

**REQUEST FOR PROPOSALS**  
**Engineering Design Services:**  
**HOWARD LAKE ROAD/UPPER KLIKITAT RIVER**  
**FLOODPLAIN ENHANCEMENT**  
**Geomorphic Assessment and Conceptual Design**  
**for Floodplain and Side-Channel Reconnection**  
**Yakama Reservation**



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**YAKAMA NATION FISHERIES PROGRAM**

**Yakama Nation Fisheries - Klickitat Field Office**

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**Proposals Due: Dec 6th, 2021 - 5:00 pm**

# REQUEST for PROPOSALS for ANALYSIS & DESIGN SERVICES

## I - PROJECT OVERVIEW

The **YAKAMA NATION (YN)** Southern Territories Habitat Project (STHP) is soliciting a Request for Proposals for Analysis and Engineering Design Services on the Upper Klickitat River at the BIA 32 Rd (Howard Lake Rd) crossing on the Yakama Reservation in Washington State. This project will include desktop assessment of existing LiDAR data, drone imagery and other remote data sources to inform a geomorphic assessment and identification of alternative scenarios for floodplain and side channel reconnection to reduce river interaction with existing infrastructure.

This project involves the initiation of a design process to address a cross valley road embankment that bisects the Upper Klickitat Valley in the vicinity of past habitat work (SRFB/BPA funded Upper Klickitat Phases 2-4). Work entails conducting a geomorphic assessment of the Klickitat River reach from the confluence with the Diamond Fork downstream to where the 32 Rd crosses the Klickitat River known as "Two Bridges." Repeated road washouts of the 32 road have necessitated reactive "fixes" to the eastern road approach. The selected firm's work will support the YN in evaluating and selecting a restoration alternative to meet the overall project goal: to improve the geomorphic, hydrologic and ecological function of the Upper Klickitat Reach near RM 75.6 in the vicinity of BIA Rd 32 (Howard Lake Rd) while maintaining seasonal access to the Howard Lake area.

The STHP works to restore, enhance, and protect watershed function in Washington tributaries of the mid-Columbia region. Efforts emphasize restoration and protection of Endangered Species Act (ESA)-listed anadromous fish. Activities focus on improving stream processes by resolving watershed constraints and improving habitat conditions in support of species recovery.

RFP proposals shall include: a desktop assessment of existing LiDAR data and drone imagery, potential supplemental topographic survey, hydraulics and hydrology and 2-D and/or 3-D modeling, an alternatives analysis, design presentation/s to stake holders, 30% design of the selected alternative, permitting support and identification of data needs for subsequent design phases.

## II - BACKGROUND

The project is located near Klickitat river mile 75.6 in the Closed Area of the Yakama Reservation in the SW ¼ of T10N R13E S9 at coordinates (46.3647848, -121.1904192). The contributing watershed upstream of the crossings is approximately 89 square miles (USGS, 2021). The upper Klickitat River provides spawning and rearing habitat for mid-Columbia ESA – threatened steelhead (*O. mykiss*), spring Chinook (*O. tshawytscha*) and rainbow trout. Road construction and valley-bottom confinement, logging throughout the watershed, and grazing of

meadow complexes have influenced channel, riparian, and floodplain conditions observed today.

In the winter of 2015-2016, the east approach of the eastern bridge washed out and has been continuing to degrade since that time. Channel evolution and future road management actions also have the potential to adversely impact completed habitat work downstream (2008-2013). This design process seeks to address the chronic road issues through evaluating the activation of existing side channel habitats to reduce peak flow frequency in the eastern most channel and enhance channel complexity in this anastomosing reach.

### **Valley Setting**

The Klickitat River splits into two major channels (“east/main” and “west”) approximately 3,000 feet upstream of the 32 Road (Conley, 2016). Both channels exhibit wandering and branching forms. Review of high resolution topography collected in 2011 indicates overbank flow is typically from the east/main channel across the floodplain toward the west channel. Within approximately 2,100 feet upstream of the road crossing, the west channel generally occupies lower positions for most valley cross-sections, consistent with flow patterns.

