PROJECT SPECIFIC AGREEMENT
PSA #: WWP2016-001-01

TROUT UNLIMITED
AND
HERRERA ENVIRONMENTAL CONSULTING FOR
Yakima River Restoration at Anderson Property

TROUT UNLIMITED, hereafter called "**TU**", does hereby agree with **HERRERA ENVIRONMENTAL CONSULTING,** hereafter called "**HERRERA",** as follows:

HERRERA agrees to the following in the performance of work, duties, and obligations devolving upon it. **TU** is retaining **HERRERA** to carry out tasks detailed in attached **Statement of Work** (**Exhibit A**).

1. **HERRERA** will implement the Project as determined by **TU** in accordance with the terms, conditions and specifications of the funding available. The Terms and Conditions are attached hereto in **Exhibit A** and are hereby incorporated as a part of this Agreement. The Terms and Conditions shall have the same force and effect as if included in the text of this Agreement.

2. The **Statement of Work,** attached as **Exhibit A** hereto is incorporated as a part of this Agreement. The Statement of Work may be modified without amendment of this Agreement upon **HERRERA'S** submission of proposed modifications and **TU's** approval.

3. **HERRERA** shall provide the following:

    A. Close coordination with **TU** staff and other involved entities, including local, state and federal agencies, as well as equipment operators, and local landowners.
    B. Participation in meetings and other communications as necessary to ensure coordination and implementation of this scope of work.
    C. Notification to **TU** regarding any decisions to be made that involve questions of compliance with laws and regulations or compliance with the funding.
    D. A copy of any subcontracts existing as of the date of execution of this Agreement for work conducted or to be conducted under this Agreement for review by TU.
    E. A copy of any proposed subcontracts, in whole or in part, contemplated by **HERRERA** prior to initiation for review and action by **TU.**
    F. A monthly request for payment due by the 5th of the month for the previous month's expenditures. This payment request shall be detailed by work element, staff, rate, and total.

4. All terms and provisions of the Master Service Agreement dated May 13, 2016 between **TU** and **HERRERA** are in effect for this sub-agreement for services.

5. The term of this Agreement shall commence upon signing of both parties and shall continue in effect until December 31st, 2017 or as officially extended. This Agreement may be amended upon mutual written consent of both parties.

6. **This Agreement is expressly made contingent upon funding being available.** Upon termination of the funding for any cause whatsoever, **TU** shall notify **HERRERA** and this **TU/HERRERA** Agreement shall terminate upon **TU's** written notice. **TU** shall pay all amounts reimbursed by this PSA for work conducted by **HERRERA** and its authorized subcontractors up to the date of

termination.

7. The maximum compensation to **HERRERA** for its services under this Agreement shall not exceed the amount of money as outlined in the approved project budget (**Exhibit A**). **HERRERA** may invoice and **TU** will pay for any work done prior to execution of this PSA provided the work is eligible for payment under this Agreement.

8. By signing this Agreement, **HERRERA** also acknowledges receipt and review of the Terms and Conditions.

The Effective Date of this Agreement is MAY 16, 2016.

Accepted and Agreed to by **Trout Unlimited** and **HERRERA ENVIRONMENTAL CONSULTING**.

By: _____
Lisa Pelly, Executive Director
Trout Unlimited
103 Palouse, Suite 14
Wenatchee, WA 98801

By: _____
Theresa Wood
Herrera Environmental Consulting
2200 Sixth Avenue, Suite 1100
Seattle, WA 98121
Tax Payer ID#:

Exhibit A –
Statement of Work & Budget:
Yakima River Restoration at Anderson Property

EXHIBIT A. SCOPE OF WORK

Yakima River Restoration at Anderson Property: Alternatives Analysis and Final Design

In April, 2016, Trout Unlimited (TU) requested a scope of work and cost estimate from Herrera Environmental Consultants (Herrera) to assist with an alternatives analysis (to be developed by TU) and final design of a levee setback on the Anderson Property adjacent to the Yakima River near Ellensburg, Washington. The work is intended to improve the availability of main stem and off-channel habitat for native salmonids in the area.

