

Mitigation Action Plan (Revised) for Lyle Falls Fish Passage Project

	Mitigation Measure	Responsible Party	Time of Implementation
	Geology and Soils Measures		
1	Comply with the requirements of state and federal permits governing erosion control and water quality protection.	Yakama Nation in consultation with WDFW, WDOE, Klickitat County, ACOE	Prior to and during construction
2	Prepare and implement an erosion and sediment control plan that minimizes physical site disturbance by containing excavated materials, dewatering the excavated areas, treating water pumped from excavations, and stabilizing materials deposited in the fishermen's parking area.	Yakama Nation in coordination with engineer and contractor	Prior to and during construction
3	The excavated rock from the fish channel can be used to fill the bottom layer of the new fishermen's parking area and the remaining rock should be hauled offsite.	Yakama Nation in coordination with engineer and contractor	During construction
4	Place fencing around the external limits of the construction site to prevent unnecessary disturbance outside of the work areas.	Yakama Nation in coordination with contractor	Prior to and during construction
5	Install silt fences along the river and around the soil disposal area to contain any eroded materials.	Yakama Nation in coordination with contractor	Prior to and during construction
6	Use controlled minimal blasting to limit disturbance to surrounding rocks during blasting and excavation for the fishway.	Yakama Nation in coordination with contractor	During construction
7	Limit the length of fishway being excavated at any given time.	Yakama Nation in coordination with contractor	During construction
	Water Resource Protection Measures		
8	Compile aquatic protection measures, including monitoring of potential blasting effects, in a plan for pre-construction approval by WDFW.	Yakama Nation in coordination with project biologists, engineers and WDFW	Prior to construction
9	Ensure that appropriate BMPs are implemented during instream work to eliminate or reduce turbidity to the greatest extent practicable.	Yakama Nation in coordination with contractor	During construction
10	Ensure that appropriate BMPs are implemented during upland work to eliminate or reduce erosion to the greatest extent practicable.	Yakama Nation in coordination with contractor	During construction
11	Ensure that all conditions set forth in construction permits to protect water quality are followed.	Yakama Nation in coordination with contractor	During construction
12	Follow the dewatering guidelines established by WDOE to ensure that water quality is protected while the cofferdam is placed, removed, and in use.	Yakama Nation in coordination with contractor	During construction
13	Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream. Fresh concrete or concrete by-products shall not be allowed to enter the stream at any time during this project. All forms used for concrete shall be completely sealed to prevent the possibility of fresh concrete from getting into the stream.	Yakama Nation in coordination with contractor	During construction

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14	Every effort shall be taken during all phases of this project to ensure that sediment-laden water is not allowed to enter the stream. This may be accomplished by placing a series of low gravel bag dams downstream of the project. The gravel bag dams shall consist of burlap bags filled with pea gravel. The streambed and dams shall be overlain with filter fabric on the upstream side of the dams. Accumulated silt shall be removed with the filter fabric upon completion of the project and the burlap bags shall be slit to allow the pea gravel to disperse downstream. Where necessary, hand tools may be used to ensure stream flow and fish passage are not impeded by the gravel.	Yakama Nation in coordination with engineer and contractor	During construction
15	Wastewater from project activities and water removed from within the work area shall be routed to an area landward of the ordinary high water line to allow removal of fine sediment and other contaminants prior to being discharged to the stream. Water that may flow into the excavations will be pumped to settling tanks and/or pond to remove sediment.	Yakama Nation in coordination with contractor	During construction
16	If high flow conditions that may cause siltation are encountered during this project, work shall stop until the flow subsides.	Yakama Nation in coordination with contractor	During construction
17	During the seal pour of concrete into the sheet pile enclosure, the water level inside the enclosure shall be held to at least six inches below the water level outside the enclosure.	Yakama Nation in coordination with contractor	During construction
18	A temporary bypass to divert flow around the work area shall be in place prior to initiation of work in the wetted perimeter. The bypass shall be of sufficient size to pass all flows and debris for the duration of the project.	Yakama Nation in coordination with contractor	During construction
19	Prior to releasing the water flow to the project area, all bank protection or armoring shall be completed.	Yakama Nation in coordination with contractor	During construction
20	Upon completion of the project, all material used in the temporary bypass shall be removed from the site and the site returned to preproject or improved conditions.	Yakama Nation in coordination with contractor	During construction
21	Drilling equipment shall be well-maintained and in good repair to prevent the loss of lubricants, grease, and any other deleterious materials from entering the stream. Drill spoils and cutting shall not be released to the stream. Drill cuttings shall be deposited in a location where they will not re-enter the stream either directly or due to erosion.	Yakama Nation in coordination with contractor	During construction
22	Extreme care shall be exercised to minimize the loss of fine sediment into the stream during drilling and soil sampling efforts.	Yakama Nation in coordination with contractor	During construction
23	A non-petroleum organic drilling lubricant shall be used during this project to protect water quality and fish resources.	Yakama Nation in coordination with contractor	During construction
24	Wastewater from the drilling process shall not be allowed to directly enter or leach into the stream.	Yakama Nation in coordination with contractor	During construction