The crossing consists of a valley-wide embankment composed of earthen fill with a crushed aggregate running surface, two bridges (a.k.a. ‘Twin Bridges’) and several small under-sized cross-drain culverts. Each bridge has a single, clear span of approximately 60 feet and an asphalt/BST (chip seal) running surface. The crossing occurs within a valley segment that has an average width of approximately 1,500 feet with an active, inset valley width ranging from 700-1000 feet. Within the active valley, the Klickitat River exhibits multi-thread channel forms. Secondary channels associated with and/or potentially affected by the crossing range from 3,200 lineal feet (l.f.) upstream (vicinity of Diamond Fork confluence) to 4,800 l.f. downstream (vicinity of Piscoe Creek confluence) measured along the primary channel of the Klickitat River. The 255 Road crosses approximately ½-mile downstream of the 32 Road and also has a cross-valley embankment with two bridge crossings.

### **Bridges**

The east bridge has a deck length of ~65’ and traveled way width of 30’. The deck slopes downward from east to west at 1-2%. The span is composed of eight concrete panels, each 4’ wide that are cross-bolted. A wash-out over the winter of 2015-2016 occurred at the east end of the east bridge which crosses the primary river channel and is oriented more-or-less normal to the channel alignment. The river has undercut the left-bank immediately upstream of the flanked east abutment, and partly eroded fill material of the approach. Riprap formerly on the river face of the east abutment was washed away. Riprap on the face of the west abutment was largely in-place, but the slope steepens in the downstream direction, has a sheared appearance, and the toe deflects toward the abutment by several feet (resulting in a slope steeper than angle of repose. This washout has been temporarily halted through the addition

of riprap sized material and pre-fabricated concrete blocks. Lateral bank erosion continues at this location.

The combination of the relative vertical position of the west channel invert 4-5 feet lower than the east channel at the road crossing, ongoing aggradation of the east channel, and floodplain channel development, conditions exist for channel avulsion. If avulsion were to occur, substantial damage or even complete removal of the embankment to the east of the west bridge can be expected. Even in the absence of avulsion, increased pressure on the up-valley embankment face can be expected into the future.

### Gage Hydrology

The USGS has operated gage 14107000 (“Klickitat River above West Fork near Glenwood, WA”) near Castile Falls since 1945. During that period, there a 59 years of record and a suspension for water-years 1979-1991 (inclusive). The gage is located approximately 9.9 miles downstream of the 32 Road at the “Castile Crossing” bridge at RM 65.7. See the **Preliminary Geomorphic Assessment of the 32 Rd Wash-out, Klickitat River**, 2016 report for additional hydrologic analysis of the site to date.



