Scope of Work - Contractor Tasks

Bryan Tappel, (PE, Fisheries Engineers) is the licensed engineer of record for this project.

The following tasks are outlined in the Bid Form (Exhibit B) for bidding. Please note a TERO fee of 3% is applied to the project cost.

Division 0 - Introduction

Technical specifications for construction of the Snake Creek Fish Passage Project are based partly on the Washington State Department of Transportation's Standard Specifications for Road, Bridge, and Municipal Construction 2026 (WSDOT Standard Specifications). WSDOT Standard Specifications relevant to the work are listed below, with revisions and/or additions as required for the work; the format for technical specifications follows the WSDOT template.

Payment to Contractor shall only be for payment items listed on the Bid Form. Work items shown on the drawings or described in the specifications, but not listed on the Bid Form, are considered "incidental" to other work items. The Contractor shall include costs for "incidental items" in pay items listed on the Bid Form.

Division 1 – General Requirements

1-09 Mobilization

Description and payment for this bid item shall be as outlined in the WSDOT Standard Specifications, Section 1-09.7 (Mobilization). Payment shall be Lump Sum as described in the WSDOT specifications.

1-50 Surveying

1-50.1 Description

This section covers surveying for vertical and horizontal control of the fish passage project.

1-50.2 Materials and Construction

Vertical control for construction will be referenced to a nail in a power pole already established on-site. The engineer will show the Contractor exactly where and what this reference elevation is at the project site. The Contractor is responsible for all vertical control for project construction (e.g. operate a laser level), with intermittent checks by the engineer (or representative).

Horizontal control surveying will be done by the engineer, who will set flagging, stakes and off-set stakes for all construction elements: clearing limits, equipment access routes, footing corners for all concrete structures, fish screen location and bypass channel alignment.

The engineer's experience with similar projects is that the services of a Professional Land Surveyor will not be required. Tolerances for horizontal control for fish screen construction shall be 0.2 feet. All structures shall be installed within 0.1 feet vertical of the specified elevations.

1-50.3 Payment

Payment for surveying for shall be Lump Sum as listed on the Bid Form.

Division 2 – Earthwork

2-01 Clearing, Grubbing, and Roadside Cleanup

Include only Section 2-01.1 of the WSDOT Standard Specifications. Areas to be cleared at the project site will be clearly marked (flagged) in the field, and clearing will include complete removal of all vegetation within the clearing limits. Total area to be cleared at the screen site is about $^1/_2$-acre including grasses, shrubs and small trees.

Clearing debris shall be disposed at the project sites at locations selected by Yakama Nation. Clearing debris shall be piled semi-neatly and mashed down. All plants outside the clearing limits shall be protected by the Contractor.

Payment for this item shall be Lump Sum for "Clearing" including removal of all plant materials within the clearing limits, and clearing debris disposal at the on-site locations.

2-09 Structure Excavation

Include this section of the WSDOT Standard Specifications to cover general requirements for excavation, stockpile of soil materials, and backfill and compaction. The following summaries shall over-ride comparable portions of the WSDOT Standard Specification. Clearing shall be completed prior to excavation.

All excavated soils shall be side-cast and/or stockpiled on site; no import or export of soils will be required. Most excavated soils will be used as backfill around the structures, or for backfill of the flow bypass channel at the fish screen location. Native soils not used for backfill shall be left on site, spread and graded to match existing topography.

Payment for all items within this specification shall be based on estimated quantity shown on the Bid Form, unless the Contractor verifies a substantial discrepancy between estimated and actual quantities. It is recognized that the neat-line AutoCAD volumes for soil excavation and backfill (see Bid Form) could swell by as much as 40% (no additional payment) if truck counts or other methods are used to measure volumes of disturbed soils instead of in-place compacted soils.