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	Wetlands and Floodplains Protection Measures		
25	All waste material such as construction debris, silt, excess dirt or overburden resulting from this project shall be removed from the construction site and/or deposited above the limits of flood water in an approved upland disposal site.	Yakama Nation in coordination with engineer and contractor	Prior to and during construction
26	Install temporary fencing around the small wetland area to prevent accidental disturbance during construction.	Yakama Nation in coordination with contractor	Prior to construction
27	Limit the profile of instream structures to affect the least surface area within the floodplain.	Yakama Nation in coordination with engineer	During design
28	Allow unimpeded flow of water through the Klickitat River channel.	Yakama Nation in coordination with contractor	During construction and operation
	Fisheries Protection Measures		
29	Minimize in-water work effects on fish through controlled blasting and erosion control measures, and by implementing BMPs to limit water quality degradation during construction.	Yakama Nation in coordination with contractor	During construction
30	Compile aquatic protection measures, including monitoring of potential blasting effects, in a monitoring and operations plan for pre-construction approval by WDFW.	Yakama Nation in coordination with contractor and WDFW	During construction
31	Under no circumstances shall a blockage to stream flow or fish passage be created.	Yakama Nation in coordination with engineer and contractor	During construction
32	Adhere to the WDFW instream work window of July 1 to September 30 for all work below the ordinary high water line in order to avoid disturbance when the majority of juvenile salmon and steelhead will be moving past the project site.	Yakama Nation in coordination with engineer and contractor	During construction
33	Notify the WDFW Area Habitat Biologist no less than three working days prior to the start of construction. The notification shall include the permittee's name, project location, starting date for work, and the control number for this HPA.	Yakama Nation	Prior to construction
34	If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made to the Washington Military Department's Emergency Management Division at 1-800-258- 5990, and to the WDFW Area Habitat Biologist	Yakama Nation biologist monitor	During construction
35	Use cofferdams to temporarily isolate the area required to construct the new fish ladder exit structure.	Yakama Nation in coordination with engineer and contractor	During construction
36	Prohibit construction at night in order to allow fish to migrate without disturbance over the falls.	Yakama Nation in coordination with contractor	During construction
37	The permittee shall capture and safely move food fish, game fish, and other fish life from the job site. The permittee shall have fish capture and transportation equipment ready and on the job site. Captured fish shall be immediately and safely transferred to free-flowing water downstream of the project site. The permittee may request the WDFW assist in capturing and safely moving fish life from the job site to free-flowing water, and assistance may be granted if personnel are available.	Yakama Nation biologist monitor	During construction

