i>et al.</i> 1995; Busby <i>et al.</i> 1996
Middle Columbia River (MCR) steelhead (<i>O. mykiss</i>)	Threatened Species, (March 25, 1999, 64 FR 14517)	No Critical Habitat Designated	Busby <i>et al.</i> 1995; Busby <i>et al.</i> 1996
Upper Columbia River (UCR) steelhead (<i>O. mykiss</i>)	Endangered Species, (August 18, 1997, 62 FR 43937)	No Critical Habitat Designated	Busby <i>et al.</i> 1996; WCSBRT 1997

2.1.1.1 Puget Sound Chinook

The threatened PS chinook salmon ESU encompasses all naturally spawned spring, summer and fall runs of chinook salmon in the Puget Sound region from the North Fork Nooksack River to the Elwha River on the Olympic Peninsula. Critical habitat is not presently designated for this ESU.

Overall abundance of chinook salmon in this ESU has declined substantially from historical levels, and many populations are small enough that genetic and demographic risks are likely to be high. Although some natural spawning escapements in this ESU may be improving, the contribution of hatchery fish to natural escapements may be substantial, masking the trends in natural production. The widespread use of a limited number of hatchery stocks may have resulted in increased risk of loss of fitness and diversity among populations (Myers *et al.* 1998). Despite generally decreasing exploitation rates in Puget Sound since the implementation of the

Pacific Salmon Treaty in 1985, spawning escapement trends have remained relatively constant. A strong decline in recruitment has largely been compensated for by decreases in harvest (WDFW and Puget Sound Indian Tribes 2001).

Freshwater habitat throughout the range of the ESU has been blocked or degraded, with upper tributaries widely affected by poor forestry practices and lower tributaries and mainstem rivers affected by agriculture and urbanization. Other factors of decline include excessive harvest rates of natural stocks in mixed-stock fishing activities and the widespread use of a limited number of hatchery stocks.

Spawning escapement since Myers *et al.* (1998) indicates that 11 out of the 15 PS chinook management units are either stable or have improved relative to the benchmark (1992-96) utilized in that assessment. The upswing in escapement for the majority of the management units is encouraging. However, since much of the additional escapement may have resulted from the near elimination of most harvest, it is too soon to determine if this represents the beginning of sustained improvement in PS chinook production (WDFW and Puget Sound Indian Tribes, 2001).

2.1.1.2 Lower Columbia River Chinook Salmon

The threatened LCR chinook salmon ESU includes all natural-origin populations residing below impassable natural barriers from the mouth of the Columbia River to the crest of the Cascade Range just east of Hood River in Oregon and the White Salmon River in Washington. Critical habitat is not presently designated for this ESU.

Estimated overall abundance of chinook salmon in the ESU is not cause for immediate concern. Long-term trends in fall-run escapement are mixed, with most larger stocks positive, while the spring-run trends are positive or stable. Short-term trends for both runs are more negative, some severely so (Myers *et al.* 1998). However, apart from the relatively large and apparently healthy fall-run population in the Lewis River, production in this ESU appears to be predominantly hatchery-driven with few identifiable native, naturally reproducing populations. About half of the populations constituting this ESU are very small, increasing the likelihood that risks due to genetic and demographic processes in small populations will be important.

Spawning and juvenile rearing areas have been eliminated or greatly reduced by dam construction, and freshwater habitat is in poor condition in many basins, due to forestry practices, urbanization and agriculture. Also of concern is the potential loss of fitness and diversity resulting from the introgression of hatchery fish within the ESU (Myers *et al.* 1998).

2.1.1.3 Snake River Fall-Run Chinook

The threatened SR fall-run chinook salmon ESU includes all natural-origin populations of fall-run chinook in the mainstem Snake River and several tributaries including the Tucannon, Grande Ronde, Salmon, and Clearwater rivers. Fall-run chinook from the Lyons Ferry Hatchery are

included in the ESU but are not listed. Critical habitat was designated for SR fall-run chinook salmon on December 28, 1993 (58 FR 68543).

This ESU includes the mainstem river and all tributaries, from their confluence with the Columbia River to the Hells Canyon complex. Because genetic analyses indicate that fall-run chinook salmon in the Snake River are distinct from the spring/summer-run in the Snake River basin (Waples *et al.* 1991b), SR fall-run chinook salmon are considered separately from the other two forms.

Some SR fall-run chinook historically migrated over 900 miles from the ocean. Although the SR population is now restricted to habitat in the lower river, genes associated with the lengthier migration may still reside in the population. Because longer freshwater migrations in chinook salmon tend to be associated with more-extensive oceanic migrations (Healey 1983), maintaining populations occupying habitat that is well inland may be important in continuing diversity in the marine ecosystem as well.

Because of hydrosystem development, the most productive areas of the Snake River basin are now inaccessible or inundated. The upper reaches of the mainstem Snake River were the primary areas used by fall-run chinook salmon, with only limited spawning activity reported downstream from river mile 272.

The Snake River has contained hatchery-reared fall-run chinook salmon since 1981 (Busack 1991). The hatchery contribution to Snake River escapement has been estimated at greater than 47% (Myers *et al.* 1998). Artificial propagation is recent, so cumulative genetic changes associated with it may be limited. Wild fish are incorporated into the brood stock each year, which should reduce divergence from the wild population. Release of subyearling fish may also help minimize the differences in mortality patterns between hatchery and wild populations that can lead to genetic change (Waples 1999).

For the SR fall-run chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (λ) over the base period ranges from 0.94 to 0.86, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (McClure *et al.* 2000). NOAA Fisheries has also estimated the risk of absolute extinction for the aggregate SR fall-run chinook salmon population, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (*i.e.*, hatchery effectiveness equals zero), the risk of absolute extinction within 100 years is 0.40 (McClure *et al.* 2000). At the high end, assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness equals 100%), the risk of absolute extinction within 100 years is 1.00 (McClure *et al.* 2000).

2.1.1.4 Snake River Spring/Summer-Run Chinook Salmon

The threatened SR spring/summer chinook salmon includes all natural-origin populations in the Tucannon, Grande Ronde, Imnaha, and Salmon rivers. Some or all of the fish returning to several of the hatchery programs are also listed including those returning to the Tucannon River, Imnaha, and Grande Ronde hatcheries, and to the Sawtooth, Pahsimeroi, and McCall hatcheries on the Salmon River. Critical habitat was designated for SR spring/summer chinook salmon on December 28, 1993 (58 FR 68543), and was revised on October 25, 1999 (64 FR 57399).

Even before mainstem dams were built, habitat was lost or severely damaged in small tributaries by construction and operation of irrigation dams and diversions, inundation of spawning areas by impoundments, and siltation and pollution from sewage, farming, logging, and mining (Fulton 1968). Recently, the construction of hydroelectric and water storage dams without adequate provision for adult and juvenile passage in the upper Snake River has kept fish from all spawning areas upstream of Hells Canyon Dam.

There is a long history of human efforts to enhance production of chinook salmon in the Snake River basin through supplementation and stock transfers. The evidence is mixed as to whether these efforts have altered the genetic makeup of indigenous populations. Straying rates appear to be very low.

For the SR spring/summer chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (λ) over the base period ranges from 0.96 to 0.80, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to the effectiveness of fish of wild origin (McClure *et al.* 2000). NOAA Fisheries has also estimated median population growth rates and the risk of absolute extinction for the seven spring/summer chinook salmon index stocks, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (*i.e.*, hatchery effectiveness equals zero), the risk of absolute extinction within 100 years for the wild component ranges from zero for Johnson Creek to 0.78 for the Imnaha River (McClure *et al.* 2000). At the high end, assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness equals 100%), the risk of absolute extinction within 100 years ranges from zero for Johnson Creek to 1.00 for the wild component in the Imnaha River (McClure *et al.* 2000).

2.1.1.5 Upper Willamette River Chinook Salmon

The threatened UWR chinook salmon ESU includes native spring populations in the Willamette River and tributaries upstream of Willamette Falls, including naturally produced spring-run fish in the Clackamas River. Critical habitat is not presently designated for this ESU.

The abundance of naturally-produced spring-run chinook in the ESU has declined substantially from historic levels. Historic escapement levels may have been as high as 200,000 fish per year (Myers *et al.* 1998). Current natural escapement is less than 5,000 fish, and about two-thirds of

the natural spawners are estimated to be first-generation hatchery fish (Myers *et al.* 1998). Although natural escapements are substantially depressed, the number of naturally spawning fish have gradually increased in recent years (NMFS 2001). Although natural escapements are depressed, the number of naturally spawning fish has gradually increased in recent years.

The primary cause of decline of chinook in this ESU is the blockage of access to large areas of spawning and rearing habitat by dam construction. The remaining habitat has been degraded by thermal effects of dams, forestry practices, agriculture, and urbanization. Another concern for this ESU is that commercial and recreational harvest were high, relative to the apparent productivity of natural populations. New fishing regulations are expected to reduce harvest mortality by 70% from historic levels. Efforts have been taken to remedy some of the past hatchery practices including limiting the proportion of hatchery spawners in some natural production areas, and reincorporating local-origin wild fish into the hatchery broodstock.

2.1.1.6 Ozette Lake Sockeye

The threatened OL sockeye salmon ESU includes all sockeye salmon that return to Lake Ozette through the Ozette River and currently spawn primarily in lakeshore upwelling areas on Ozette Lake. A small proportion of this ESU may also spawn below the lake in the Ozette River and its tributary, Coal Creek. Critical habitat is not presently designated for this ESU.

The historical abundance of OL sockeye is poorly documented, but is believed to have declined significantly from historic levels. Historical estimates indicate run sizes of a few thousand sockeye salmon, with a peak recorded harvest of nearly 18,000 in 1949. Between 1977 and 1999, the average annual abundance level for the total (lake and tributary-origin) was 1,075 (ranging from 263 to 2,191 per year). This most recent four year annual mean run size from 1996 to 1999 for this predominantly four-year-old age at return escapement average compares to a mean escapement of 811 for the previous four years of the cycle (1992 to 1995, ranging from less than 267 to 2,548 per year). Sockeye salmon originating from Ozette Lake tributaries comprised an average of 9.8% of the total Ozette Lake escapement in recent years. Recent run size estimates and analysis of previous estimation methods indicate that sockeye abundance within the ESU may be relatively stable or increasing. Some of this increase is attributable to the hatchery supplementation and recovery program initiated in response to the decline in population abundance.

Factors likely contributing to the decline of this ESU include introduced species, predation, loss of tributary populations, decline in quality of beach-spawning habitat, unfavorable ocean conditions, excessive historical harvests, introduced diseases, and the potential genetic effects of past and on-going hatchery practices (Dlugokenski *et al.* 1981; Beauchamp *et al.* 1995; Jacobs *et al.* 1996). Habitat degradation in the form of sedimentation, stream-bed scouring, increased flows, and degraded water quality have been primarily attributed to logging and associated road building.

2.1.1.7 Hood Canal Summer-Run Chum Salmon

The threatened HC summer-run chum ESU includes populations in Hood Canal and in Discovery and Sequim Bays on the Strait of Juan de Fuca. The ESU also includes summer-run chum salmon in the Dungeness River, but their status is uncertain (WDFW and PNPTT 2000). Critical habitat is not presently designated for this ESU.

Although abundance was high in the late 1970s, abundance for most HC summer-run chum populations declined rapidly beginning in 1979, and has remained at depressed levels. The terminal run size for this ESU averaged 28,971 during the 1974 to 1978 period, declining to an average of 4,132 during 1979 to 1993. Abundance during the 1995 to 2000 period improved, averaging 8,724 adults. However, much of the increase in abundance can be attributed to a supplementation program begun in 1992 (WDFW and PNPTT 2000).

The causes of decline for this ESU include a combination of the cumulative effects of habitat degradation, high fishery exploitation rates, and shifts in climatic conditions that have changed patterns and intensity of precipitation. Channel, riparian forest, and sub-estuarine conditions were moderately to severely degraded in all watersheds due to a history of logging, road building, rural development, agriculture, water withdrawal, and channel manipulations throughout the ESU (WDFW and PNPTT 2000). Total exploitation rates have dropped dramatically since 1995 as a result of fishery actions taken to protect summer-run chum and other salmonid species.

Supplementation programs were instituted beginning in 1992 due to assessments of moderate or high risk of extinction for several stocks (WDFW and PNPTT 2000). These programs are scheduled to end in 12 years, unless re-evaluation at that time indicates extending them would be beneficial to recovery of the ESU.

2.1.1.8 Columbia River Chum Salmon

This threatened ESU includes all naturally produced chum salmon populations that enter the Columbia River. Historically, chum salmon were abundant in the lower reaches of the Columbia River and may have spawned as far upstream as the Walla Walla River (Johnson *et al.* 1997). However, reductions in available habitat currently limit chum salmon in the Columbia River to tributaries below Bonneville Dam. Presently, only two chum salmon populations are recognized and monitored in the Columbia River (Grays River and Hardy and Hamilton Creeks/Ives Island group), although chum have been reported in other areas, including the East Fork Lewis River (Salo 1991; Kostow 1995). Critical habitat is not presently designated for this ESU.

Current abundance is less than one percent of historic levels, and the ESU has lost some of its original genetic diversity. The estimated minimum run size for this ESU has been relatively stable, since the run collapsed during the mid-1950s (Johnson *et al.* 1997). Information from stream surveys of the remaining populations suggests that there may be a few thousand chum spawning in the Columbia River basin (Johnson *et al.* 1997).

Decline of this ESU is attributed to dams and habitat degradation primarily from diking and wetland loss (Johnson *et al.* 1997). Hatchery fish have had little influence on the wild component of the Columbia River chum salmon ESU (Johnson *et al.* 1997).

2.1.1.9 Upper Willamette Steelhead

The UWR steelhead ESU includes all naturally produced steelhead in the Willamette River and its tributaries upstream of Willamette Falls. No estimates of abundance prior to the 1960s are available. Abundance has been declining steeply since the late 1980s going from an average of over 15,000 in the 1970s and 1980s to several thousand today (Busby *et al.* 1996). Critical habitat is not presently designated for this ESU.