“Excavation” on the Bid Form includes soil excavation, haul to stockpile area(s), and protection of backfill materials from rain. Stockpiles of soil materials considered suitable for backfill near structures shall be covered with plastic unless dry weather and/or light rain (no heavy rain) is predicted until the stockpile(s) will be incorporated into the site backfill.

“Backfill & Compact” includes haul of suitable soil materials from the on-site stockpile(s), placement of these materials in areas identified by the engineer, and compaction with vibratory equipment.

“Dispose Excess Soils” includes transport of excess soil materials to locations identified by YN near the project sites, then spreading these excess soils to match adjacent ground topography.

2-15 Water Control

2-15.1 Description

This specification covers water diversion and de-watering systems that are expected to be required for project construction. The following work items are included for the Lump Sum payment under this specification for the fish screen site.

At the fish screen and roughened channel construction site, water control work includes removal of the plywood blocking existing culverts, bypass channel construction (excavation and backfill is included in other pay items), supersacks and streambed mix to isolate the fish screen structure from water, and pumping between supersack dams as required. Placement of the steel bridge over the bypass channel for temporary construction access is included as a separate bid item within this technical specification.

These water control and flow bypass requirements are all described on project drawings and are not further explained in this specification.

Division 6 - Structures

6-02 Concrete Structures

Include the WSDOT Standard Specification 6-02 as written. All cast-in-place and pre-cast concrete shall be Class 4000A (4,000 psi compressive strength with air entrainment).

Concrete for Cutoff Walls (unreinforced) for the fish screen location is a separate bid item. This concrete is to be poured into excavated trenches as shown on project drawings, with the estimated total concrete volume listed on the Bid Form.

Reinforced concrete structures shall be built by the Contractor as shown on sheets. The total quantity of concrete for payment shall be the “neat line AutoCAD” volumes (cubic yards) measured by the engineer on project drawings and listed on the Bid Form, for the following types: Cast-In-Place Reinforced Concrete Slabs, Cast-In-Place Reinforced Concrete Walls, and Pre-Cast Concrete at the fish screen location.

The mix design for proposed concrete, and previous test data showing compliance with this specification (e.g. 28-day cylinder tests showing > 4,000 psi compressive strength), shall be submitted to Yakama Nation (YN will forward information to the engineer) for review and approval prior to concrete construction.

Include Sub-Sections 6-02.3(1) through 6-02.3(6).

Delete Sub-Sections 6-02.3(7), 6-02.3(8), and 6-02.3(10).

Include Sub-Section 6-02.3(9) (Vibration of Concrete).

Include Sub-Section 6-02.3(11) (Curing Concrete).

Delete Sub-Sections 6-02.3(12) and 6-02.3(13).

Include 6-02.3(14) (Finishing Concrete Surfaces). All surfaces shall be given a Class 2 finish (clean up edges and fill form tie holes with grout).

Delete Sub-Sections 6-02.3(15) through 6-02.3(23).

Include Sub-Section 6-02.3(24) (Reinforcement), except replace the text with the following: All reinforcement for all concrete structures shall be deformed steel bars Grade 60 complying with WSDOT 9-07. Rebar patterns are listed on drawings for all structures.

Delete Sub-Sections 6-02.3(25) and 6-02.3(26).

Delete Sub-Sections 6-02.3(27) (Concrete for Precast Units) and 6-02.3(28) (Precast Concrete Panels).

6-03 Steel Structures

The steel bridge superstructure will be purchased and will be supplied to the project site by YN. Contractor will be responsible for all coordination of bridge delivery to the site (i.e. to coordinate with on-site construction schedule). Final coordination and scheduling of the bridge delivery typically includes real-time cell phone communication with the truck driver delivering the bridge module(s). The Contractor shall lift the bridge module(s) into place and perform necessary on-site assembly as listed on project drawings and/or as required by bridge supplier. Bridge superstructure will be a 16’-6” span x 12’-wide modular weathering steel beam bridge.