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38	Provide a qualified fish biologist or natural resource specialist during dewatering of work areas to conduct salvage operations for any fish that become stranded in the dewatered zone.	Yakama Nation	During construction
39	Ensure that the final design of the new fishway complies, and is consistent with Anadromous Salmonid Passage Facility Design (NMFS Northwest Region, February 2008)	Yakama Nation in consultation with engineers and NMFS	During design and prior to construction
40	Address maintenance requirements for the attraction water screen, transportation channel, and the auxiliary flow diffuser in the final fishway design documents.	Yakama Nation in coordination with engineer	Prior to construction
41	Blasting charges shall be no larger than necessary to accomplish the task and shall be set in a manner (timing, frequency, location) such that in-stream concussion is minimized. Timing shall include micro-second delays to minimize impacts to fish.	Yakima Nation in coordination with contractor	During construction
42	All blast material shall be removed and deposited in an approved upland disposal site so it will not re-enter the stream.	Yakima Nation in coordination with contractor	During construction
43	The permittee shall be financially responsible for any fish kill. Should a kill occur, all blasting activities shall immediately cease and the Area Habitat Biologist listed below immediately notified. A written report detailing the fish kill and subsequent actions shall be submitted to the Area Habitat Biologist as soon as possible following the kill, but no more than 15 days subsequent to the fish kill.	Yakama Nation biologist monitor	During construction
44	Blasting operations shall be conducted during periods of low or no stream flow.	Yakima Nation in coordination with contractor	During construction
45	If at all possible, blasting shall occur in an area that is physically separated from the flowing stream, i.e., inside a cofferdam.	Yakima Nation in coordination with contractor	During construction
46	Any device used for diverting water from a fish-bearing stream shall be equipped with a fish guard to prevent passage of fish into the diversion device pursuant to RCW 77.57.010 and 77.57.070. The pump intake shall be screened with 1/8-inch mesh to prevent fish from entering the system. The screened intake shall consist of a facility with enough surface area to ensure that the velocity through the screen is less than 0.4 feet per second. Screen maintenance shall be adequate to prevent injury or entrapment to juvenile fish and the screen shall remain in place whenever water is withdrawn from the stream through the pump intake.	Yakima Nation in coordination with contractor	During construction
	Vegetation Protection Measures		
47	Before any ground disturbing activities occur, a rare plant and noxious weed survey must be conducted within 100 feet of all potentially disturbed areas. Provide results to the Yakama Nation, WDFW, USFS, and Klickitat County Noxious Weed Board.	Yakama Nation in coordination with botanist, WDFW, USFS, Klickitat County and contractor	Prior to construction
48	If pre-construction rare plant surveys indicate the presence of rare species within the work area, consult with the Yakama Nation, WDFW, and USFS to identify and implement appropriate protective measures (e.g., flagging, temporary fencing, placement of boulders around rare plant populations, or relocation).	Yakama Nation in consultation with WDFW, USFS and contractor	Prior to construction
49	Implement a vegetation protection plan to reduce potential construction damage to vegetation.	Yakama Nation in coordination with contractor	Prior to construction