The potential negative influence of hatchery fish through genetic effects and competition between native and non-native stocks was noted as the primary factor of concern for this ESU (Busby *et al.* 1996). Habitat blockage from dams and habitat degradation from logging and urbanization have contributed to stream flow and temperature problems and loss of riparian habitat (Bottom *et al.* 1985, Busby *et al.* 1996).

2.1.1.10 Lower Columbia River Steelhead

The threatened LCR steelhead ESU includes all naturally produced steelhead in tributaries to the Columbia River between the Cowlitz and Wind Rivers in Washington and the Willamette and Hood Rivers in Oregon, excluding steelhead in the upper Willamette River above Willamette Falls and steelhead in the little and Big White Salmon Rivers in Washington (Middle Columbia ESU) (Busby *et al.* 1996). Critical habitat is not presently designated for this ESU.

No estimates of historical abundance (pre-1960s) specific to this ESU are available. A conservative estimate of current abundance puts the average run size at greater than 16,000. Abundance trends are mixed and possibly affected by short-term climate conditions. At the time of NOAA Fisheries' status review (Busby *et al.* 1996), the majority of stocks for which data are available within this ESU were declining, although some had increased strongly. Since 1996, listed LCR steelhead populations have generally increased, with some populations rebounding more quickly than others.

The magnitude of hatchery production, habitat blockages from dams, and habitat degradation from logging and urbanization are areas of concern. The widespread production of hatchery steelhead within this ESU creates specific concerns for summer steelhead and Oregon winter-run steelhead stocks, where there appears to be substantial overlap in spawning between hatchery and natural fish (Busby *et al.* 1996). Most of the hatchery stocks originate from stocks within the ESU, but many are not native to local river basins.

2.1.1.11 Middle Columbia River Steelhead

The threatened MCR steelhead ESU includes all natural-origin populations in the Columbia River basin above the Wind River in Washington, and the Hood River in Oregon (exclusive), including the Yakima River in Washington, except for steelhead in the Snake River basin (Busby *et al.* 1996). This ESU includes the only populations of winter-run inland steelhead in the United States (in the Klickitat River, Washington, and Fifteenmile Creek, Oregon). Both the Deschutes River and Umatilla River hatchery stocks are included in the ESU, but are not listed. Critical habitat is not presently designated for MCR steelhead.

Substantial habitat blockages are present in this ESU. Water withdrawals, and loss of riparian vegetation caused by overgrazing have seriously reduced summer flows in the principal summer-run steelhead spawning and rearing tributaries of the Deschutes River. High summer and low winter temperatures are limiting factors for salmonids in many streams in this region (Bottom *et al.* 1985; Busby *et al.* 1996).

Continued increases in the proportion of stray steelhead in the Deschutes River basin is a major concern. The ODFW and the Confederated Tribes of the Warm Springs Reservation of Oregon estimate that 60% to 80% of the naturally spawning population consists of strays, which greatly outnumber naturally produced fish. Although the reproductive success of stray fish has not been evaluated, the genetic contribution of non-indigenous, hatchery stocks may have reduced the fitness of the locally adapted, native fish. A decrease in fitness could have occurred through hybridization and associated reductions in genetic variation or introduction of deleterious (non-adapted) genes. Hatchery fish can also directly displace natural spawning populations, compete for food resources, or engage in agonistic interactions (Campton and Johnston 1985; Waples 1991b; Hilborn 1992; Busby *et al.* 1996).

The negative effects of any interbreeding between stray and native steelhead will be exacerbated if the stray steelhead originated in geographically distant river basins, especially if the river basins are in different ESUs. A key unresolved question about the large number of strays in the Deschutes basin is how many stray fish remain in the basin and spawn naturally.

Historical abundance in the ESU may have been in excess of 300,000 (Busby *et al.* 1996). Total abundance was estimated at about 200,000 by the early 1980s, and by the early 1990s average abundance was 142,000 with 39,000 naturally produced. Total steelhead abundance in the ESU appears to have been increasing recently, and the naturally produced component has been relatively stable. However, the majority of natural stocks for which there are data within this ESU have been declining.

There is particular concern about Yakima River and winter-run steelhead stocks. Winter-run steelhead are reported within this ESU only in the Klickitat River and Fifteenmile Creek. No abundance information exists for winter-run steelhead in the Klickitat River, but winter-run steelhead are reported to have been declining in abundance in Fifteenmile Creek. Escapement

trends for natural summer and winter steelhead have been increasing over the last few years but are still below historic levels.

For the MCR steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (λ) over the base period ranges from 0.88 to 0.75, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared with that of fish of wild origin (McClure *et al.* 2000). NOAA Fisheries has also estimated the risk of absolute extinction for four of the subbasin populations, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (*i.e.*, hatchery effectiveness equals zero), the risk of absolute extinction within 100 years ranges from zero for the Yakima River summer run to 1.00 for the Umatilla River and Deschutes River summer runs (McClure *et al.* 2000). Assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness equals 100%), the risk of absolute extinction within 100 years ranges from zero for the Yakima River summer-run to 1.00 for the Deschutes River summer-run (McClure *et al.* 2000).

2.1.1.12 Snake River Basin Steelhead

The threatened SRB steelhead includes all naturally produced steelhead in the Snake River basin of southeast Washington, northeast Oregon and Idaho (Busby *et al.* 1996). None of the hatchery stocks in the Snake River basin is listed, but several are included in the ESU. Critical habitat is not presently designated for SRB steelhead.

Hydrosystem projects create substantial habitat blockages in this ESU; the major ones are the Hells Canyon Dam complex (mainstem Snake River) and Dworshak Dam (North Fork Clearwater River). Minor blockages are common throughout the region. Steelhead spawning areas have been degraded by overgrazing, as well as by historical gold dredging and sedimentation due to poor land management. The habitat degradation has resulted in significant temperature and flow fluctuations, sedimentation, and loss of riparian vegetation. Habitat in the Snake River basin is warmer and drier and often more eroded than elsewhere in the Columbia River basin or in coastal areas (Busby *et al.* 1996).

Hatchery fish are widespread and stray to spawn naturally throughout the region. In the 1990s, an average of 86% of adult steelhead passing Lower Granite Dam were of hatchery origin. Hatchery contribution to naturally spawning populations varies, however, across the region. Hatchery fish dominate some stocks, but do not contribute to others (Busby *et al.* 1996).

For the SRB steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (λ) over the base period ranges from 0.91 to 0.70, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (McClure *et al.* 2000). NOAA Fisheries has also estimated the risk of absolute extinction for the A- and B-runs, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (*i.e.*, hatchery effectiveness equals zero), the risk of absolute extinction within

100 years is 0.01 for A-run steelhead and 0.93 for B-run fish (McClure *et al.* 2000). At the high end, assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness equals 100%), the risk of absolute extinction within 100 years is 1.00 for both runs (McClure *et al.* 2000).

2.1.1.13 Summary of the Evolutionarily Significant Units' Current Status

Average population abundances in the 12 threatened ESUs are clearly substantially less than historical levels. The current low average abundances of the species and the range of different activities currently affecting the species underscore the critical need for continued rigorous monitoring and evaluation of population parameters and the effects of various activities on those populations. The biological requirements of the 12 threatened ESUs are currently not being met under the environmental baselines. Their status is such that there must be significant improvements in the environmental conditions of the ESUs' respective baselines. Previous NOAA Fisheries listing decisions and consultations, and the biological review prepared for the RRMP, provide additional, detailed discussions of the environmental baselines. Current scientific information suggests that a multitude of factors, past and present, human and natural, have contributed to the decline of these ESUs. For example, there is evidence to suggest that previous and current destruction and modification of freshwater habitats contribute to the decline of these species.

2.1.2 Evaluating the Proposed Action

The standards for determining jeopardy and destruction or adverse modification of critical habitat are set forth in section 7(a)(2) of the ESA. In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations and when appropriate combines them with *The Habitat Approach, Implementation of Section 7 of the Endangered Species Act for Actions Affecting the Habitat of Pacific Anadromous Salmonids* (NMFS 1999): (1) Consider the biological requirements and status of the listed species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species, and whether the action is consistent with any available recovery strategy; and (4) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the effects of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If jeopardy or adverse modification are found, NOAA Fisheries may identify reasonable and prudent alternatives for the action that avoid jeopardy and/or destruction or adverse modification of critical habitat.

The fourth step above (jeopardy/adverse modification analysis) requires a two-part analysis. The first part focuses on the action area and defines the proposed action's effects in terms of the species' biological requirements in that area (*i.e.*, effects on essential features). The second part focuses on the species itself. It describes the action's effects on individual fish, populations, or both - and places that impact in the context of the ESU as a whole. Ultimately, the analysis seeks to determine whether the proposed action is likely to jeopardize a listed species' continued existence or destroy or adversely modify its critical habitat.

2.1.2.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species; taking into account population size, trends, distribution, and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its original decision to list the species for protection under the ESA. Additionally, the assessment will consider any new information or data that are relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally reproducing population levels at which time protection under the ESA would be unnecessary. Species or ESUs not requiring ESA protection have the following attributes: population sizes large enough to maintain genetic diversity and heterogeneity, the ability to adapt to and survive environmental variation, and are self-sustaining in the natural environment.

The 12 threatened species covered by this consultation have similar basic biological requirements. These requirements include food, flowing water (quantity), high quality water (cool, free of pollutants, high dissolved oxygen concentrations, low sediment content), functioning riparian conditions, stable streambank conditions, flood plain connectivity, adequate in-stream abundance and sources of woody material recruitment, clean spawning substrate, and unimpeded migratory access to and from spawning and rearing areas (adapted from Spence *et al.* 1996).

NOAA Fisheries has related the biological requirements for listed salmonids to a number of habitat attributes, or pathways, in the Matrix of Pathways and Indicators (MPI). These pathways (Water Quality, Habitat Access, Habitat Elements, Channel Condition and Dynamics, Flow/Hydrology, Watershed Conditions, Disturbance History, and Riparian Reserves) indirectly measure the baseline biological health of listed salmon populations through the health of their habitat. Specifically, each pathway is made up of a series of individual indicators (*e.g.*, indicators for water quality include temperature, sediment, and chemical contamination) that are measured or described directly. Based on measurement or description, each indicator is classified within a category of the properly functioning condition (PFC) framework: (1) properly functioning, (2) at risk, or (3) not properly functioning. Properly functioning condition is defined as "the sustained presence of natural habitat forming processes in a watershed that are necessary for the long-term survival of the species through the full range of

environmental variation.”

The specific biological requirements affected by the proposed RRMP include food availability and habitat attributes including water quality, flow/hydrology, habitat access, riparian elements and channel condition and dynamics.

2.1.2.2 Environmental Baseline

The environmental baseline represents the current set of basal conditions to which the effects of the proposed action are then added. Environmental baseline is defined as “the past and present impacts of all Federal, state, and private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or informal section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation process” (50 CFR 402.02). The term “action area” is defined as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.”

For the purpose of this consultation, the action area includes all waters throughout the State of Washington within the range of the 12 threatened salmon and steelhead ESUs. The action area may extend upstream or downstream of permitted projects, based on their potential to affect fish passage, riparian succession, the hydrologic cycle, the erosion, transportation, and deposition of sediments, and other ecological processes related to the formation and maintenance of salmon habitats. Indirect effects may occur throughout the watershed where other activities depend on RRMP activities for their justification or usefulness. The major factors influencing the environmental baseline within the action area include: (1) habitat modifications; (2) hatchery practices; and (3) harvest management.

2.1.2.2.1 Habitat. Introduction. The scale of the analysis appears large as the action area includes much of Washington State. However, the effects of underlying routine road maintenance activities are highly repetitive and predictable. To enable an appropriate analysis for intra-agency consultation, programmatic consultation must fact the condition of habitat elements, statewide. NOAA Fisheries summarized status information reported in several documents, including Washington State Department of Natural Resources’ (WDNR) *Changing Our Water Ways: Trends in Washington’s Water Systems* (WDNR 2000), the Washington State Conservation Commission’s (WSCC) *Habitat Limiting Factors Reports* (WSCC 1999 - 2001) and the Regional Road Maintenance Technical Working Group’s *Biological Review of the Regional Road Maintenance ESA Program Guidelines* (RRM-TWG 2001). These documents review the trends affecting aquatic resources statewide.

Declines in the status of salmon and steelhead in Washington State are attributed to myriad factors, including habitat functional quality and amount. Both natural and human-induced activity have contributed to this decline; under formal consultation NOAA Fisheries focuses primarily on human activities.

While human disturbances may have minimal impacts individually, the number, magnitude, duration, and cumulative impacts since Euro-American settlement combine to form the primary cause of the decline of numerous salmon stocks in fresh water. Historical and current human-caused disturbances include: clearing and channelizing rivers, sending logs down streams via splash dams, extensive land clearing, diverting water, livestock grazing in waterways, mining run-off, constructing logging roads and accelerating erosion, removing old growth forests, filling and diking of wetlands and estuaries, armoring shorelines and streambanks, developing hydroelectric dams, creating barriers to fish migration, increasing surface run-off, contaminating water and sediments, introducing non-native plants and animals, changing levels of oxygen and nutrients in waterways and over fishing.

Human activity and development have significant and damaging impacts on the environment, and the growing population indicates increasing pressure on the state's aquatic resources. Washington's population (5.8 million in 2000) is expected to increase by nearly 2 million by the year 2020. Although each watershed is unique, the impacts of development can be grouped into broad categories:

- Interrupting the flow of water
- Alterations to aquatic ecosystems
- Shoreline modifications
- Effects of shipping and transportation
- Pollution

Interrupted flow regime. Today, approximately 1,025 dams obstruct the flow of water in Washington; this number includes any structure that can store 10 or more acre-feet of water. Because dams obstruct the flow of rivers, they change the physical flow of water, resulting in areas that are either drier than normal or flooded. Changing the depth and flow of rivers also affects the water's temperature.