The on-site Contractor shall complete all bridge placement and assembly. Modular steel bridges are shipped by flatbed truck, and require placement with two excavators (or a crane may be used). Assembly includes, but is not limited to, swinging bridge pieces together so bridge beams rest on bearing plates, welding beams to bearing plates, installing nuts on anchor bolts imbedded in top of footings, bolting bridge pieces together, installing guardrail posts supplied with bridge, and attaching the wood curbs to posts.

Wood Curbs for Bridge (4x12) is a separate pay item within this section. Payment will be Lump Sum for all construction work required to build the wood curbs.

- Wood for curbs shall be dimension lumber Douglas fir No. 2 (not pressure treated) 4x12's provided on-site by the Contractor. All wood cutting, fitting and assembly shall be done by Contractor.

- All hardware shall be galvanized steel.

- Hex head bolts to attach wood curbs to steel posts shall be $^1/_2$"-dia. x 6"-long w/ hex head nuts and lock washer each. Drill wood curbs $^1/_2$"-dia. for bolt installation, per hole pattern on bridge posts.

- All joints for curbs to be at posts. Pre-drill these joints, then hammer galvanized steel nails for secure joint connections.

Stainless Steel Allthread (bridge) is a separate pay item for the allthread (anchor bolts) that will be imbedded in the reinforced concrete screen structure. These materials are described on the concrete structure drawings; stainless steel alloy 304 or 316 can be used.

Division 7 – Drainage Structures

7-80 PVC Pipe

This specification includes the PVC pipe for fish screen bypass. Construction lines, grades, depths of burial, etc. are listed or indicated on drawings, and the engineer will lay out the fish bypass system on-site (as shown on drawings).

Polyvinyl chloride (PVC) pipe and fittings shall be Class 100 (IPS) with gasketed ends. Required materials are shown on project drawings. Separate bid items for pipe and fittings are listed on the Bid Form; payments will include PVC supply and installation as shown on the drawings.

Division 8 – Miscellaneous Construction

8-40 Install Aqua Screen Assembly

Contractor shall schedule screen and solar power assembly delivery to the site with Aqua Systems 2000 (Chase Herder, 403-380-2724, Chase@as2i.net). Yakama Nation will separately pay for Aqua Systems staff to be on-site for two days to work with the Contractor for fish screen and solar power installation, electrical connections, battery installation, and system startup and testing.

The fish screen and mechanical cleaning system will be supplied at the project site by Aqua Systems 2000, as a single fabricated assembly to be anchor-bolted into the reinforced concrete structure. The plan view of the fish screen assembly is shown on project drawings. YN will provide detailed drawings of the screen assembly from Aqua

Systems 2000 when they are available for Contractor reference. Placement of the screen assembly into the concrete structure shall be paid Lump Sum as listed on the Bid Form; attachment of the screen assembly to concrete walls with multiple anchor bolts is covered with a separate bid item.

A solar power panel and controls will be supplied at the project site by Aqua Systems 2000, as a single fabricated assembly to be anchor-bolted to a small stub wall along the reinforced concrete structure. Solar power assembly details will be shown on drawing sheets provided by Aqua Systems 2000. Placement of the solar power assembly onto the concrete wall shall be paid Lump Sum as listed on the Bid Form; attachment of the solar power assembly to the concrete wall with four anchor bolts is covered with a separate bid item.

The Contractor's bid shall include two days for a licensed electrician to work with Aqua Systems 2000 staff to accomplish all electrical connections and battery installation required. The Electrician shall remain on site thru startup and testing of the mechanical screen cleaning system. Payment for electrical system installation and startup is a separate bid item listed on the Bid Form.

8-50 Stainless Steel Slide Gate

8-50.1 Description

This section lists the stainless steel slide gates (2 each) to be installed at the new reinforced concrete structure.