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50	Use flagging and fencing to protect oak trees adjacent to construction that are to be retained.	Yakama Nation in consultation with contractor	Prior to construction
51	Place trees felled to clear areas for construction along the margins of the site to provide cover for birds, reptiles and small mammals.	Yakama Nation in consultation with WDFW and contractor	During construction
52	Dispose of excavated reed canary grass in a manner that prevents reestablishment	Yakama Nation in consultation with WDFW and contractor	During construction
53	Minimize the area of soils exposed at any one time to reduce dust that can bury native plants	Yakama Nation in consultation with contractor	During construction
54	Use certified weed-free seed mixes and mulches.	Yakama Nation in coordination with contractor	During and after construction
55	Use natural tackifiers if necessary to reduce wind removal of loose mulch.	Yakama Nation in coordination with contractor	During and after construction
56	Provide temporary revegetation if construction activity takes place in two seasons, as proposed.	Yakama Nation in consultation with contractor	During construction
57	Invasive species will be monitored and invasive plant species will be prevented from establishing on the site. If weeds are documented and treated, monitor treatment effectiveness for 3 years following construction, and re-treat as needed, consistent with the Revegetation Plan.	Yakama Nation in consultation with WDFW and contractor	During and after construction
58	If extensive weed populations are documented, work should proceed from “clean” areas into weedy areas, if possible.	Yakama Nation in consultation with contractor	During construction
59	Wash all equipment entering the work area to minimize the risk of transporting weed seeds and propagules.	Yakama Nation in consultation with contractor	During construction
60	Consult with WDFW and Yakama Nation to identify appropriate revegetation species, using within-watershed sources of seeds or live plant material wherever possible	Yakama Nation in coordination with botanist, WDFW, and contractor	During construction
61	Trees destroyed during construction will be replanted as outlined in the FEIS. Plant Oregon white oak and ponderosa pine at a 5:1 ratio to replace those lost or disturbed during construction, using local stock (e.g., Milestone Nursery in Lyle or Yakama Tribal nursery), and monitor and maintain for 3 years following construction.	Yakama Nation in coordination with botanist	After construction
62	Develop standards and methods and a monitoring schedule for measuring the success of revegetation and identify measures to be implemented if standards are not met, including measures for controlling noxious weeds.	Yakama Nation in coordination with botanist	After construction
	Wildlife Protection Measures		
63	Maintain clean work areas with proper litter control and sanitation in order to prevent wildlife attraction.	Yakama Nation in coordination with contractor	During construction
64	Notify WDFW with sufficient time prior to blasting to allow monitoring of osprey nest during the blasting period. If possible, defer blasting until the young are fledged.	Yakama Nation in consultation with WDFW and engineers	Prior to construction
65	Conduct a western gray squirrel nest survey in suitable habitat within 400 feet of any areas that will be disturbed by construction; if nesting is documented, consult with the Yakama Nation and WDFW to identify and implement appropriate protection measures.	Yakama Nation in coordination with biologist	Prior to construction

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	Cultural Resource Protection Measures		
66	Retain a qualified cultural resources specialist to monitor the site during ground disturbing activities to ensure that tribal members have access to the area, examine newly disturbed soils, and inspect work sites for potential cultural resource materials.	Yakama Nation	During construction
67	Coordinate with those who traditionally fish adjacent to the existing ladder. Identify construction activities that could present potentially dangerous settings for fishing, and provide the timing and extent of disruption to those fishers.	Yakama Nation in consultation with tribal members	Prior to and during construction
68	Limit construction access to existing and improved road grades to the greatest extent possible.	Yakama Nation in coordination with contractor	During construction
69	Exercise extreme caution near interment areas and advise construction workers to respect these areas.	Yakama Nation in coordination with contractor	During construction
70	Add crushed rock to the Lyle Falls access road to provide a more stable surface for existing users and construction vehicles and to protect Native American interment area.	Yakama Nation in coordination with contractor	Prior to construction
71	Preclude use of the historic railroad corridor for construction or operation access.	Yakama Nation in coordination with contractor	During construction and operation
	Air Quality, Noise, Human Health, and Public Safety Protection Measures		
72	Apply dust abatement treatments to the unpaved roadway accessing the project site.	Yakama Nation in coordination with contractor	During construction
73	Apply abatement measures to prevent the generation of wind-borne dust if soils are stockpiled.	Yakama Nation in coordination with contractor	During construction
74	Use blasting mats, sand or crushed rock to cover excavation sites during blasting activities to reduce the generation of sound and contain the dispersion of rock, soil, and fugitive dust.	Yakama Nation in coordination with contractor	During construction
75	Provide portable restrooms and debris collection during construction.	Yakama Nation in coordination with contractor	During construction
76	Exclude all unauthorized personnel from entry at active worksites including excavation, spoil disposal and construction areas.	Yakama Nation in coordination with contractor	During construction
77	Construct a turn-out along the access road to improve safety for existing road users and to reduce conflicts with construction vehicles.	Yakama Nation in coordination with engineer and contractor	Prior to construction
78	Clear vegetation along access road to improve sight lines and allow safe passage of vehicles in opposite directions.	Yakama Nation in coordination with contractor	Prior to construction
79	Install safety signage at the intersection of the Klickitat Trail and the access road as well as at nearby trail access points at Fisher Hill and Pitt to reduce conflicts between trail users and construction traffic.	Yakama Nation in coordination with contractor	Prior to construction
80	Coordination will be undertaken with those that traditionally fish adjacent to the existing ladder. Construction activities that could present potentially dangerous settings for fishing will be identified, and the timing and extent of disruption will be presented to those fishermen.	Yakama Nation in consultation with fishermen and coordination with engineer and contractor	Prior to and during construction