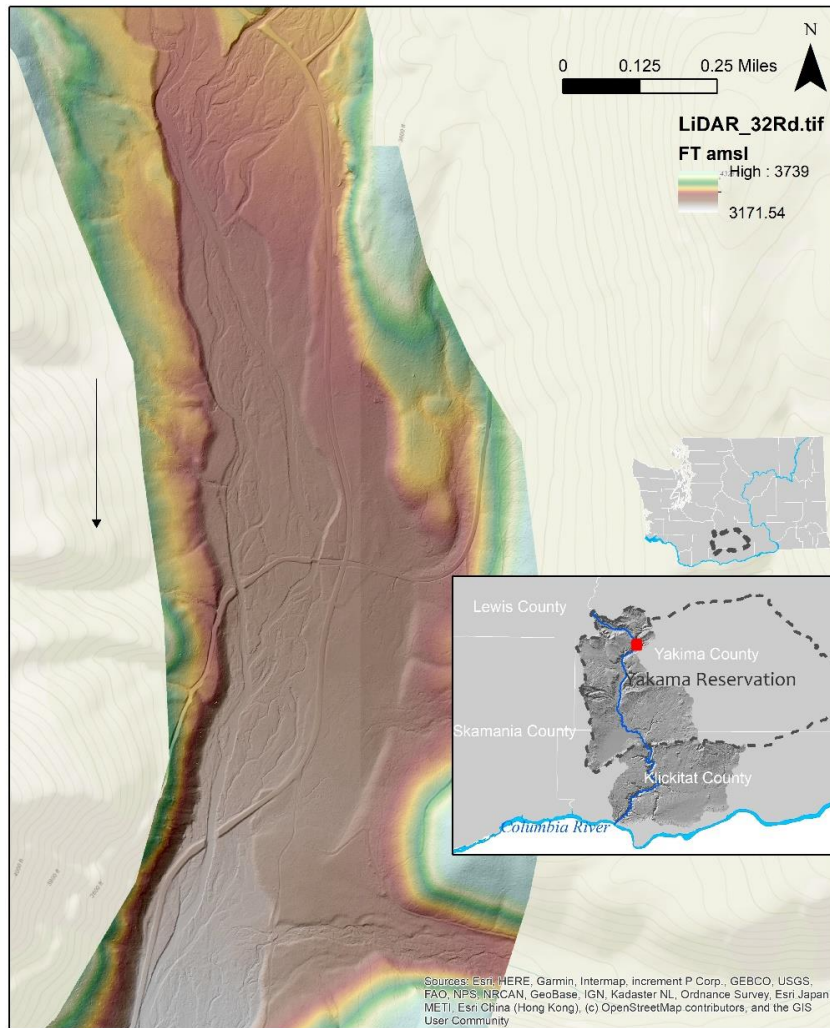
**Figure 1.** Drone Imagery from October 2021. Flow pattern is right to left.



**Figure 2.** Drone Imagery from October 2021. Channel evolution 250 ft. downstream of east channel 32 road crossing, flow is from left to right.