8-50.2 Materials and Construction

Slide gate materials, dimensions, and requirements are listed on project drawings and are not repeated here. Slide gates to be Waterman stainless steel gate No. SS-251-1-Y-36x24-10. See the drawing for overall gate dimensions. McWane MPI (https://mcwanepi.com) is a recommended supplier of Waterman slide gates.

Gate frames will include a flange all around for mounting around the openings in a concrete wall. The flanges will have holes for anchor bolt attachment of the gates to vertical concrete surfaces. Anchor bolts for gate attachment are included in another specification. A thin layer of non-shrink grout or silicon sealant shall be spread between the gate flanges and concrete walls prior to gate attachment; this grout or sealant is considered part of the installation cost (i.e. incidental).

8-50.3 Payment

Payment for "Stainless Steel Slide Gate" shall include all elements of gate design, fabrication, supply, and installation at the work site. Payment will be for each slide gate as listed on the Bid Form, with the unit price including on site installation of each slide gate.

8-60 Stainless Steel & Aluminum Items

8-60.1 Description

This specification includes all fabricated stainless steel items including trashrack panels and supports shown on drawings, and the gate locking plate. Stainless steel slide gates are covered with a different specification.

This specification also includes all fabricated aluminum that includes damboard slots and trashrack rakes as shown on drawings.

Galvanized steel materials including grating panels, grating supports and small covers for damboard slots are also included in this specification.

Each bid item includes materials, fabrication, and on-site installation of the metal items shown on drawings.

8-60.2 Materials

All stainless steel to be alloy 316. Fabrication of stainless steel items to meet general requirements listed in Section 8-60.3 for aluminum fabrication.

Aluminum shall be alloy 6061 or 6063. All aluminum items shall be fabricated in the shop, to eliminate any field welding. Outside surfaces of all fabricated aluminum items shall be smooth.

Galvanized steel grating panels and supports are detailed on project drawings, including a requirement to hot-dip galvanize all materials after in-shop fabrication. The quantity for galvanized steel grating shown on the Bid Form is the net surface area of grating panels fabricated to drawing dimensions; this surface area does not include grating areas cut from stock lengths to fabricate the required grating panel pieces.

Galvanized steel clips to be provided by grating supplier, to secure grating to the top of support channels, are considered incidental to the galvanized steel grating price. Small galvanized steel bolts required for the grating clips are listed as a separate bid item on the Bid Form.

8-60.3 Aluminum Fabrication (similar for stainless and galvanized steel)

All aluminum items shall be fabricated in the shop, to eliminate any field welding. Outside surfaces of all fabricated aluminum items shall be smooth. Inform the engineer of fabrication schedule and location in order to allow periodic shop inspections of the work progress.

Aluminum items shall be fabricated in accordance with the Aluminum Association's Specifications for Aluminum Structures and American Welding Society's Structural Welding Code Aluminum. All welds shall be continuous ¼" thick fillet welds for materials with a thickness of ¼" or more, unless noted otherwise on drawings. For thinner materials, all welds shall be continuous $^1/_8$"-thick unless noted otherwise. Make welds neat in appearance. Weld splatter, burns, and other unwanted material shall be

removed in the shop, prior to transport of fabricated items to the project location. All oil, grease, and dirt shall be removed from the surfaces of the fabricated items, using a solvent and clean wiping material.

Aluminum fabrications shall be placed accurately in location, alignment, and elevation, plumb, level, true, and free of rack, as shown on Sheets.

8-60.4 Payment for Metal Items

Payment for stainless steel, aluminum, and galvanized steel fabrication shall be by pound of completed work (not stock lengths), as listed on the Bid Form.

8-70 Stainless Steel Anchor Bolts

8-70.1 Description

This specification is for anchor bolts which will be used for multiple attachments of metal items to concrete.

8-70.2 Materials and Construction

All bolts included in this specification shall be stainless steel (alloy 304). Anchor bolts shall be from the Hilti Kwik Bolt II group of anchor bolts (or equal), $^{3}/_{8}$"-diameter x 5"-long or $^{1}/_{2}$"-dia. x 5"-long (see drawings). Bolts shall each include one washer and one nut (all stainless steel).