Dams also change the flow of materials carried in river water. They stop the flow of debris, nutrients, sediments, and reduce the size and quality of floodplains. As a result, reservoirs eventually fill with sediments and inadequate amounts of sediments reach the deltas and estuaries. Dams also change the movement of fish migrating between the streams and oceans. In addition to the many dams blocking fish movement, the Washington Department of Fish and Wildlife (WDFW) indicates there is a minimum of 2,400 to 4,000 human-made barriers blocking 3,000 to 4,500 miles of freshwater spawning and rearing habitat for salmon. A recent critique of the Washington State Hydraulic Code estimated that there are approximately 8,800 culvert related barriers blocking over 6,000 miles of habitat. The authors estimated an annual lost opportunity of 10 million adult salmon (Hollowed and Wasserman 2000).

Irrigation projects significantly changed the timing, quantity, and quality of flow in many rivers and tributaries. Flood control dikes and highway construction cut off rivers from their historic flood plains and wetlands, resulting in habitat destruction, changes in stream temperature and nutrient composition alterations. In the Yakima River basin, these changes contributed to the

reduction of historically abundant runs of salmon and steelhead. Today, summer-run chinook, native coho and anadromous sockeye are extinct and spring chinook declined from 9,300 in 1986 to 645 in 1997.

Human impacts and natural events can combine to change the flow of a river. The natural course of a river includes its floodplain. When the East Fork Lewis River was captured by floodplain gravel pits in 1995, it abandoned 1,700 feet of gravel spawning beds, and when captured again in 1996, it abandoned another 3,200 feet.

The availability of water has long been a major issue for all Washington residents, including its aquatic species. Of Washington's 62 Water Resource Inventory Areas (WRIAs), 16 have both an ESA-listed salmon stock and a water supply problem. In addition, about 450 lakes and streams in Washington are partially or completely closed to further withdrawals.

Another issue associated with growth in Washington is increased coverage by impervious surfaces. Impervious surfaces affect the amount of water that seeps into the ground and washes into streams; they also affect how quickly the water gets there. When land is covered with pavement or buildings, the area available for rainwater and snowmelt to seep into the ground and replenish the groundwater is drastically reduced; in many urban areas it is virtually eliminated. The natural movement of water through the ground to usual discharge points such as springs and streams is altered. Instead, the natural flow is replaced by storm sewers or by more concentrated entrance points of water into the ground.

Changing the timing and amount of water run-off can lead to too much water going directly into streams in the rainy months of winter instead of soaking into the ground. Consequently, there is not enough water in the ground to slowly release into streams in the dry months of summer. Too much water in the winter can cause fish habitat to be scoured by unnaturally swift currents; not enough water in streams in the summer leads to water temperatures too high to support fish. Studies show that when impervious surfaces such as pavement and buildings cover between five percent to eight percent of a watershed, the health of streams and the fish in them declines, despite stormwater controls. In the south Puget Sound area, most urban watersheds are 20% to 40% covered with hard surfaces, altering stream flows, water temperatures, and in-stream habitat for everything from insects to fish.

Altered Aquatic Ecosystems. Wetlands improve water quality by filtering out sediments, nutrients, and toxic chemicals. However, research shows that a watershed can withstand having only five percent to eight percent of its land base covered with buildings, roads, and other impervious surfaces before significant changes in wetland functions and stream hydrology begin to occur. Washington has almost two centuries of wetland conversion. Since statehood, Washington has lost 33% of its wetland areas, from 1.4 million acres to 938,000 acres.

Estuary losses have occurred primarily through conversions to farms and cities. In the Skagit Valley, for example, a large majority of the estuary mud flats and flood plain was converted to farmland before the first land surveys of 1889. Nearly 75% of the wetland area was lost before

statehood. Currently less than 3 square miles of tidal estuary wetland remain, a 93% loss.

When tidal flood plains and estuaries are destroyed or significantly disturbed, critical functions are at risk. The vast food source is diminished and silt that is carried along by currents to replenish beaches and nearshore habitat is lost. Replacing estuaries with farms, industry, and cities destroys habitat critically needed by salmon.

Eelgrass, a marine flowering plant, grows low in the intertidal zone and in mud and sand in the shallow subtidal zone. It is critical to salmon recovery efforts because it provides fish a place to hide and evade predators. It also provides food and habitat for salmon prey. Because of where it grows, eelgrass is largely inaccessible and hard to survey. As a result, it is unclear how much eelgrass has disappeared from Puget Sound waters over the past 100 years. However, the historical data that scientists do have suggest that eelgrass beds in Bellingham Bay have declined by about 50% over the past 100 years; a figure fairly consistent throughout its range in Washington.

The amount of dissolved oxygen in water is an important measurement of overall water quality. Areas of Puget Sound are experiencing lower levels of dissolved oxygen. In March 2000, the Puget Sound Water Quality Action Team identified 87 areas in Puget Sound that had problem with low dissolved oxygen. Human actions are the main contributor to depleted oxygen. Excessive fertilizers and nitrogen applied to yards and fields, and fecal matter from septic fields and failing septic systems, contribute pathogens and nutrients that can deplete oxygen. Because there is little historical data on dissolved oxygen concentrations in marine waters, it is difficult to compare the health of Washington's marine waters of today to those of the past. However, based on measurements of dissolved oxygen in the southern part of Hood Canal made in the 1950s and 1960s, today's dissolved oxygen concentrations are lower, more frequently.

The introduction of non-native species has been known to profoundly affect ecosystems by disrupting food webs and displacing native species. Because of a lack of natural predators or competitors, these introduced species can spread rapidly. In 1998, an expedition discovered more than 52 invasive species in Puget Sound. Non-native species are introduced primarily through shipping, aquaculture, research, and aquaria industries. Other tenacious and insidious non-native species that have invaded Washington's waters and aquatic ecosystems include:

- Eurasian Water Milfoil, an aquatic plant found in lakes and slow-moving streams. It can lower dissolved oxygen and increase pH; displace native aquatic plants and increase water temperature.
- Parrotfeather is limited to coastal lakes and streams, the Columbia River, the Chehalis River and private ponds and lakes. The emergent stems shade the water column, eliminating algal growth, which is the basis of the aquatic food web.
- Purple Loosestrife generally grows in marshes, ponds, streambanks, ditches and lake shores. Because it grows so aggressively, large stands take over an area and eventually replace the native plant species, eliminating the natural food and cover essential to native shoreline and

wetland inhabitants.

- Hydrilla roots in lake sediments and grows rapidly under very low light conditions. Hydrilla can fill the water column with vegetation, displacing native fish and wildlife.
- Spartina is a non-native species of intertidal cordgrass. If left uncontrolled, Spartina transforms mud flats into dense, raised meadows, cut by narrow, deep channels. The loss of mud flats, eelgrass, and algae directly affect native fish species that depend on these areas for feeding, spawning and rearing.

Shoreline Modification. Washington has more than 3,000 miles of marine shoreline. When these shorelines are changed or eradicated, intertidal and nearshore habitat is affected or lost, causing significant stress on the salmon that rely on these habitats. Modifications of shorelines include bulkheads, docks, piers, or areas that have been filled or dredged.

Few statistics exist on the extent of freshwater shoreline modification. One lake that has received some attention is Lake Washington, in Seattle. More than 80% of its shoreline has been armored against erosion and over 3,000 residential piers cover approximately 2.5% of the lake's surface. Adverse effects of these shoreline modifications include loss of riparian vegetation, shading of the nearshore aquatic zone, and an increase in attractive refugia for piscivorous birds and fish.

Development of Washington's marine and estuarine shoreline over the past 100 years has created a landscape that is dramatically different from what the first settlers found. About 800 miles of the Puget Sound shoreline have been modified, with 25% of the modifications in the intertidal areas. Up to 52% of the central Puget Sound shoreline and about 35% of the shorelines of Whidbey Island, Hood Canal, and south Puget Sound have been changed or eradicated. To help protect their shoreline property from erosion, many waterfront homeowners construct bulkheads between their land and the beach. Ironically, one consequence of bulkheads is the loss of sand from the beach and beach erosion. The natural process of bluff erosion provides a supply of sand and rocks to the beach. Construction of bulkheads cuts off this supply of beach-building material and prevents the wave's energy from dissipating. A 1998 survey in Puget Sound found that nearly 15% of armored beaches had mostly large rocks and minimal sediment compared to only one percent of unarmored beaches. The loss of sand and pebbles affects small fish that use this habitat for spawning. These small fish form the base of the food chain for larger fish.

The Shoreline Management Act was passed in 1971 to protect the state's shorelines from development impacts. However, since passage of the Act, about 26,000 permits have been issued statewide for substantial shoreline development projects. This number does not include single family homes, which are exempt from the permit process.

Shipping and Transportation. Since the days of early settlement, marine shipping has played a key role in the state's economy, and ports are the critical hub of this waterborne trade. Early dredging, filling, and other alterations of shallow estuarine areas were devastating to the fish that

depended on the habitat as a transition from freshwater to saltwater. Over time, the increased demand for shipping facilities led to more dredging and filling until today an average of 50% of the original wetland habitat in Puget Sound's major bays has been destroyed. Bays near urban centers such as Tacoma and Seattle have less than five percent of their natural intertidal habitat left.

There are 48 ports in Washington's waters. The total tonnage shipped from those ports has increased 60% over the past five decades, and shipping container traffic is expected to double in the next 20 years. Not only are there more ships, but the ships are being built bigger. To accommodate larger ships, ports expand and shipping channels are dredged deeper. Dredging the bottom of bays and rivers displaces plants and animals living there and can stir up contaminated sediments. Dumping dredged materials elsewhere in the water smothers habitat.

In the late 1990s, the Army Corps of Engineers proposed deepening the Columbia River's existing navigation channel to accommodate larger ships. Over the 50-year life of the project, the deeper channel will result in 267 million cubic yards of material which would need to be disposed in the river, in the ocean, or on land. The disposal of dredged material will result in the loss of at least 67 acres of habitat in the river, 200 acres of agricultural land, and 20 acres of wetlands. The dredging project will alter the designated critical habitat of listed salmon, damage prey species stocks, and alter the food web.

Ports expand to accommodate not only more ships, but larger ships as well. The shipping industry continually builds larger ships to carry larger cargo loads. In response, ports enlarge their facilities and deepen their navigation channels so that larger vessels can dock and unload their goods. The larger vessels carry more ballast water, which when dumped into Washington's waters has the potential of introducing non-native species. Increased shipping activity affects more than just the waterfront—it also results in an increased need for overland transportation. More trucks and rail cars are needed to transfer goods to and from ships and inland destinations. Aquatic ecosystems are at risk of becoming polluted by more petroleum-carrying run-off from increased traffic on roads.

Pollutants. Washington is rich in water resources, but there are unseen risks in many of the state's water bodies. Of the 1,099 lakes, streams, and estuaries for which there is data, 643 (59%) are so impaired they do not adequately provide for swimming, fishing or habitat. The main causes of water quality problems are related to human activities, such as farming, failing septic systems, increased erosion along streams, and pollutants added to land and water.

The mud and sand in many places beneath Washington's waters are so contaminated they do not meet state and federal standards. More than 3,000 acres of Puget Sound sediments are so contaminated that federal laws require they be cleaned up. Of the state's 112 contaminated sites identified by the Washington State Department of Ecology, 93 are in saltwater and 19 are in freshwater. Contaminated sediments are detrimental to the health and diversity of aquatic populations.

Declines in Fish. Salmon provide critical links in an entire food web. They transport energy and nutrients between the ocean, estuaries, and freshwater environments, even in death. Recent calculations indicate that only three percent of the marine nutrients once delivered by anadromous salmon to the rivers of Puget Sound, the Washington Coast, and the Columbia River are currently reaching those streams. Researchers surmise this is due to the substantial decline in salmon populations over the past several decades.

The decline in salmon over the past several decades is the result of both natural and human factors. Forestry, agriculture, mining, and urbanization have degraded, simplified, and fragmented habitat. Water diversions for agriculture, flood control, domestic, and hydro power purposes have greatly reduce or eliminated historically accessible habitat. Studies indicate that in most western states, about 80% to 90% of the historic riparian habitat has been eliminated.

Road Maintenance Activities. Current RRMP activities affect peak and base flows in streams as a result of the permanent removal of vegetation, earth clearing work and hydraulic modification work. Runoff of pollutants from roadways and accidental spills in work areas affects water quality indicators, including chemical contamination. Lack of sufficient erosion control measures leave exposed soil susceptible to the erosive forces of flowing water. Excess sediment loading into receiving waterbodies and streams, together with increased turbidity levels impairs gills of fish, smothers eggs, embeds spawning gravels, disrupts feeding and growth patterns of juveniles, delays upstream migration of adults, and scours nutrients from the stream substrate. Maintenance activities near streams disturb fish and causes them to temporarily abandon suitable habitat. The long-term or permanent removal of riparian vegetation has resulted in degraded water quality (*e.g.*, increased water temperature).