	Mitigation Measure	Responsible Party	Time of Implementation
81	Post signs upstream of the project area on the Klickitat River to inform kayakers of construction. Develop an outreach plan in coordination with the USFS to inform this user group of construction activities.	Yakama Nation in coordination with engineer, contractor, and USFS	Prior to and during construction
82	Require the contractor to follow OSHA safety regulations for blasting. These regulations require displaying signage warning the public about the blasting zone, using loud warning signals to indicate the commencement of blasting, and stationing of flagmen on public routes immediately adjacent to the blast zone during blasting operations to prevent accidental intrusion of the public into the blast zone.	Yakama Nation in coordination with contractor	During construction
83	Retain the non-functioning attraction flow pipeline on the existing ladder to help prevent falls into the water.	Yakama Nation in coordination with engineer	During design
84	Install safety ladders to access the fish sorting area within the fishway structure.	Yakama Nation in coordination with engineer	During design
	Aesthetic Protection Measures		
85	<p>Develop a landscape management plan to reduce the visual contrast of the new buildings from the Klickitat Trail and the State Highway 142 overlook. Include the following:</p> <ul style="list-style-type: none"> • The fish lift tower will have an uncolored, concrete footing; the lower portion will have a facing of lighter colored, split-face concrete masonry unit (CMU) transitioning to a darker CMU higher up; and the roof and metal stairs will be a dark green color. The water reservoir will have the same darker CMU as the upper section of the fish lift tower; the roof will be a dark green. • The maintenance building will have the same darker CMU as the upper section of the fish lift tower; the roof will be a dark green color. • The outhouse will have the same darker CMU as the upper section of the fish lift tower; vegetation may be planted on the trail side of the building if necessary. • The taller buildings will include horizontal design elements of subtle color and/or texture variations of CMU material to help break up their vertical lines; all buildings may use YN designs. • Native trees will be planted at Key Observation Point 1 to help obscure the view of the larger buildings. • Galvanized steel will be used for the metal grating over the fishway where appropriate. 	Yakama Nation in consultation with engineers and USFS	Prior to construction
86	Use a color additive in the concrete placed on the surface of the new fish transportation channel and fishway exit/water supply intake to reduce visual contrast with the adjacent native rock.	Yakama Nation in coordination with engineer	During construction
87	Paint the existing attraction flow water supply pipeline a dark color to match the adjacent concrete.	Yakama Nation in coordination with contractor	During construction

88	Minimize impacts to the aesthetic qualities by using native basalt boulders where needed for structural protection.	Yakama Nation in consultation with engineer and contractor	During construction
	Mitigation Measure	Responsible Party	Time of Implementation
89	Direct motion sensor-activated exterior lighting for the new building to achieve security objectives while limiting stray ambient light.	Yakama Nation in consultation with engineer	During design
	Land Use, Transportation, and Recreation Protection Measures		
90	Use flaggers as needed at the intersection of the Klickitat Trail and the access road on days when blasting will occur. Also post warnings on the river bank upstream of the work area cautioning boaters of construction. Outreach to boaters before construction begins. If necessary, position a flagger upstream prior to blasting.	Yakama Nation in coordination with USFS, engineer and contractor	During construction
91	Vehicular use of the Klickitat Trail is specifically forbidden under Washington State Parks and Recreation Commission and USFS management regulations. Prohibit any use of the Klickitat Trail for vehicular access during construction; include the stipulation in the construction documents.	Yakama Nation in coordination with contractor	Prior to and during construction