8-70.3 Payment

Payment for anchor bolts shall be as listed on the Bid Form (Each), with payment including anchor bolt supply and installation.

8-80 Wood Damboards

Wood for the damboards shall be 4x8 (nominal) No. 2 or better Douglas fir, cut to length and dimension listed on drawings. Payment for damboards will be Lump Sum.

8-90 Staff Gages

Staff gages shall be supplied by YN, to be installed by the Contractor as shown on drawings. Staff gages shall be one section (approximately 3'-long) painted flat steel with measurements shown to $^{1}/_{100}$ of feet. Staff gages shall be securely attached to a steel T-post driven into the bank ditch downstream of the screen structure (see drawings), or anchor bolted to an inside reinforced concrete wall of the screen structure. Payment for staff gage installation shall be Each.

8-95 Erosion Control Materials

Erosion-Control Seeds shall be a mix of native (eastern Washington) plants specifically intended for erosion-control and commercially available. Excavation and fill areas to be raked to create a rough surface prior to seed application. Seeds shall be spread by hand at an application rate 1 pound of seeds scattered over 500 to 1,000 ft^2 ground area. Payment will be per pound of seed mixture supplied and spread.

Weed-Free Straw shall be certified weed-free, dry and supplied in bales approximately 14”x14”x36”-long (conventional bales). After seeding, straw shall be spread over areas that were excavated or filled. Straw to be spread at an application rate about 1 bale per 500 ft^2 ground area. Payment will be per bale delivered to the site and spread.

Division 9 - Materials

9-03 Aggregates

9-03.1 Description

This section specifies Streambed Mix to seal supersacks for de-watering of project areas, Boulders for the roughened channel, Cobbles for footing protection of the box culvert, Washed Sand to fill Boulder and Cobble voids, and Crushed Rock.

9-03.2 Materials

Streambed Mix to be 50% (by volume) 1” to 2”-size gravel (i.e. drain rock) mixed with 50% washed sand.

Boulders shall be rounded native stones with nominal dimensions 9” to 18”-size. Boulders shall be randomly sized within this range (i.e. boulders shall not be in a subset range for example only 9” to 12”-size).

Cobbles shall be rounded native stones with nominal dimensions 6” to 12”-size.

Washed Sand shall be pit-run sand from a commercial pit, washed to remove most silt and clay-sized particles.

Crushed Rock shall be WSDOT 9-03.9(3) Base Course (1¼”-minus) as shown on project drawings.

9-03.3 Payment

Payment for all materials within this section shall be “actual quantity”, with estimated quantities shown on the Bid Form (Contractor to provide truck tickets for actual quantity payment). Payment includes supply, placement, spreading and compaction (only the crushed rock needs to be compacted).

9-13 Riprap, Quarry Spalls, etc.

This section specifies Broken Rock (2” to 4”-size), Quarry Spalls (4” to 8”-size), and Riprap (12” to 24”-size). All materials within this section to meet requirements outlined in WSDOT Standard Specification 9-13.

Payment for all materials in this specification will be per ton delivered to the work site and incorporated into the project. Truck tickets shall be provided to verify the tons supplied. Payment will include supply, haul, and placement as shown on project drawings.

Construction Oversight

Fisheries Engineers, Inc. has been awarded the construction oversight contract. Furthermore, Fisheries Engineers Inc. designed the fish passage project and coordinated with Aqua Systems 2000 to develop the fish screen design and fabrication for the fish screen delivery.

The **designated project lead from the Yakama Nation or designated engineer from Fisheries Engineers** shall be available during all construction activities to provide the **Contractor** with information as required to carry out the **Contract**. Except as noted that the **Yakama Nation** shall have full authority to direct **ALL** work. The **Yakama Nation designated representative** must preapprove any deviation from specifications or instructions.