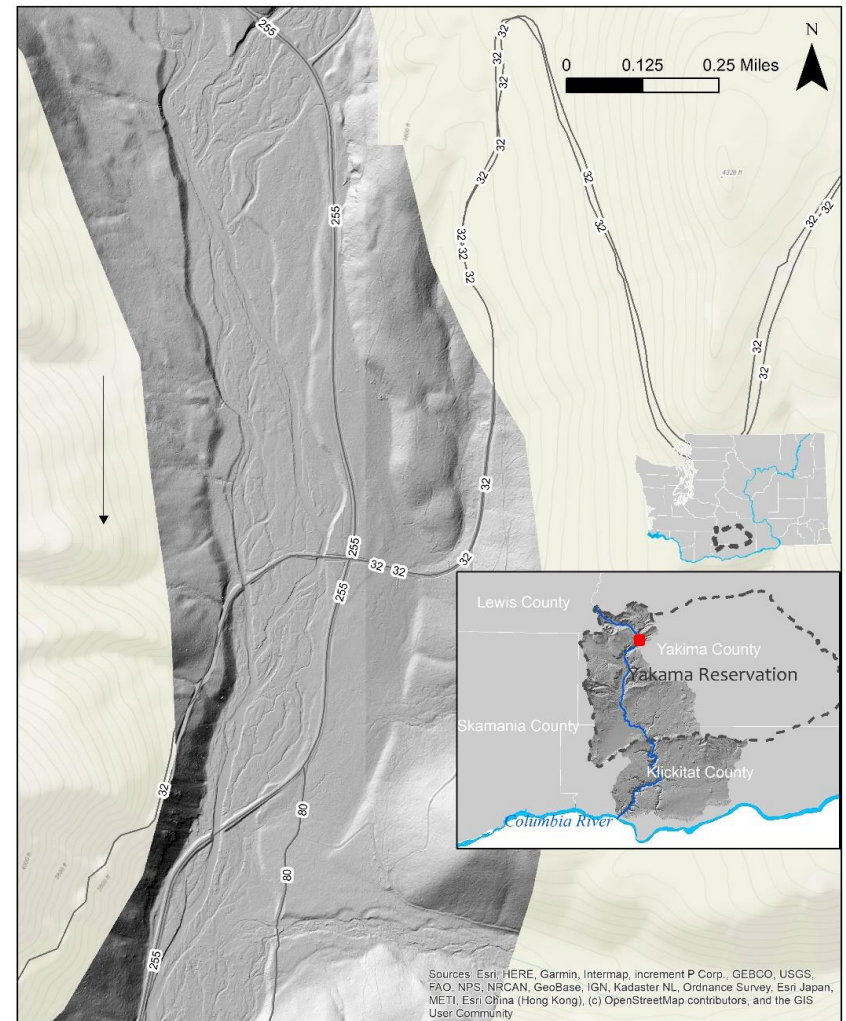


**Figure 3:** Point 1. East bridge 2. Eroding bank 3. Alluvial deposits 4. Side Channel inlet 5. Side Channel 6. West bridge 7. 32 Rd.



Howard Lake Rd/ Upper Klickitat River  
Floodplain Enhancement

Drawn by A Grimm 11/11/2021



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**Figure 4.** Area map showing elevation (left) **Figure 5.** Area map showing road locations – 32 Rd/255 Rd is the focal area (right)



**Figure 5.** Downstream view of bar accretion (river right) associated with flow distribution at the bridge.



**Figure 6.** Close up photos of east abutment washout (taken 6/17/2016).

### **Left-Bank Upstream of Bridge (Figure 3, point “2” vicinity)**

Aside from the bridge itself, the most visible feature in the vicinity of the bridge is the left channel margin upstream of the bridge.

This margin is a steep, eroded face that marks the left/east boundary of the active valley bottom and floodplain. The bank is composed of multiple units with at least four major ones, including:

- Upper (top 4-5' of profile) – poorly sorted, weakly clast-supported (possibly matrix-supported), rounded to sub-angular large gravels to medium boulders, silty matrix
- Upper Middle – thin, variable unit of clast-supported, sub-rounded gravels to large-cobbles with a few boulders
- Lower Middle – variable, sub-angular gravels with some cobbles, possibly matrix-supported
- Toe (lower 2' visible above waterline) – clast-supported sub-rounded gravels up to medium-cobble with cohesive matrix; likely multiple units



**Figure 7.** Actively eroding face of left bank approximately 200 l.f. upstream of bridge.

### **Vicinity of Side-Channel Inlet (Figure 3, vicinity of point “4”)**

An active side channel bifurcates from the right bank of the main channel approximately 500 l.f. upstream of the bridge. In the past, surface flow has been observed entering the side-channel and flowing toward the west bridge/channel. This area has signs of mainstem bed aggradation in the area with vegetation providing the most recognizable indicators.

For this portion of the Klickitat River, persistent woody riparian vegetation is expected to be rooted outside of the active channel (~1.4-year return interval). However, numerous mature cottonwoods were observed with the lower portions of their trunks in six inches or more of water (e.g., vicinity of “A”). Further, young, vigorous alders (e.g. “B”s) and young, dead firs (e.g. “C”s) were observed growing on the same surface. An older ponderosa pine (“D”) occupies a lower cross-sectional position than would be typically expected for initial establishment. Firs are intolerant to inundation and alders are a colonial species and quite well adapted to inundation and fluvial disturbance. Given ages and species involved, the aggradation would seem to be fairly recent, within last 15 years (Conley, 2016).

The channel and floodplain patterns observed in vicinity of the 32 Road are desirable from a fisheries habitat management perspective. Historic Klickitat River channel complexity and floodplain connectivity were lost with construction of the 255 and 32 roads. Over the last 15-

20 years, the YN Fisheries Program has been actively managing the Klickitat River to mitigate past habitat losses and minimize future damage caused by forest roads in the general area.