Habitat Summary. Although specific habitat concerns differ among watersheds, there are some common findings:

- Adjacent land management practices and direct actions within stream corridors have significantly altered natural stream ecological processes;
- Fine sediment (less than 0.85mm) levels in stream gravels regularly exceed the less-than-12% level identified as representing suitable spawning habitat (USFWS 1999);
- Adequate Large Woody Debris (LWD) is lacking in streams, particularly larger key pieces needed to develop pools, log jams, and other habitat components important to salmonids;
- Adequate pools are lacking for rearing juvenile salmonids and supporting adult salmonids during their upstream migration;
- High rates of channel constrictions and the alteration of natural hydrology further worsens the rate of streambank erosion and substrate instability due to loss of streambank and riparian integrity;

- Riparian function is lost due to removal, or alteration, of natural riparian vegetation. This habitat loss affects water quality, lateral erosion, streambank stability, and instream habitat conditions;
- A significant number of barriers, including culverts, screens, water diversions, and dams, prevent unrestricted upstream and downstream access to juvenile and adult salmonids;
- Dams have altered temperature profiles, inundated spawning habitat, created passage barriers, diminished sediment transport, altered seasonal flow patterns, imparted broad diel flow fluctuations, eliminated lotic channel characteristics, and created habitat for species that prey on or compete with salmonids (Spence *et al.* 1996; Wydoski and Whitney 1979; Tabor *et al.* 1993);
- Heavily development in uplands has altered natural stream hydrology. The threat of similar impacts to streams experiencing current and future development growth;
- Fertilizers, pesticides, petroleum products and other industrial and agricultural contaminants have degraded water quality;
- Altered natural estuaries have significantly affected estuarine and marine functions.

2.1.2.2 Hatcheries. For more than 100 years, hatcheries in the Pacific Northwest have been used to replace natural production lost as a result of hydropower and other development, not to protect and rebuild natural populations. As a result, most salmon populations in this region are primarily hatchery fish. In 1987, for example, 95% of the coho, 70% of the spring-run chinook, 80% of the summer-run chinook, 50% of the fall-run chinook, and 70% of the steelhead returning to the Columbia River basin originated in hatcheries. (CBFWA 1990).

While hatcheries certainly have contributed greatly to the overall numbers of salmon, only recently has the effect of hatcheries on native wild populations been demonstrated. In many cases, these effects have been substantial. For example, production of hatchery fish, among other factors, has contributed to the 90% reduction in wild coho salmon runs in the lower Columbia River over the past 30 years (NMFS 2000a).

NOAA Fisheries has identified four primary categories of risk that hatcheries can pose on wild-run salmon and steelhead: 1) ecological effects; 2) genetic effects; 3) overharvest effects; and 4) masking effects (NMFS 2000a). Ecologically, hatchery fish can increase predation on, displace, and/or compete with wild fish. These effects are likely to occur when fish are released in poor condition and do not migrate to marine waters, but rather remain in the streams for extended rearing periods during which they may prey on or compete with wild fish. Hatchery fish may also transmit hatchery-borne diseases, and hatcheries themselves may release diseases into stream via water effluents.

Genetically, hatchery fish can affect the genetic variability of native fish via interbreeding, either intentionally or accidentally. Interbreeding can also result from the introduction of native stocks from other areas. Theoretically, interbred fish are less adapted to, or productive, within the unique local habitats where the original native stock evolved.

In many areas, hatchery fish provide increased fishery opportunities. When wild fish mix with hatchery stock, fishing pressure can lead to overharvest of smaller or weaker wild stocks. Further, when migrating adult hatchery and wild fish mix on the spawning grounds, the health of the wild runs and the condition of the habitat's ability to support runs can be overestimated, because the hatchery fish mask surveyors' ability to discern actual wild run conditions.

Recent hatchery reforms include supplementation and reintroduction programs conducted to minimize adverse genetic, ecological, and demographic effects on naturally-produced salmonids. Monitoring and evaluation programs have been designed to identify the ecological and genetic effects of hatchery programs listed fish. The role of hatcheries in the future of Washington's salmonids is presently unclear; it will depend on the values people place on fish production and biological diversity. Clearly, conservation of biological diversity is gaining support, and the future role of hatcheries may shift toward judicial use of hatcheries to meet these goals rather than opposing them.

2.1.2.2.3 Harvest. Non-Indian fisheries began in about 1830 with the arrival of European settlers; by 1861, commercial fishing was an important economic activity that developed with the advent of canning technologies. The early commercial fishery used gill nets, seines hauled from shore, traps, and fish wheels. Later, purse seines and trolling (using hook and line) fisheries developed. Recreational (sport fishing) began in the late 1800s, occurring primarily in tributary locations (NMFS 2000a).

Whereas freshwater fisheries in Washington were declining during the first half of the twentieth century, primarily due to high harvest rates, ocean fisheries were growing, particularly after World War II. This trend occurred up and down the West Coast as fisheries with new gear types leapfrogged over the others to gain first access to the migrating salmon runs. Large, mixed-stock fisheries in the ocean gradually supplanted the freshwater fisheries, which were increasingly restricted or eliminated to protect spawning escapements. By 1949, the only freshwater commercial gear types remaining were gill nets, dip nets, and hoop nets (NMFS 2000a). This leapfrogging by various fisheries and gear types resulted in conflicts about harvest allocation and the displacement of one fishery by another. Ocean trolling peaked in the 1950s; recreational fishing peaked in the 1970s. The ocean harvest has declined since the early 1980s as a result of declining fish populations and increased harvest restrictions.

The capacity of salmonids to produce more adults than are needed for spawning offers the potential for sustainable harvest of naturally produced (versus hatchery-produced) fish. This potential can be realized only if two basic management requirements are met: 1) enough adults return to spawn and perpetuate the run, and 2) the productive capacity of the habitat is maintained. Catches may fluctuate in response to such variables as ocean productivity cycles,

periods of drought, and natural disturbance events. However, as long as the two management requirements are met, fishing can be sustained indefinitely. Unfortunately, both prerequisites for sustainable harvest have been violated routinely in the past. The lack of coordinated management across jurisdictions, combined with competitive economic pressures to increase catches or to sustain them in periods of lower production, resulted in harvests that were too high and escapements that were too low. At the same time, habitat has been increasingly degraded, reducing the capacity of the salmon stocks to produce numbers in excess of their spawning escapement requirements.

For years, the response to declining catches was hatchery construction to produce more fish. Because hatcheries require fewer adults to sustain their production, harvest rates in the fisheries were allowed to remain high, or even increase, further exacerbating the effects of overfishing on the naturally produced (non-hatchery) runs mixed in the same fisheries. More recently, harvest managers have instituted reforms including weak stock, abundance based, harvest rate, and escapement-goal management.

2.1.2.2.4 Natural Conditions. Changes in the abundance of salmonid populations are substantially affected by changes in the freshwater and marine environments. For example, large-scale climatic regimes, such as El Niño, affect changes in ocean productivity. Much of the Pacific Coast was subject to a series of very dry years during the first part of the 1990s. In more recent years, severe flooding has adversely affected some stocks.

Salmon and steelhead are exposed to high rates of natural predation, particularly during freshwater rearing and migration stages. Ocean predation may also contribute to significant natural mortality, although the levels of predation are largely unknown. In general, salmonids are prey for pelagic fishes, birds, and marine mammals, including harbor seals, and killer whales. There have been recent concerns that the rebound of seal and sea lion populations, following their protection under the Marine Mammal Protection Act of 1972, has resulted in substantial mortality for salmonids.

A key factor substantially affecting many West Coast stocks has been the general pattern of a 30-year decline in ocean productivity. The mechanism whereby stocks are affected is not well understood. The pattern of response to these changing ocean conditions has differed among stocks, presumably due to differences in their ocean timing and distribution. It is presumed that survival is driven largely by events occurring between ocean entry and recruitment to a subadult life stage. Time-series of survival rate information for UWR spring chinook, Lewis River fall-run chinook, and Skagit fall-run chinook salmon show highly variable or declining trends in early ocean survival, with very low survival rates in recent years (NMFS 2000a).

Recent evidence suggests that marine survival of salmonids fluctuates in response to 20- to 30-year cycles of climatic conditions and ocean productivity (Cramer *et al.* 1999). This phenomenon has been referred to as the Pacific Decadal Oscillation. Ocean conditions that affect the productivity of Washington salmonid populations appear to have been in a low phase of the cycle for some time and to have been an important contributor to the decline of many

stocks. The survival and recovery of these species will depend on their ability to persist through periods of low natural survival.

Additional detailed information regarding the status of the species and factors affecting the species environment within the action area can be found in various recent NMFS and NOAA Fisheries Opinions on artificial propagation, harvest, and habitat activities. Additional sources of baseline information include NMFS and NOAA Fisheries status reports, Washington Conservation Commission's *Limiting Factors Reports*, and WDFW/tribal harvest management plans.

2.1.2.2.5 Environmental Baseline Summary. Notwithstanding improvements in hatchery, harvest and habitat management practices, environmental conditions in the action area are still generally poor with respect to salmonid survival in a number of their life stages. In fact, for many stocks, survival must improve by an order of magnitude in order for the ESUs to survive and recover. Smolt-to-adult return rates in 1998 for SR spring/summer-run chinook, for example, were less than one-half of one percent – about one-tenth the rate needed for sustainability (NMFS 2000a). The continuous and cumulative reduction in habitat productive capacity has influenced the ability of the 12 threatened species to recover by reducing population resiliency and lowering survival rates. Improvement in habitat, hatchery and harvest conditions over those currently available under the environmental baseline is needed to meet the biological requirements for survival and recovery of these species. Permanent degradation of these conditions would have a significant impact due to the amount of risk they presently face under the environmental baseline. As analyzed below, the intent of the RRMP is to address some of the identified habitat limiting factors.

2.1.3 Analysis of Effects

NOAA Fisheries' ESA implementing regulations define "effects of the action" as "the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline." Direct effects are immediate effects of the project on the species or its habitat, and indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur (50 CFR 402.02).

The RRMP is a conservative program consisting of specific approaches to conducting routine road maintenance activities, complemented by a suite of Program Elements to ensure that road maintenance activities protect salmonids. The State of Washington and local road maintenance agencies that will use the RRMP will be effectively changing their road maintenance activities to meet the ecological needs of listed salmonids, to the extent that routine road maintenance activities affect those needs. Nevertheless, road maintenance activities might affect elements of the environment in ways that have implications for listed salmonids. These effects are described below.

2.1.3.1 Road Maintenance Activities

A complete application package for qualification under 4(d) Limit No. (10)(ii) includes a number of required items, including a description of the manner in which the activities may affect listed species or critical habitat, and an analysis of the effects of the program on those species and habitats, including short-term and long-term effects, indirect and cumulative effects. To determine the effects of the RRMP on listed salmonids, the Biological Subcommittee of the 25 jurisdictions prepared a Biological Review (BR) (RRM-TWG 2001), using a modified version of NOAA Fisheries' Matrix of Pathways and Indicators (MPI). The MPI identifies six conceptual pathways (*e.g.*, water quality, channel condition) of 18 habitat condition indicators (water temperature, width/depth ratio) for determining the effect of an action. The Biological Subcommittee consulted with NOAA Fisheries during the preparation of the BR. NOAA Fisheries agrees with the conclusions drawn in the BR.

In addition to a traditional effects analysis, the BR contains several tables (BR Tables 23 and 24) (RRM-TWG 2001) to serve as visual aids in comparing the effects of road maintenance activities in compliance with the RRMP to road maintenance work without implementation of the RRMP. The Tables use MPI indicator criteria to determine whether an RRMP-compliant activity restores, degrades, or is not likely to adversely affect (NLAA) baseline indicators.

The RRMP intends to address many of the typical ways road maintenance activities could adversely affect listed species. These include effects on (a) water quality; (b) changes in channel conditions and dynamics; (c) alteration of stream flows; (d) shifts in watershed condition; and (e) direct harm to salmon and steelhead by altering development, bioenergetics, growth, and behavior. Without the RRMP, these impacts would occur during earthwork, hydraulic modifications, vegetation modifications, asphalt and concrete paving, and fish exclusion activities. Even with the RRMP, effects from these activities remains a possibility (although they would be specifically addressed by the RRMP program), and thus they are described below.

Clearing, Drilling, Excavating, Filling, Grading, Grubbing, Cleaning, Grinding, and Cutting. These activities include all work necessary to maintain roadways, streambanks, roadside ditches, culverts, catch basins, inlets, and detention/retention basins. This type of work is likely to have beneficial effects; cleaning out sediment and debris from drainage systems provides benefits to salmon habitat by preventing pollutants and sediments entrapped in stormwater facilities from entering surface or groundwater. There remains a possibility that these activities can also have adverse water quality impacts, directly effecting aquatic species. These impacts occur through the generation of sediments and side casting of windborne dust and paint particles. Clearing ditches, culverts, and drainage systems and grading shoulders can dislodge sediments and expose soils, allowing an increase of sediment transport during storm events. Because stormwater conveyance systems often discharge into salmon habitat, the resultant temporary increase of sediment loads can adversely affect water quality in fish-bearing waters. Excess sediment loading and turbidity levels can clog gills of fish, smother eggs, embed spawning gravels, disrupt feeding and growth patterns of juveniles, delay up-stream migration of adults, and scour nutrients from the stream substrate (Burton *et. al* 1990 and WSCC 1999).

Earth surface and cleaning activities near streams can disturb fish and cause them to abandon suitable habitat. These activities can have noise levels above ambient conditions or increase light at night. Detour routes may result in concentrated traffic volumes and increased access to aquatic habitat that may affect salmon. The use of gas and diesel powered equipment creates a potential for accidental spills of substances toxic to fish. Removal of riparian vegetation occurring from grading at storm outfalls and during the removal of debris can affect prey resources, reduce cover habitat, reduce LWD recruitment, increase sedimentation, and increase water temperature.

On balance, the RRMP addresses these issues both through activity specific BMPs, and through the general Program Elements (see section 2.1.3.2 below).

Shore Defense Works. Most shore defense road maintenance work involves repair or replacement of existing bank stabilizing structures. New structures designed to armor streambanks are part of Capital Improvement Projects (CIP) and outside the scope of the RRMP. Most CIP bank stabilization projects require a U.S. Army Corps of Engineers permit, thus triggering ESA section 7 consultation with NOAA Fisheries. In general terms, however, hardened embankments simplify stream channels, alter hydraulic processes, and prevent natural channel adjustments (reduced sinuosity) (Spence *et al.* 1996). Bank hardening can cause an increase in stream velocities that contribute to channel incision and streambank failure. It can also potentially hinder localized water exchange processes (*i.e.*, hyporheic-surface water exchange) and floodplain connectivity within the small area adjacent to the project site. As amplified erosive forces attack different locations and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking complexity and function in riparian and near shore habitats (COE 1977). Maintenance requirements in these streamside settings may be intermittent, but typically the presence of hardened banks transfers stream energy and shifts erosion points – leading to perpetual maintenance requirements upstream and downstream of the armored bank.