Construction Schedule

Upon award of this contract the contractor may commence pre-mobilization planning. Construction is expected to occur from September to October 2026.

Exhibit B

Bid Form

Snake Creek Fish Passage Project

Contractor: _____ Date: _____

Item No.	Spec.	Item	Qty	Unit	Unit Cost	Total Cost
1	1-09	Mobilization	1	LS		
2	1-50	Surveying (most will be done by engineer)	1	LS		
3	2-01	Clearing (at screen site)	1	LS		
4	2-09	Excavation (stockpile all, includes site prep)	870	CY		
5	2-09	Backfill & Compact (track and bucket compact)	570	CY		
6	2-09	Dispose Excess Soils (on-site)	300	CY		
7	2-15	Water Control (supersacks, trashpumps)	1	LS		
8	2-15	Temporary Install Steel Bridge	1	LS		
9	6-02	Concrete for Cutoff Walls (unreinforced)	14	CY		
10	6-02	Cast-In-Place Reinforced Concrete Slabs	42	CY		
11	6-02	Cast-In-Place Reinforced Concrete Walls	51	CY		
12	6-02	Pre-Cast Concrete (platform, bridge backwalls)	2	CY		
13	6-03	Weathering Steel Bridge Supply	1	LS	Supply by YN	
14	6-03	Steel Bridge Assembly & Install	1	LS		
15	6-03	Wood Curbs for Bridge (4x12)	1	LS		
16	6-03	Stainless Steel Allthread (bridge)	12	EA		
17	7-80	12"-dia. PVC Class 100 Pipe (IPS)	120	LF		
18	7-80	12"-dia. PVC Tee (Class 100 IPS)	1	EA		
19	8-40	Aqua Systems 2000 Screen Supply	1	LS	Supply by YN	
20	8-40	Install Aqua Systems Screen Supply	1	LS		
21	8-40	Install Aqua Systems Solar Power Assembly	1	LS		
22	8-40	Electrician & Aqua Install & Start-Up	2	DAY		
23	8-50	Stainless Steel Slide Gate	2	EA		
24	8-60	Stainless Steel Fabrication & Install	1,180	LB		
25	8-60	Aluminum Fabrication & Install	200	LB		

Printed Name _____ Signature _____

Title _____

Exhibit B

Bid Form

Snake Creek Fish Passage Project

Contractor: _____ Date: _____

Item No.	Spec.	Item	Qty	Unit	Unit Cost	Total Cost
26	8-60	Galvanized Steel Fabrication & Install	1,090	LB		
27	8-60	Galvanized Steel Grating (includes clips)	300	SF		
28	8-60	Galvanized Steel Bolts (for grating clips)	1	LS		
29	8-70	Stainless Steel Anchor Bolts (3/8"-dia.x5"-long)	40	EA		
30	8-70	Stainless Steel Anchor Bolts (1/2"-dia.x5"-long)	190	EA		
31	8-80	Wood Damboards (4x8 lumber)	1	LS		
32	8-90	Staff Gauge Supply & Installation	2	EA		
33	8-95	Erosion Control Seed	4	LB		
34	8-95	Straw Mulch	12	BALE		
35	9-03	Streambed Mix (to seal supersacks)	30	TN		
36	9-03	Boulders (9" to 18"-size)	295	TN		
37	9-03	Washed Sand (sluice into boulder voids)	140	TN		
38	9-03	Crushed Rock (1-1/4"-minus)	30	TN		
39	9-13	Broken Rock (2" to 4"-size)	45	TN		
40	9-13	Quarry Spalls (4" to 8"-size)	160	TN		
41	9-13	Riprap (12" to 24"-size)	110	TN		
Construction Total (Bid):						

CY = cubic yard LB = pound SF = square foot

EA = each LS = lump sum TN = ton

Printed Name _____ Signature _____

Title _____