### **III. OVERALL PROJECT GOALS & OBJECTIVES**

The overall goal of the project is to conduct an assessment and develop conceptual design options for improving the geomorphic, hydrologic and ecological function of the Upper Klickitat Reach near RM 75.6 in the vicinity of BIA Rd 32 (Howard Lake Rd) while maintaining cross valley road access on both sides of the Klickitat River. The design process seeks to address the chronic road issues, enhance salmonid habitat, and reconnect floodplain surfaces through evaluating the activation of existing side channel habitats to reduce peak flow frequency in the eastern most channel.

The contractor's work will support YN in evaluating and selecting a restoration alternative to meet the specific project outcomes:

1. Address infrastructure complexities and potential for failure if a no action alternative is taken
2. Address how current conditions contribute to potential degradation or failure of past restoration projects (Upper Klickitat Phase 2-4) downstream of the 32 Rd crossing
3. Encourage structural complexity and high quality spawning and rearing conditions for *O. mykiss* in active and side channel environments
4. Enhance conditions that activate the existing side channel or other channel evolution processes that might reduce peak flow frequency in the eastern most channel.
5. Restore processes that support diverse riparian vegetation and floodplain forest development.

### **IV – SCOPE OF WORK and KEY DELIVERABLES with PROPOSED SCHEDULE**

The cost estimate should reflect the following design components:

- A. Site Reconnaissance – Jan & Feb 2022
  - a. Desktop Analysis (field visits unlikely due to winter conditions)
  - b. Geomorphic Assessment of the Klickitat River from the confluence with the Diamond Fork downstream to Two Bridges of the 32 Rd.
- B. Hydrology & Hydraulics - Feb 2022
  - a. Build upon existing hydrology assessment
  - b. HEC Ras 2-D of conceptual alternatives

- C. Alternatives Analysis Feb 2022
  - i. Develop and present three conceptual design alternatives for the site
  - ii. Understand and convey to YKFP staff information that can be relayed to YN Leadership (Roads, Irrigation and Lands Committee) on the geomorphic processes that have activated the currently observed conditions and likely future conditions
  - iii. Provide design options presentation to YKFP staff
- D. Design Submittals - March 2022
  - i. Advance selected alternative to 30% design level
  - ii. Provide design plansets
  - b. Basis of Design Report - March 2022
    - i. Describe limiting factors and degraded condition
    - ii. Project objectives
    - iii. Plans and designs with approximate cost estimates
    - iv. Support with initial HIP IV Permit Submission and APE for Section 106 Initiation
- E. Budget and Plan for Future Design Phases
  - a. Identify data needs to inform 60% design (topo survey, 3D modeling, etc)
  - b. Provide cost estimate for 60% design iteration

Requirements:

- The project alternatives must not increase risk to roads, bridges, recreational facilities, or other infrastructure.
- The selected firm should demonstrate experience with various approaches in complex mainstem river environments with a similar hydrologic regime.

Yakama Nation will provide:

- Personnel to support site reconnaissance and on-site survey as feasible
- YN fisheries and habitat data upon request
- Project Management and Coordination
- Aerial & Drone photography
- LiDAR flights from 2011 and assistance obtaining new DNR LiDAR as it becomes available

## **V – TIMING AND DURATION**

We expect to award this contract in December 2021 and receive final deliverables by March 31, 2022. Qualified Contractor Proposals shall be received via email no later than 5:00 P.M. Pacific Daylight Time on December 6, 2021. Bids may be emailed to: David Lindley at [dlindley@ykfp.org](mailto:dlindley@ykfp.org)

<b>Critical Dates:</b>	
Submission Deadline:	December 6, 2021 - 5:00 pm
Project Initiation (est):	January 5, 2022
Project Completion (est):	March 31, 2022

## **VI – MINIMUM QUALIFICATIONS**

### **PROPOSAL SUBMITTAL CONTENT**

To be considered responsive to this RFP, the Proposal shall include all items identified in Section IV by the deadline specified in Section V.