The effects of increased sediment disturbance, riparian vegetation modification, spills of toxic substances from gas- and diesel-powered equipment, and increased noise from shore defense road maintenance work are expected to be similar to those described in the earthworks section, above.

Channelization or Ditching. Regular channelization or ditching maintenance in or adjacent to watercourses and streams is required to remove built-up sediments, debris or blockages, and to maintain capacity. Channelization and ditching can result in the alteration or loss of salmon habitat through the removal of snags and trees that could function as future LWD recruitment. These activities may also degrade hydrogeomorphology, wetlands, riparian vegetation, erosion/deposition balance, soils and water quality, and may affect the creation of critical off-channel habitat. Instream gravel bars can move due to changes in hydrodynamics, resulting in fewer meanders and reduced quantities of gravel for spawning habitat. Juvenile fish that may be rearing in the vicinity would most likely be displaced during maintenance work. The effects to

salmonids of increased sediment disturbance, riparian vegetation modification, spills of toxic substances from gas- and diesel-powered equipment, and increased noise are expected to be similar to those described in the earthworks section, above.

Removal of Large Woody Debris. The LWD will be removed only when and where there is a safety hazard, such as debris build-up against bridge abutments. Removal activities can cause an increase of turbidity, sediment, gravel, rocks, nutrients, bacteria, oxygen demanding materials, heavy metals, petroleum hydrocarbons, synthetic organics and other solids. Excess sediment loading and high turbidity levels can impact redds by smothering eggs with fine sediments and reduced water circulation. Removal of LWD can affect all life history stages of salmonids as a result of excess sediment loading and high turbidity levels. Fish could be impacted by sub-lethal conditions, including the disruption of feeding, attenuated growth patterns of juveniles, or delaying the upstream migration of adults. The LWD removal may also change a stream's hydrology, with effects similar to those identified in the preceding sections.

Work Area Isolation, Temporary Water Diversions and Fish Exclusion. Road maintenance activities frequently require work within streams that contain salmonids. Some of these activities require a site to be temporarily dewatered. Although work area isolation techniques can temporarily prevent usage of the work area by listed salmonids, these techniques also decrease or avoid the exposure of listed fish to the effects of construction activities in the work area. In fact, in such cases, work area isolation and fish removal will be necessary. Road maintenance activities that may require fish exclusion actions include work on open drainage systems, watercourses and streams (e.g., sediment removal), culvert repairs, bridges, and emergency slide/washout repairs.

Work area isolation is a conservation measure intended to reduce the exposure of listed fish adverse effects of erosion and runoff on aquatic life. However, diversions, isolation, and exclusion can significantly impact listed fish in the area. Water diversion and temporary structure work creates a physical barrier to migrating salmon. Maintenance work on diversion structures could result in increases in sediment disturbance, riparian vegetation modification, spills of toxic substances from gas- and diesel-powered equipment, and increased noise are similar to those described in the earthworks section, above, resulting in similar effects to salmonids as identified in the preceding sections. Additionally, improper placement of equipment in or around riparian habitat may erode streambanks.

Electrofishing is one means of fish capture. It is employed when other methods prove ineffective and may not be recommended in all situations. Its use will be determined through permit requirements and/or site conditions, as prescribed in the RRMP's Fish Exclusion Protocol (Appendix E of the RRMP). This protocol is based on NOAA Fisheries' Guidelines for Electrofishing Waters Containing Salmonids Under the Endangered Species Act (NMFS 2000b). Although the practice is potentially hard on fish, electrofishing is intended to locate residual fish in the isolated work area to reduce incidental take.

Electrofishing is a process by which an electrical current is passed through water containing fish in order to stun them—thus making them easy to capture. It can cause a suite of effects ranging from simple harassment to actually killing the fish. The amount of unintentional mortality attributable to electrofishing may vary widely depending on the equipment used, the settings on the equipment, and the expertise of the technician. Electrofishing can have severe effects on adult salmonids and will be limited to the direct and indirect effects of exposure to an electric field, capture by netting, holding captured fish in aerated tanks, and the effects of handling associated with transferring the fish back to the river. Physical injuries from electrofishing include internal hemorrhaging, spinal misalignment, or fractured vertebrae.

The primary contributing factors to stress and death from fish exclusion activities are excessive doses of anesthetic, improper electrofishing techniques, differences in water temperatures (between the river and wherever the fish are held), dissolved oxygen conditions, the amount of time that fish are held out of the water, and physical trauma. It is also common that re-introduction of the stream to a newly constructed project will temporarily increase turbidity downstream.

Vegetation Modification: The primary purpose of vegetation maintenance is to promote, maintain, sustain, manage, or encourage vegetation growth within the Right of Way (ROW) to comply with a variety of regulations and standards. Activities include suppressing non-desirable vegetation and enhancing desirable vegetation. Short- and long-term vegetation modifications may occur during routine maintenance of open and closed drainage systems, watercourses and streams, stream crossings, bridges, and emergency washout repairs. The removal of vegetation adjacent to watercourses or streams may impact water quality and various habitat elements. Vegetation removal may contribute to a decrease in stream sinuosity and complexity, resulting in the degradation of hydrogeomorphology. It can also decrease refuge and rearing habitat for macroinvertebrates, and increase the water temperature of the immediate area.

Pesticide Applications: The RRMP's Vegetation Management Maintenance category allows for the application of chemicals (herbicides and pesticides), and describes the manner and location in which applications may occur. BMPs are included in the RRMP to ensure that agencies electing to use herbicides and pesticides as part of their vegetation management program do so appropriately. NOAA Fisheries does not believe that there is currently sufficient information available to ensure that such chemical applications are not creating sublethal affects to listed species. NOAA Fisheries is currently working with Federal Agencies on an appropriate monitoring regimen to investigate the fate and transport of chemicals applied during a variety of activities. The monitoring intensity is beyond the scope of the RRMP; therefore NOAA Fisheries is not providing consultation, nor take authorization, on any road maintenance activities that propose the application of chemicals, herbicides or pesticides.

Addition of Impervious Surfaces: Generally, significant increases in impervious surface area within the ROW do not fall under the definition of maintenance. Projects that increase impervious surface area are usually part of roadway CIPs, and typically are federally funded or permitted. Roadway CIPs are not addressed by the RRMP and are not covered by this

consultation. The Federal nexus requires a separate ESA section 7 consultation. Under some circumstances, however, maintenance activities add impervious surface for safety reasons, rather than to add capacity. New impervious surface associated with maintenance work can result in increased levels of heavy metals, hydrocarbons, and other pollutants. Impervious surfaces can also increase water temperature by reducing shaded conditions, and by increasing solar exposure to surface water that would otherwise infiltrate or remain shaded beneath vegetation. New impervious surface area near streams can cause impacts to riparian vegetation, resulting in reduced cover for fish, a reduction in prey species, increased water temperature, and water quality degradation. RRMP actions that increase flows, such as increases in impervious surfaces, can disturb gravel in salmon or steelhead redds and can also agitate or dislodge developing young and cause their damage or loss. Similarly, actions that reduce subsurface or surface flows, reduce shade, deposit silt in streams, or otherwise reduce the velocity, temperature, or oxygen concentration of surface water as it cycles through a redd can adversely affect the survival, timing, and size of emerging fry.

2.1.3.2 Integrated Minimization Measures

The RRMP is a program that focuses on achieving desired environmental outcomes while providing jurisdictions maximum flexibility in responding to changing conditions at the worksite. Conservation outcomes of the RRMP fall into the following general categories: sediment collection, worksite pollutant containment, blockage removal, restoration of flow velocities and volumes, removal of fish passage barriers, revegetation, infiltration, prevention of utility leaks, and addressing chronic maintenance problems.

- *Sediment Collection:* Containment of sediment/pollutants maintains or restores the sediment collection process by removing sediments from many collection points in the drainage system (e.g., catch basins, maintenance holes, retention/detention facilities, pipes, inlets, and vaults). Proper maintenance of the ROW structure also protects against collapse or failure of the structure, which could result in significant sediment releases to aquatic habitat.
- *Worksite Pollutant Containment:* Many RRMP BMPs involve containment of sediment and other pollutants at the worksite. Similar to collection and removal of sediments and other pollutants from the ROW structure, containing loose soils, sediment, and other pollutants on the worksite reduces the amount of pollutants that can reach aquatic habitat. A critical component of worksite pollutant containment in the RRMP is an effectiveness monitoring BMP.
- *Blockage Removal:* The timely removal of drainage system blockages reduces the potential for sediment, turbidity, offsite erosion and debris to adversely affect fish habitat. Blockage removal also reduces the likelihood of system failure, which can have significant adverse habitat effects. BMPs used during this type of work achieve the same objectives as those identified in Sediment Collection and Worksite Pollutant Containment above.

- *Restoration of Flow Velocities and Volumes:* Maintaining or restoring flow velocities and volumes required for health aquatic habitat is an important conservation outcome that is spelled out in a number of maintenance categories involving drainage system maintenance. The RRMP requires appropriate system design for system repair or replacement, appropriate maintenance of existing systems, and removal of sediment or blockages.
- *Removal of Fish Passage Barriers:* When performing stream crossing maintenance activities, the RRMP prescribes the removal of fish passage barriers. All fish passage work requires adherence to all Federal, state and local permit and regulatory requirements.
- *Revegetation:* The RRMP specifies the need for revegetation of disturbed areas to reduce erosion and sediment transport. Revegetation provides biofiltration, shading, and bank stabilization in riparian areas. It also promotes macroinvertebrate population growth, lowers herbicide use, and suppresses non-desirable vegetation.
- *Infiltration:* The RRMP specified the maximization of opportunities for increased infiltration and biofiltration. Cleaning and maintaining roadway shoulders and grass-line ditches improves infiltration.
- *Prevention of Utility Leaks:* Maintenance of water and sewer systems prevents increased flow volumes and velocities, severe erosion, and the introduction of pollutants caused by breaks, leaks and malfunctions.
- *Addressing Chronic Maintenance Problems:* To reduce the number of chronic maintenance problems that contribute to habitat degradation, the RRMP commits implementing agencies to refer chronic maintenance and habitat problems to agency-specific capital improvement programs.

The potential adverse effects of the RRMP are avoided and minimized by these conservation measures designed to achieve the RRMPs conservation outcomes. With implementation of the conservation measures, most RRMP activities fall into the “restore” and “NLAA” categories.

Among the various Federal, state, and local regulations or ordinances with which road maintenance agencies must already comply, the RRMP relies on the value of Washington State’s Hydraulics Code (Revised Code of Washington (RCW) Chapter 77.55) as contributing to protecting ecological resources important to listed salmonids. Specifically, certain in-water activities carried out under the RRMP require review by the WDFW and compliance with any Hydraulics Project Approval (HPA) permits issued by the WDFW upon such review.

NOAA Fisheries has not formally evaluated the Hydraulics Code for the purpose of issuing general ESA assurances for projects conducted under the State of Washington’s HPA Program. However, NOAA Fisheries has reviewed and assessed HPAs program for the limited purpose of

determining the adequacy of the HPAs issued for routine road maintenance activities in contributing to the protection of listed salmonids (attached to this Biological Opinion (Opinion) as Appendix A). To make this determination, NOAA Fisheries reviewed the Hydraulic Code, the existing rules for administration of the HPA (Washington Administrative Code (WAC) Chapter 222-110), the WDFW HPA manual (1998), the WDFW document "*Hydraulic Project Approvals—Basics and How to Process*" (2002), the WDFW *Mitigation Policy* (1999), WDFW technical resources, and WDFW's February 22, 2002 comments to NOAA Fisheries regarding the proposed 4(d) limit for the RRMP. In addition, NOAA Fisheries reviewed two statewide general maintenance HPAs, and 52 individual HPAs provided by WDFW for typical road maintenance activities.

In the review of the above-listed material, NOAA Fisheries considered the adequacy in protecting listed salmonids affected by routine maintenance activities in the context of the specific actions for which the HPAs were issued. Based on that review, and for the limited purpose of conducting this consultation, NOAA Fisheries concluded that the HPA permitting program established in Washington State law and regulation would adequately protect resources meeting the ecological needs of threatened salmonids in the context of routine road maintenance activities undertaken by RRMP participants.

Similar to other BMPs in the RRMP, the HPA process will be monitored under the RRMP's adaptive management program (see below). Additionally, the collection of listed salmonids requires a special permit from the WDFW, which in turn requires possession of an ESA section 10(a)(1)(a) permit. Although most jurisdictions have their own section 10(a)(1)(a) permit, some jurisdictions do not, in which case a WDFW Biologist does the collection work. The WDFW staff are covered by a NOAA Fisheries section 10(a)(1)(a) permit issued to WDFW. In-water work restrictions, including seasonal construction restrictions, are often included in HPAs.

In addition to the required compliance with numerous Federal, state and local regulations, 54 other BMPs are proposed in the RRMP to minimize worksite pollutants, restore and maintain surface water drainage, reduce turbidity and reduce sediments from entering watercourses and streams. Examples of BMPs include worksite containment of sediments and contaminants, restoration of flow velocities and volumes, stormwater infiltration, fish barrier removal, prevention of utility leaks, identification and referral of chronic maintenance problems, bioengineering, native revegetation, and LWD replacement. Furthermore, the RRMP requires adherence to the conservation measures described in Appendix E of the RRMP. The measures in Appendix E include specially developed fish exclusion and electrofishing guidance, based on NOAA Fisheries' electrofishing guidelines (NMFS 2000b).

Despite the outcome-based approach, the BMPs may not be fully effective at achieving the conservation outcomes and some RRMP activities could continue to adversely affect salmonids. In a general sense, BMPs are only as effective as their selection, installation, maintenance, monitoring and staff training. Without effective BMP implementation, road maintenance activities such as vegetation management, hydraulic modification, and excavation could adversely affect water temperature, increase sediment mobilization, decrease pool frequency and

quality, and reduce floodplain connectivity. However, these impacts are expected to be short-term and minor in scale.

To overcome the possibility of the ineffective use of BMPs, the RRMP includes nine mandatory Program Elements (in addition to Program Element 10 - BMPs and Conservation Outcomes) to minimize the risk of adverse impacts from routine road maintenance activities. The nine Program Elements form an integrated process of training, monitoring, and adaptive management that tracks the effectiveness of the BMPs in achieving the RRMP's conservation outcomes. The Program Elements include the Regional Forum, training, monitoring, scientific research, adaptive management, and reporting.

- *Regional Forum.* Each jurisdiction receiving a limit to the 4(d) take prohibition by means of the RRMP will be required to participate in the Regional Forum. The Regional Forum will meet quarterly to share information and experiences that could lead to improvement of the RRMP. Information shared will include crew experiences implementing BMPs, discovery of new products and BMPs, results of scientific research, and feedback on training.
- *Training.* The specially designed RRMP training program will provide crew members and supervisors appropriate training in when to use BMPs and recognizing problems with BMPs. Engineering and environmental support staff will be trained to ensure that potential technical problems are addressed in the planning stages of projects that require design or environmental support. NOAA Fisheries will approve the training.
- *Monitoring.* Each local jurisdiction will establish a formal monitoring program for monitoring compliance and effectiveness of BMP outcomes during the course of maintenance activities and after work is completed, if necessary. If problems occur, BMPs will be modified or added to achieve the RRMPs conservation outcomes.
- *Scientific Research.* A program of field studies and literature searches will evaluate and improve the effectiveness and selection of various BMPs.
- *Adaptive Management.* The RRMP jurisdictions have committed to developing an adaptive management process to be implemented at the local and regional levels. The adaptive management process provides for learning from experience and for reducing uncertainty through scientific research. Local ESA teams and the Regional Forum will gather and evaluate information during the course of maintenance activities, BMP implementation, monitoring, and scientific research. Both the RRMP itself, and its implementation by local jurisdictions, will be modified as necessary to achieve its conservation objectives.
- *Reports.* NOAA Fisheries will receive a biennial report from the Regional Forum. The reports will include a review of the ten program elements, updates on research, recommended BMP changes, and recommended updates on each program element.

As an additional level of assurance, Limit No. 10 of the 4(d) rule (July 10, 2000, 65 FR 42422) authorizes NOAA Fisheries to periodically evaluate a qualified road maintenance program for its effectiveness in maintaining and achieving habitat function that provides for conservation of the listed salmonids. Whenever warranted, NOAA Fisheries will identify to the local jurisdictions ways in which the program needs to be altered or strengthened. Changes may be identified if the program is not protecting desired habitat functions, or where even with the habitat characteristics and functions originally targeted, habitat is not supporting population productivity levels needed to conserve the listed species. If any jurisdiction covered by Limit No. 10 does not make changes to respond adequately to the new information in the shortest amount of time feasible, but not longer than one year, NOAA Fisheries will publish notification in the Federal Register announcing its intention to withdraw the limit so that take prohibitions would then apply to the program as to all other activity not within a limit.

2.1.4 Effects on Critical Habitat

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage.

Critical habitat has been designated for three of the 15 species addressed in this Opinion: SR fall-run chinook (December 28, 1993, 58 FR 68543), SR spring/summer-run chinook (December 28, 1993, 58 FR 68543, updated October 25, 1999, 64 FR 57399), and SR sockeye (November 20, 1999, 58 FR 58619). Using NOAA Fisheries' Habitat Approach (NMFS 1999) as a surrogate for estimating fish mortality, this Opinion identified and analyzed the extent of project effects on habitat salmon need to express certain essential behavior patterns. The effects of the RRMP to designated critical habitat are expected to be the same as those described in section 2.3, above.

2.1.5 Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Opinion. Future Federal actions unrelated to this action, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate ESA section 7 consultation processes and are not considered in this section.

A number of reasonably foreseeable non-Federal resource management strategies will affect listed ESUs and their habitat within the action area. Tribal, state, and local government actions are likely to be in the form of legislation, administrative rules, or policy initiatives. These actions may include changes to land use patterns and water use allocations, which can affect the intensity and location of these across the action area. There are uncertainties related to the implementation of these government actions due to budget and policy constraints, which when

taken into account over a wide geographic area, makes this cumulative effects analysis difficult. A general description of the primary Tribal, state, and local programs is summarized in Table 17 of the Environmental Assessment for the RRMP (NOAA Fisheries 2003, in publication).

These activities affecting listed salmonids activities within the action area are expected to increase with a projected increase in population of nearly 2 million people by the year 2020 (WDNR 2000). Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, but at increasingly higher levels as population density climbs.

The RRMP could have minor impacts and short-term negative effects associated with listed salmonids and aquatic habitat. These reach-scale effects may be minor on an individual basis, however, their cumulative effect could potentially be negative for a short period of time. Alternatively, the cumulative impact of the RRMP at the watershed scale may have minor beneficial effects because of reasonably foreseeable Tribal, state, local and private plans, policies, and programs aimed at benefitting water quantity and quality, fish passage, shoreline and fish habitat conditions. Tribal, state, and local plans, programs, and activities include water quality and pollution control, streamflow enhancement, watershed planning, environmental land use planning and zoning, shoreline protection, and habitat conservation plans (NOAA Fisheries 2003, in publication).

2.1.6 Conclusion

NOAA Fisheries has reviewed the direct, indirect, and cumulative effects of the proposed action on the 12 threatened species. NOAA Fisheries evaluated these effects in light of existing conditions in the action area, the measures included in the action to minimize the risk of effects, and the significant oversight authority of NOAA Fisheries provided in the 4(d) Rule. The proposed action may cause short-term adverse effects on listed species by temporarily increasing sedimentation rates, water temperatures, and flows; decreasing dissolved oxygen and fish passage; and by collecting, removing and transporting fish during fish exclusion activities. Long-term ecosystem effects of the RRMP include changes in the complexity of their habitat, periodic changes to primary and secondary production (food web effects), and changes in hydrodynamics and sedimentology.

These effects are reasonably certain to result in incidental take, but the extent of harm is likely to be minimized by specific measures included in the action. Additionally, the RRMP's 10 Program Elements and NOAA Fisheries' oversight role shall provide for constant improvements to routine road maintenance practices in Washington State. Thus, the proposed actions would not reduce pre-spawning survival, egg-to-smolt survival, or survival during upstream or downstream migration to a level that would appreciably diminish the likelihood of survival and recovery of proposed or listed fishes. Consequently, it is NOAA Fisheries' Opinion that the proposed action is not likely to jeopardize the continued existence of these species. Nor is the project likely to destroy or adversely modify designated critical habitat for the SR fall-run chinook salmon, SR spring/summer-run chinook salmon or SR sockeye salmon. At this time, no critical habitat is designated for the other 12 listed salmonid species in the action area.

2.1.7 Reinitiation of Consultation

This concludes formal consultation on NOAA Fisheries' proposed qualification of the RRMP. As provided in 50 CFR section 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an affect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Additional reinitiation requirements, including re-evaluation and modification requirements, are set forth in the RRMP and in Limit No. 10 of the 4(d) Rule (July 2000), which are incorporated herein.

2.2 Incidental Take Statement

Where NOAA Fisheries approves a 4(d) Limit, there is no take liability for threatened species, and so there is no need of a take exemption through ESA section 7(o). The 4(d) Rule specifically excludes endangered species from its limits on the application of the ESA section 9(a)(1) take prohibitions. NOAA Fisheries, therefore is not extending 4(d) Limit No. 10 coverage to RRMP activities within the delineated geographic boundaries of the three endangered ESUs. The three endangered salmonids (UCR spring-run chinook salmon, UCR steelhead, and SR sockeye salmon) migrate outside the geographic boundaries of their ESUs, through a portion of the RRMP's action area. NOAA Fisheries conducted a separate assessment on these species and concluded that the effects of RRMP activities (primarily conducted in tributary watersheds) on endangered salmonids migrating through the middle and lower mainstem Columbia River would likely be insignificant or discountable and thus not be likely to adversely affect the UCR spring-run chinook salmon, UCR steelhead, or SR sockeye salmon. Thus, there is no need of a take exemption through ESA section 7(o) for the endangered species, either.

3.0 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (section 305(b)(2));
- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (section 305(b)(4)(A));
- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (section 305(b)(4)(B)).

Essential Fish Habitat means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA section 3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

Essential Fish Habitat consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies regarding any activity that may adversely affect EFH, regardless of its location.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and the upriver extent of saltwater intrusion in river mouths, along the

coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions.

3.3 Proposed Actions

The proposed action and action area are detailed above in Section 1.2 of this document. Routine road maintenance activities conducted in accordance with the RRMP and occurring outside the geographic boundaries of ESA ESUs, but within designated EFH (e.g., the Chehalis River basin), are covered by this MSA consultation. The exceptions (*i.e.*, not covered by this MSA consultation) are activities occurring within the geographic boundaries of the UCR spring-run chinook salmon, UCR steelhead, and SR sockeye salmon. The action area includes habitats that have been designated as EFH for various life-history stages of 47 species of groundfish, 5 coastal pelagic species, and 3 species of Pacific salmon (Table 2).

3.4 Effects of Proposed Action

As described in detail in Section 2.1.3.1 of this Opinion, the proposed action may result in short-term adverse effects to a variety of habitat parameters. The RRMP and its Biological Review clearly identify anticipated impacts to affected species likely to result from the proposed activities and the measures that are necessary and appropriate to minimize those impacts. These effects include delivery of sediments to streams through routine road maintenance activities, vegetation removal, loss of LWD, and hydraulic modifications.

Table 2. Fish species with designated EFH in Washington State.

Groundfish Species	redstripe rockfish <i>S. proriger</i>	English sole <i>Parophrys vetulus</i>
soupin shark <i>Galeorhinus galeus</i>	rosethorn rockfish <i>S. helvomaculatus</i>	flathead sole <i>Hippoglossoides elassodon</i>
spiny dogfish <i>Squalus acanthias</i>	rosy rockfish <i>S. rosaceus</i>	petrale sole <i>Eopsetta jordani</i>
big skate <i>Raja binoculata</i>	rougheye rockfish <i>S. aleutianus</i>	rex sole <i>Glyptocephalus zachirus</i>
California skate <i>Raja inornata</i>	sharpchin rockfish <i>S. zacentrus</i>	rock sole <i>Lepidopsetta bilineata</i>
longnose skate <i>Raja rhina</i>	splitnose rockfish <i>S. diploproa</i>	sand sole <i>Psettichthys melanostictus</i>
ratfish <i>Hydrolagus colliei</i>	striptail rockfish <i>S. saxicola</i>	starry flounder <i>Platichthys stellatus</i>
Pacific cod <i>Gadus macrocephalus</i>	tiger rockfish <i>S. nigrocinctus</i>	arrowtooth flounder <i>Atheresthes stomias</i>
Pacific whiting (hake) <i>Merluccius productus</i>	vermilion rockfish <i>S. miniatus</i>	
black rockfish <i>Sebastes melanops</i>	yelloweye rockfish <i>S. ruberrimus</i>	Coastal Pelagic Species
bocaccio <i>S. paucispinis</i>	yellowtail rockfish <i>S. flavidus</i>	jack mackerel <i>Trachurus symmetricus</i>
brown rockfish <i>S. auriculatus</i>	shortspine thornyhead <i>Sebastolobus alascanus</i>	anchovy <i>Engraulis mordax</i>
canary rockfish <i>S. pinniger</i>	cabezon <i>Scorpaenichthys marmoratus</i>	Pacific sardine <i>Sardinops sagax</i>
China rockfish <i>S. nebulosus</i>	lingcod <i>Ophiodon elongatus</i>	Pacific mackerel <i>Scomber japonicus</i>
copper rockfish <i>S. caurinus</i>	kelp greenling <i>Hexagrammos decagrammus</i>	market squid <i>Loligo opalescens</i>
darkblotch rockfish <i>S. crameri</i>	sablefish <i>Anoplopoma fimbria</i>	
greenstriped rockfish <i>S. elongatus</i>	Pacific sanddab <i>Citharichthys sordidus</i>	Pacific Salmon Species
Pacific ocean perch <i>S. alutus</i>	butter sole <i>Isopsetta isolepis</i>	chinook salmon <i>Oncorhynchus tshawytscha</i>
quillback rockfish <i>S. maliger</i>	curlfin sole <i>Pleuronichthys decurrens</i>	coho salmon <i>O. kisutch</i>
redbanded rockfish <i>S. babcocki</i>	Dover sole <i>Microstomus pacificus</i>	Puget Sound pink salmon <i>O. gorbuscha</i>

3.5 Conclusion

NOAA Fisheries concludes that the proposed action would adversely affect the EFH for the groundfish, coastal pelagic, and Pacific salmon species listed in Table 1.

3.6 Essential Fish Habitat Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. NOAA Fisheries understands that the conservation measures described in the RRMP will be implemented by the jurisdictions approved under Limit No. 10(ii). Furthermore, it believes that these measures are sufficient to address the adverse impacts to EFH described above.

3.7 Statutory Response Requirement

Pursuant to the MSA (section 305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

NOAA Fisheries must reinitiate EFH consultation with itself if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR. 600.920(l)).