### **PROPOSAL COVER AND COVER LETTER**

Clearly label the Proposal cover and the subject line in the cover letter with “PROPOSAL for Yakama Nation Howard Lake Road/Upper Klickitat River Floodplain Enhancement.” The cover letter shall be limited to one page and shall identify the consultant name and contact person, their title, mailing address, email address, phone number, and the name of the proposed project manager.

### **CONSULTANT TEAM STRUCTURE**

Provide the team structure, identifying any sub-consultants, including names of lead persons with titles and general project responsibilities, and the physical location of each lead person.

### **TEAM/PERSONNEL QUALIFICATIONS AND EXPERIENCE**

The Proposal will be evaluated for the team and individual team member’s qualifications, general background, and experience in relation to the stated Scope of Work.

### **PROJECT APPROACH**

The Proposal will be evaluated based on the approach and proposed solutions for increasing water holding potential of the meadow, reducing erosion in the perennial channel, addressing the culvert replacements and access constraints, monitoring change, making habitat improvements, and engaging other interested parties.

### **PAST PERFORMANCES/REFERENCES**

References may be used to verify the accuracy of information provided in the Proposal. Provide three recent references who can be contacted concerning your firm’s/team’s RFP. In listing the references,

include the name of the client, telephone number, e-mail address, contact person, and the specific work your firm did for the client. Also provide three recent references who may be contacted concerning the performance of your firm's/team's proposed project manager(s). The Yakama Nation reserves the right to contact references other than those submitted by the respondent.

#### **FEE SCHEDULE**

The Proposal will be evaluated on the costs associated with the design work. Please include:

- A. Hourly rate by position classification and estimated hours per task
- B. Charges for equipment, printing, or other costs
- C. Direct expenses (if applicable)

### **VII - SELECTION PROCESS & EVALUATION CRITERIA**

Each firm shall provide references and/or other information related to their proposal that demonstrates past performance. The Yakama Nation will evaluate the qualifications of bidders. The YN has the sole discretion and responsibility for choosing the responsive and responsible contractor per Federal Contracting Guidelines.

Proposal should include the consulting firm's:

- Qualifications (30)
- Methodology (30)
- Budget/Schedule – Personnel Hourly Rates and Estimated Overall Project Cost (40)

#### **Qualifications & Relevant Experience (30 pts):**

Proposals will be ranked based on the qualifications of the proposed team members, subcontractors, team structure, and project manager.

- a. Discuss overall experience with this type of restoration project.
- b. Identify any consultants that will be involved with the project.
- c. Identify the project manager and discuss their technical expertise, skills and experience in managing this type of project.
- d. Higher scores will be awarded for demonstrating a cohesive team with relevant qualifications and combined experience.

Present at least three completed projects that demonstrate experience in:

- a. Stream restoration, with an emphasis on major road infrastructure, including hydraulic and geomorphic assessments.
- b. Use of HEC-RAS 2D or 3D models to develop restoration projects and/or model hydrologic and geomorphic conditions.
- c. Presentation of modeling restoration scenarios in written reports.

- d. Engineering knowledge to understand potential downstream impacts to roads, bridges, and channel evolution under varied flow conditions and time scales.
- e. Development of Plans, Specifications and Estimates.
- f. Ability to work within a budget and timeframe.

**Methodology (30 pts):** Provide general approach for the described design tasks, including methods proposed for minimizing costs. Higher scores will be awarded for demonstrating a high degree of interdisciplinary problem solving, consideration to cost containment, and emphasis on design team communications (including the YN).

**Budget and Schedule (40 pts):** Provide a detailed budget with concise justification of cost. Include applicable total hour calculations and rates, a proposed schedule for the deliverables described and a final budget and schedule.

Reference: **Preliminary Geomorphic Assessment of the 32 Road Wash-out, Klickitat River Yakama Reservation, Washington, 2016**