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NOAA FISHERIES
WASHINGTON HABITAT BRANCH

May 27, 2003

TO: Steve Landino

FROM: Steve Keller

SUBJECT: 4(d) rule (Limit 10) application—State of Washington Regional Routine Road Maintenance Plan—adequacy of the Washington Department of Fish and Wildlife Hydraulic Project Approval for conditioning instream work to protect listed species

This is a follow-up to a memorandum to you dated October 7, 2002 in which Dan Guy, Laura Hamilton and I assessed the adequacy of the Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA) process for protecting salmonids listed by the National Marine Fisheries Service (NOAA Fisheries) under the Endangered Species Act (ESA) during inwater road maintenance activities described in the 4(d) rule Limit 10 application for the State of Washington Regional Routine Road Maintenance Program (RMP). In that memorandum we compared the Hydraulic Code—Chapter 77.55 Revised Code of Washington (RCW) and the existing rules for administration of the HPA—Chapter 222-110 Washington Administrative Code (WAC) against NOAA Fisheries Opinions for their adequacy to protect NOAA Fisheries listed fish affected by routine “maintenance” activities. Based upon that review, we concluded that the majority of project types regulated by the Hydraulic Code could adequately protect listed fish but that regulation of some HPA project activities were not clearly or fully addressed in the RCWs or the WACs.

NOAA Fisheries subsequently met with WDFW to discuss these shortcomings and to do further review of how to proceed, given the lack of specificity in the RCWs and WACs. In response WDFW suggested that NOAA Fisheries further review WDFW policies and procedures, including the WDFW HPA manual (1998), the WDFW document “*Hydraulic Project Approvals—Basics and How to Process*” (2002), the WDFW *Mitigation Policy* (1999), and WDFW technical resources and guidelines for insights as to the administration and effectiveness of the HPA program. WDFW also provided NOAA Fisheries with two statewide general maintenance HPAs, and 50 individual HPAs provided by WDFW and issued for typical road maintenance kinds of activities. In addition we reviewed WDFW’s February 22, 2002 comments

to NOAA Fisheries regarding the proposed 4(d) limit for the RMP.

This review demonstrates that the HPA permitting system of RCWs, WACs, policies, procedures and additional WDFW Technical Guidance is likely to be adequate to protect NOAA Fisheries' ESA-listed salmonids for instream maintenance activities undertaken by RMP participants. However this review does not represent a full "audit" of the adequacy of the HPA program, including issues such as WDFW staffing, permit compliance and enforcement, diminished protection for political expediency, or the possibility that the Hydraulic Code could be significantly altered or eliminated. It also does not constitute a formal consultation under section 7 of the ESA. This review should be treated more as a collective assessment of law, rule, intent and process utilized by WDFW to protect fish life, coupled with a review of 50 individual and two general HPAs that WDFW considers to demonstrate its intent and direction for protecting fish life during routine road maintenance projects. It should also be noted that the HPA is not a stand-alone protection strategy for the RMP. ESA-listed fish can be further protected by ensuring full implementation of the RMP. Collaboration between NOAA Fisheries, RMP participants and WDFW is essential for developing maintenance projects or programs, assessing project effects on listed species and avoiding, minimizing or mitigating those effects, monitoring outcomes of projects or programs at attaining or progressing towards properly functioning condition (PFC).

Instream maintenance activities considered in this review included:

- Bank Protection
- Sediment Removal
- Bridge Pier/Footing/Abutment Scour Repair
- Bridge Cleaning/Painting
- Trash/Debris Removal, including large woody debris
- Culvert Installation
- Culvert Cleaning
- Culvert Maintenance
- Fish Passage
- Habitat Enhancement
- Beaver Dam Removal

The Hydraulic Code—Chapter 77.55—Revised Code of Washington (RCW)

The Hydraulic Code was originally enacted into Washington State law in 1949, has been amended many times since, and is being considered for significant updates in the 2003 session of the Washington State Legislature. The law requires that anyone constructing any form of hydraulic project that would use, divert, obstruct, or change the natural flow or bed of any river or stream or utilize any waters of the state must obtain a Hydraulic Project Approval (HPA) from WDFW before commencing work. The intent of the law is to allow work to proceed under permits that provide for the proper protection of fish life. Notable amendments occurred in 1967 (criminal violation provision), 1977 (bed defined, emergency HPA provision added), 1983

(entire Fisheries Code was recodified, salt waters explicitly included, 45-day processing deadline), 1986 (agricultural HPAs defined, Hydraulic Appeals Board added, civil penalties added), 1991 (marine bulkheads), 1995 (aquatic plants pamphlet), 1996 (marina maintenance, streamlining for watershed restoration projects), 2000 (Fisheries and Wildlife Codes merged), and 2002 (stormwater authority defined).

The Hydraulic Code Rules—Chapter 220-110—Washington Administrative Code (WAC)

The Hydraulic Code Rules were first adopted in 1983 and the last major update occurred in 1994.

The rules are intended to administer, interpret and clarify the Hydraulic Code. The rules include common provisions for the protection of fish life for typical projects proposed to WDFW, either in freshwater or saltwater. These projects include such things as bank protection, water crossing structures, channel changes and realignments, gravel removal, bulkheads, docks, piers, marinas and dredging. Implementation of these provisions is stated to be necessary to minimize project specific and cumulative impacts to fish life. The technical provisions apply to a hydraulic project when included as provisions on an HPA. Each application is reviewed on an individual basis and programmatic HPAs may be issued. Common technical provisions may be modified or deleted as appropriate to individual projects and additional special provisions may be added to address project or site-specific considerations not adequately addressed by the common technical provisions.

HPAs for inwater maintenance activities such as those contemplated by the RMP usually require and include specific HPA provisions, including those that reference:

- Plans
- Design specifications
- Construction timing (inwater and upland)
- Notification of Area Habitat Biologist and WDFW Enforcement
- Requirements for on-site construction/inspection specialists
- Site access (permanent or temporary)
- Equipment staging
- Equipment cleaning and maintenance
- Site preparation, vegetation disturbance/revegetation
- Water diversion/screening
- Fish exclusion/salvage
- Wastewater discharge and treatment
- Spill prevention and clean-up
- Use of deleterious substances (concrete, treated wood, etc)
- Cleanup and Erosion Control
- Monitoring
- Reporting

WDFW HPA Manual (1998) and WDFW “Hydraulic Project Approvals—Basics and How to Process”

These two documents provide guidance to Area Habitat Biologists (AHB) who have been delegated signature authority for individual HPAs. The HPA manual contains directions on how to process HPAs using a menu-driven computer program provided to each AHB. The manual contains a section titled “*Technical Provisions and Guidelines for Use.*” The introduction to each category of project (e.g. Bank Protection) contains guidance on how to minimize and mitigate project impacts.

The WDFW document “*Hydraulic Project Approvals—Basics and How to Process - 2002*” is more procedural (e.g. what constitutes a complete application, processing timelines, compliance with other laws, etc.). It also includes the WDFW Mitigation Policy which provides guidance on WDFW’s mitigation sequencing (*i.e.*, avoiding, minimizing, restoring, preserving, compensating, monitoring and taking corrective actions), on allowable types of mitigation (*i.e.*, in order of preference: on-site, in-kind; off-site, in-kind; on-site, out-of-kind; and off-site, out-of-kind). In addition, the HPA WACs require that all HPAs incorporate mitigation measures as necessary to achieve no net loss of fish habitat. For projects with potentially significant impacts, a mitigation agreement may be required prior to project construction. The HPA may be sequenced and/or phased including timing to provide for up front mitigation. This manual also references how WDFW coordinates its HPAs with the WDFW Enforcement Program. In addition, AHBs are currently using a WDFW Habitat resource risk and impact decision matrix to facilitate making HPA priority designations for site visits by enforcement officers. HPAs are prioritized as Priority 1 (high), Priority 2 (medium) and Priority 3 (low).

WDFW Technical Resources and Guidelines

Guidance documents such as WDFW’s *Integrated Streambank Protection Guidelines (2002)*, its *Fish Passage Design at Road Culverts (1999, but being updated)*, and a combined-agency effort, *Aquatic Habitat Guidelines: An Integrated Approach to Marine, Freshwater, and Riparian Habitat Protection and Restoration (2002)* are examples of written technical materials that are available to applicants and AHBs for use in designing, constructing and monitoring “fish-friendly” construction projects. In addition, AHBs can work directly with WDFW engineers to solve permit design and permitting issues in a manner that minimizes fish habitat impacts.

The WDFW Approach to the RMP

WDFW provided substantial comments about the RMP in a February 22, 2002 letter to NOAA Fisheries. These comments are instructive, as they provide a picture of how WDFW has and will continue to approach fish habitat protection as it relates to maintenance activities anticipated in the RMP, in particular activities which will require HPAs. Fundamentally, WDFW expressed concern that implementation of some of the Best Management Practices and other elements of the RMP may contribute to long-term habitat loss and preclude attainment of properly functioning habitat conditions for fish. WDFW felt that the RMP had little discussion of how

chronic maintenance impacts will be mitigated. WDFW felt that chronic maintenance should be defined and a process provided to resolve issues of chronic maintenance—a method is needed to break the “circle of perpetual maintenance.” For example, in certain instances over the long-term, it may be prudent, cost-effective and more fish friendly to relocate a road out of a channel migration zone instead of perpetually armoring an eroding streambank. In another case chronic channel excavation at a culvert inlet may indicate the need for a much larger culvert or a bridge.

Individual HPAs

I examined 52 separate maintenance-related HPAs provided by WDFW for consistency with WDFW WACs, policy and guidance and instruction. HPAs reviewed included:

- Bank Protection (rock) - 6
- Bank Protection (Large Woody Debris - LWD) - 8
- Bank Protection (rock and LWD) - 12
- Slope Stabilization - 1
- Sediment Removal - 9
- Culvert Installation - 5
- Bridge Footing/Pier Scour Repair - 2
- Bridge/Culvert Debris Removal (statewide programmatic) - 1
- Fish Habitat Enhancement - 6
- Utility Corridor Maintenance - 1
- Beaver Dam Removal (statewide programmatic) - 1

The following tables summarize (by project type or conditioned activity) the content of the WACs, HPA technical provisions, additional WDFW Technical Guidance and actual HPA provisions for maintenance-related HPAs.

Bank Protection (Freshwater)

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - WACs require mitigation/ no net loss of habitat - WACs identify bio-engineering as preferred method for bank protection, general requirements for type and extent of project, project-specific HPA provisions variable - WACs that generally address equipment staging, maintenance, erosion control, reveg 	<p>Bioengineering is the preferred method of bank protection wherever practicable, define limits of encroachment beyond OHWL, lineal extent and or reference to permanent landscape features, require 100 yr flood integrity, may need to tailor revegetation on a site specific basis</p>	<p>WDFW staff are instructed to encourage applicants/designers to consider the WDFW Integrated Streambank Protection Guidelines (ISPG) - an analytical approach to diagnose and treat bank erosion problems with the least impact on fish and fish habitat</p>	<p>24 of 26 HPAs referenced plans (2 w/o plans specified LWD placement by landmarks), 20 of 26 riprap projects included LWD, 8 were LWD only, LWD size/species/upland source often req'd, 2 HPAs included bio-engineering designs, 21 of 26 had 100 yr flood design req'd, Engineered Log Jams have been permitted, boulder clusters used, several large demonstration projects req'd on-site expertise during construction, many HPAs had winter timing due to imminent flood threats</p>

Bank Protection (Marine)

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - WACs require mitigation/ no net loss) - WACs require least impacting alternative minimizing encroachment below OHW - WACs prohibit bank protection in eelgrass, no permanent loss of forage fish spawning habitat - WACs address construction methodology, equipment use, habitat features and vegetation, 	<ul style="list-style-type: none"> - Separate provisions for concrete, rock, timber, bulkheads - bulkheads prohibited in eelgrass, Pacific herring spawning beds and ling cod and rockfish settlement and nursery areas - bulkheads limited in baitfish spawning areas - staked alignments req'd - limits on waterward encroachment -footing depth -beach gravelling -wood preservatives discouraged or must meet BMPs -pre-project fish surveys req'd for critical habitat -saltwater construction timing windows 	<p>Engineering expertise, nearshore fish use mapping and fish use/life history expertise</p>	<p>No specific HPAs sampled</p>

Sediment Removal

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - WACs for sediment removal (dredging in freshwater areas) more applicable to lakes, limit dredging in fish spawning areas. 	<p>Technical provisions for sediment removal (dredging in freshwater areas) more applicable to lakes</p> <ul style="list-style-type: none"> -limit dredging in fish spawning areas -avoid pits, potholes, depressions that may strand fish - dredging equipment specified - minimize turbidity 	<p>WDFW staff are instructed to encourage applicants/designers to consider the WDFW Integrated Streambank Protection Guidelines (ISPG) - an analytical approach to diagnose and treat bank erosion problems with the least impact on fish and fish habitat</p> <p>ISPG addresses fluvial geomorphology and riverine sediment transport processes relative to bank erosion and may lead to direct bank protection in lieu of dredging</p>	<ul style="list-style-type: none"> -the 9 HPAs reviewed limited the project area and volume limits, one was for low flow municipal water supply and one was for a hatchery water supply emergency, one req'd LWD be retained for off-site fish enhancement - Programmatic permit to WSDOT for limited sediment removal (>50 yds) at culverts and bridges, HPA requires AHB coordination/site approval for HPA deviations

Large Woody Debris Removal/Relocation

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - WACs require no net loss of habitat, discourage LWD removal except for safety, allow LWD repositioning to provide stable, functioning habitat - WACs that address equipment staging, maintenance, erosion control, reveg 	<p>-Technical Provisions closely mirror the WACs,</p> <ul style="list-style-type: none"> -guidance provided to clearly specify which LWD may be removed, how and to where 	<ul style="list-style-type: none"> - ISPG - Appendix I:Anchoring and placement of large woody debris 	<ul style="list-style-type: none"> - One HPA reviewed allowed LWD removal in conjunction w/culvert inlet clean-out but req'd that the LWD be stock-piled for later use in fish enhancement projects - Three HPAs specified individual LWD pieces to be moved and where to relocate for bank protection, req'd anchoring to withstand 100 yr flows - Programmatic permit to WSDOT for limited LWD removal at culverts and bridges, HPA defines LWD, requires AHB coordination/site approval for HPA deviations

Culvert Cleaning

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- No specific WACs	- No specific provisions	-None	-3 HPAs for sediment removal were upstream or downstream of culverts, no work within the culvert proper, but limitations on volume and project area - Programmatic permit to WSDOT for limited sediment removal (>50 yds) at culverts and bridges when associated w/LWD removal, HPA requires AHB coordination/site approval for HPA deviations

Culvert Maintenance (e.g. fill slopes, wingwalls)

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- No specific WACs	- No specific Technical Provisions	- None	- None reviewed

Culvert Replacement

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<p>- WAC language for water crossing structures (culvert replacement). WACs require no net loss, lists hierarchy of replacement structures by "preference." Bridges are preferred.</p>	<p>-Bridges preferred (avoid footings waterward of OHWL) - approvable culverts in descending order of preference include temporary culverts, bottomless arch culverts, arch culverts, and round culverts (corrugated culverts preferred over smooth surfaced culverts)</p> <p>- two culvert options: 1- inside width >stream channel 2- design elements in WAC 222-110-070</p> <p>-two year limit for temporary culverts - design standards - discourage culvert baffles except at some retro-fits -perpetual maintenance falls to landowner -program oversight of all culvert HPAs -flow bypass generally req'd</p>	<p>- Crossing structures guided by "fish passage design at road culverts." (Currently in revision)</p>	<p>-Five individual new culvert installations reviewed (two bottomless arches, one arch and two temporaries)</p> <p>- 1 HPA required bonding, monitoring plan</p> <p>- 2 had perpetual passage requirements</p> <p>- temporaries had 1 year removal req'd</p>

Fish Passage (other than stream crossings)

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<p>- No specific HPA WACs</p>	<p>- Under no circumstance shall a blockage to stream flow or fish passage be created</p>	<p>-WDFW engineering assistance - WDFW standard design drawings for log weirs, rock grade controls</p>	<p>- Several HPAs for LWD, rock, or boulder placement referenced approved plans and/or had a perpetual "no blockage" provision or specific fish passage criteria w/in provisions</p>

Bridge Cleaning/Painting

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - WAC reference in Water Crossing Structures (may require HPA) - 5 yr permit/permit exemption may be granted w/plan that meets or exceeds WDFW requirements) 	<ul style="list-style-type: none"> - reference in Water Crossing Structures (may require HPA) - 5 yr permits provided - permit exemption may be granted w/plan that meets or exceeds WDFW requirements) 	<ul style="list-style-type: none"> - MOA w/WSDOT regarding bridge maintenance - under review 	<ul style="list-style-type: none"> - None reviewed

Sewer/Waterline Maintenance

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - No specific WAC language for maintenance - specific WACs for new construction (conduit x'ings) 	<ul style="list-style-type: none"> - None 	<ul style="list-style-type: none"> - None 	<ul style="list-style-type: none"> - None Reviewed

Utility Corridor Maintenance

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> -No specific WAC language for maintenance - specific WACs for new construction 	<ul style="list-style-type: none"> - None 	<ul style="list-style-type: none"> - None 	<ul style="list-style-type: none"> - 1 low impact HPA to accomodate limb removal during minor tree pruning -conflicting provisions, but no resource risk

Fish Habitat Enhancement

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - Some WAC guidance within WACs for bank protection, LWD repositioning 	<ul style="list-style-type: none"> - bank protection, LWD repositioning 	<ul style="list-style-type: none"> - Aquatic Habitat Guidelines 	<ul style="list-style-type: none"> - 5 HPAs included placement of habitat structures such as grade controls, gravel replacement, engineered log jams, etc -23 HPAs required fish habitat enhancement features (LWD, rock clusters)

Beaver Dam Removal

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs

- No specific WACs	- No guidance	- Aquatic Habitat Guidelines	- blanket HPA to WSDOT (7/15/02 to 7/15/03) -specifies applicable dams -hand-held tools -requires AHB review of chronic beaver dam problems -specific HPA timing by stream - annual report req'd - no individual HPAs reviewed
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Plans and Specifications

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- general plans for project, complete plans and specifications for activity waterward of OHWL - complete plans and specifications for the proper protection of fish life	- provision that references specific plans and modifications that have been approved (ranging from simple sketches for minor projects to very detailed plans for more significant projects) - design specifications for structures is 100 yr peak flow	- ISPG - Fish Passage Design at Road Culverts - WDFW standard design drawings for log weirs, rock grade controls	- 47/50 HPAs referenced specific plans provided by applicant, as modified by HPA provisions - the remaining three HPAs used verbal descriptions of minor projects w/in provisions (including size, location, reference points, etc)

Construction Timing

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - No specific WACs in freshwater (except for mineral prospecting) - specific marine WACs for salmon and nearshore marine fish 	<ul style="list-style-type: none"> - generalized multi-species guidelines available for most streams are designed to protect incubating eggs, most juvenile outmigration individual HPAs may be tailored to protect specific species life history timing 	<ul style="list-style-type: none"> - None 	<ul style="list-style-type: none"> - 48/50 individual HPAs had timing windows (2 exceptions were year-round minor projects) -reflected general concurrence with WDFW timing windows - exceptions for imminent threats/emergencies - less restrictive timing where impacts were insignificant or where provisions were more restrictive -many HPAs required timing specifically to protect listed fish -fish/redd surveys req's in two HPAs because of work outside windows -many HPAs had more liberal timing in non-listed fish use areas (non-use tribbs or outside of ESUs). - general timing windows for WSDOT programattics w/AHB notification required to deviate

Notification

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - No specific WAC language for maintenance - specific WACs for new construction 	<ul style="list-style-type: none"> - Six versions of notification requirements, depending upon significance/timing/duration of HPA and compliance inspection needs 	<ul style="list-style-type: none"> - None 	<ul style="list-style-type: none"> - 50/50 notified Enforcment of HPA prioritiiy (1 P-1, 35 p-2, 14 p-3) - 30/50 req'd AHB pre-post compliance notification - 11/50 req'd specialists on site (wetlands, fish biology, stream ecology, landscape, engineer)

Site Access

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- No specific WACs	- None	- None	- specific site access routes addressed in six individual HPAs, both general HPAs

Equipment Staging

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- WAC language in Bank Protection, Gravel Removal, LWD removal/repositioning	- Addressed in Technical Provisions in Bank Protection, Gravel Removal, LWD removal/repositioning,	- None	- 34 HPAs had provisions for staging (usually on uplands, dry bars, bank, bridge, roadway, w/in cofferdams) - 4 HPAs had requirements for specific equipment type - 3 HPAs specifically prohibited stream crossings

**Equipment Cleaning/
Maintenance**

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
WAC language in Bank Protection, Gravel Removal; specific HPA pgm provision for equipment cleaning/maintenance	Technical provision for clean, no leaks, repair	- None	- 36/51 applicable HPAs required clean equipment provision

**Fish Exclusion/
Salvage**

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- WAC language in Water Crossing Structures, Temporary Bypass, Flume or Channel (Safe removal of stranded fish, screening required)	- w/in temporary bypass (below) -fish salvage should be carefully considered (could be more harmful, WDFW fish capture to be offered when staff available	- none	- 10 applicable HPAs req'd fish salvage (7 offered WDFW assistance) - 12 applicable HPAs did not require salvage - salvage usually req'd for culvert installations, site specific for bank protection

Temporary Water Diversion

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - WACs for Temporary Bypass Culvert, Flume or Channel - Bypass required for culvert installations (w/exceptions) 	<ul style="list-style-type: none"> - HPA pgm provisions specify the bypass mechanism for individual projects (e.g. pump, flume, culvert) 	<ul style="list-style-type: none"> - WDFW guidelines for use of electrofishers 	<ul style="list-style-type: none"> - 21/22 applicable HPAs required some form of bypass - One in-lake HPA required a silt curtain - 12 individual and 2 pgmtc HPAs limited work to periods of low flows or no flow

Wastewater Discharge/ Treatment

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - WAC language in Water Crossing Structures and Conduit Crossings 	<ul style="list-style-type: none"> - 15 water quality provisions to apply to specific situations 	<ul style="list-style-type: none"> - None 	<ul style="list-style-type: none"> - 24 of 28 applicable HPAs required wastewater mgmt - one bypassed into irrigation ditch - two had instream check dams - applied primarily to rock bank protection, permanent culverts, sediment removal

Spill Prevention/Cleanup

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - No WAC reference to spill plans 	<ul style="list-style-type: none"> - equipment cleaning/leak prevention 	<ul style="list-style-type: none"> - none 	<ul style="list-style-type: none"> - 39/50 applicable HPAs had at least general spill prevention provisions - seven HPAs req'd spill prevention/clean-up plans/materials on site - 23 HPAs had fish distress/Ecology notification/stop work provision

Use of Deleterious Substances (concrete, treated wood)

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- WAC requirements in Water Crossing Structures, Bulkheading, treated wood (creosote, penta) not allowed in lakes, treated wood discouraged in marine waters	- HPA pgm provisions for treated wood, concrete containment/exclusion	- Western Wood Preservers (WWP) Best Management Practices (BMPs) for Treated Wood in Aquatic Environments	- 19 applicable HPAs had a standard provision that prohibited fresh cement or concrete leachate from contacting state waters - three HPAs required use of WWP BMPs for treated wood - four HPAs specifically prohibited the use of concrete

Erosion Control

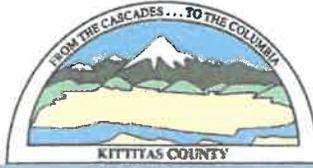
HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- General WAC requirements in Bank Protection, Water Crossing Structures, Conduit Crossing, Temporary Bypass, Gravel removal, Outfall Structures	- Provisions for applicable situations	None	50/52 HPAs required erosion control, many req'd site specific erosion control plans

Vegetation Disturbance/Revegetation

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
- Specific WAC requirements in Bank Protection, Water Crossing Structures, Conduit Crossing, Temporary Bypass, Gravel Removal, LWD, Outfall Structures (generic language)	- 8 provisions to be used as needed	ISPG, Aquatic Habitat Guidelines	51/52 HPAs had provisions that limited vegetation disturbance and required revegetation with native species - 17 HPAs had specific spacing and 80%/3 yrs survival required - 11 HPAs referenced specific landscape plans and/or species requirements

Monitoring and Reporting

HPA WACs	HPA Manual(s) - Technical Provisions	Additional WDFW Technical Guidance	HPAs
<ul style="list-style-type: none"> - No specific WAC requirements - revegetation survival (8)/3yrs implies that monitoring shall occur 	<ul style="list-style-type: none"> - WDFW Mitigation Policy requires monitoring and contingency plans when a specific mitigation plan is required 	<ul style="list-style-type: none"> - ISPG, Aquatic Habitat Guidelines 	<ul style="list-style-type: none"> - except for revegetation monitoring and perpetual fish passage requirement, only 2/50 individual HPAs specifically required monitoring and/or reporting - WSDOT Beaver Dam Removal HPA requires detailed annual report



KITTITAS COUNTY COMMUNITY DEVELOPMENT SERVICES

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"Building Partnerships – Building Communities"

February 11, 2019

Jacobs Engineering Group
Craig D. Broadhead
32 N 3rd St
Yakima, WA 98901-2730

Sent VIA email: Craig.Broadhead@jacobs.com

RE: Request for Verification of SEPA Exemption for Story Creek Culvert Replacement Project

Dear Mr. Broadhead:

Thank you for the opportunity to assist you in this matter.

I am in receipt of your letter requesting a letter of SEPA exemption for your Story Creek Culvert Replacement Project under Teanaway Road. I have reviewed the original documentation submitted on February 6, 2019 along with additional clarification information submitted via email on February 8, 2019 that no work will be done in water and that the original footprint (within existing road ROW and roadway fill area) will remain the same through the replacement of fill with this new structure. The height and width of the new structure is increased, however the length along the stream is slightly reduced thereby overall being a "minor alteration".

There are a number of categorical exemptions for certain actions from SEPA per WAC 197-11-800. This request is to be exempt from SEPA per WAC 197-11-800:

"(3) Repair, remodeling and maintenance activities. The following activities shall be categorically exempt: The repair, remodeling, maintenance, or minor alteration of existing private or public structures, facilities or equipment, including utilities, recreation, and transportation facilities involving no material expansions or changes in use beyond that previously existing; except that, where undertaken wholly or in part on lands covered by water, only minor repair or replacement of structures may be exempt (examples include repair or replacement of piling, ramps, floats, or mooring buoys, or minor repair, alteration, or maintenance of docks). The following maintenance activities shall not be considered exempt under this subsection:

- (a) Dredging of over fifty cubic yards of material;
- (b) Reconstruction or maintenance of groins and similar shoreline protection structures;
- (c) Replacement of utility cables that must be buried under the surface of the bedlands; or
- (d) Repair/rebuilding of major dams, dikes, and reservoirs shall also not be considered exempt under this subsection"

Kittitas County Community Development Services (CDS) finds your proposed project to be consistent with the current use of the existing infrastructure and finds it to be a minor alteration. Pursuant to WAC 197-11-800(3) as stated above, CDS finds the described action to be **exempt** from SEPA. A SEPA Environmental Checklist will not be required for this project. Work may continue as described in the submittal information received on February 6, 2019 and supplemented on February 8, 2019.

Additionally you requested exemption from shoreline requirements. After review of your submittal information and Kittitas County's Shoreline Master Program, it has been determined that the project area is located outside of the shoreline jurisdiction of the Teanaway River and that Story Creek is not designated as a shoreline of the state. Therefore, a shoreline exemption is not necessary.

If you have any questions regarding this decision, please do not hesitate to contact me.

Sincerely,



Lindsey Ozbolt, Planning Official
Kittitas County Community Development Services
411 N. Ruby St., Suite 2 | Ellensburg, WA 98926
(509) 962-7046 | lindsey.ozbolt@co.kittitas.wa.us

CC: Mark Cook, PE, Kittitas County Public Works Director

via email