Herrera will be supported in this work by Watershed Science & Engineering for hydraulic modeling and analysis, Cruse & Associates for survey and base mapping, and Perrone Consulting for geotechnical analysis. This scope of work describes the activities, assumptions, and deliverables associated with the following tasks that the Herrera team will perform:

Task 1. Initial planning and site assessment

Task 2. Geotechnical Analysis

Task 3. Hydrologic and hydraulic analysis and modeling

Task 4. Professional site survey (as necessary)

Task 5. Conceptual design drawings

Task 6. Preferred alternatives feasibility assessment support

Task 7. Preliminary design (permit level design)

Task 8. Final design of selected alternatives

Task 9. Project management

Task 1. Initial Planning and Site Assessment

Estimated Task Budget: $3,863

The Herrera team will begin project work by reviewing background materials focusing primarily on new, site-specific information provided by TU.

Herrera will attend a project kickoff meeting with TU staff prior to conducting onsite field work. The purpose of the meeting will be to discuss and refine project objectives and constraints, identify opportunities to maximize project benefits (and attractiveness for funding) while minimizing costs, and discuss data gaps we need to fill in developing and comparing conceptual alternatives.

Herrera team members will then conduct a site visit and investigation to support the development of project concepts. The primary focus of the site visit will be on confirming geomorphic and anthropogenic conditions/constraints, locating and defining specific features to be captured in

subsequent topographic survey work, locating and defining features of importance for project permitting and landowner communications, and exploring unique opportunities and constraints of the site(s). Herrera will develop and print field maps to use during the site assessment.

It is the intent that TU and Herrera will meet with the Technical Advisory Group (TAG) immediately after site reconnaissance to review findings and initiate early conceptual alternatives discussions (sketch on field maps the most promising alternatives, etc.). Ideally a meeting with the land owner can also be arranged either prior to or following the TAG meeting.

Assumptions

- Additional background and project related information will be provided to Herrera by TU at least 2 weeks prior to the field investigation.
- Project kickoff meeting with TU will occur prior to site assessment work.
- Field conditions including floodplain vegetation, flow conditions, and presence of ice will not be prohibitive to accessing and assessing the project area.
- If access to any areas requires traversing private property, TU will arrange for property access.

Deliverables

- Field maps and sketches made on them will be shared with TU after the site assessment field work. The assessment results, including identified restoration opportunities, will be used to inform later tasks, including development of draft restoration concepts in Task 5.
- Attendance by the Herrera team's lead engineer at one combined kickoff meeting with TU on site prior to site assessment work. Note: the lead hydraulic modeling engineer's attendance at this kickoff meeting is included in the budget for Task 3.

Task 2 – Geotechnical Analysis

Estimated Task Budget - $9,883

The work of this task will involve the following items, all led by Perrone Consulting:

1. Conduct a site reconnaissance and observe test pit excavations at the proposed levee site and at potential borrow areas near the levee. Log the test pit holes and obtain representative bulk samples for laboratory testing.
2. Perform 4 grain size distribution analyses on representative samples taken from the test pits and the existing levee.
3. Perform engineering analyses as a basis for providing new levee design recommendations including levee foundation subgrade preparation, levee slope configuration, levee material gradation and compaction requirements, and seismic considerations.

4. Prepare a report summarizing the results of subsurface investigations. The report will include the test pit locations and descriptive logs, and laboratory test results.

5. Review design drawings produced in later tasks for conformance to geotechnical engineering recommendations.

Assumptions

- 4 test pits will be conducted up to 12 feet deep. Herrera will contract for heavy equipment (backhoe or excavator and operator) for the test pit work, unless the landowner provides these services. The test pit effort is anticipated to require one field day.
- TU will coordinate with land owner(s) for equipment access as may be necessary.

Deliverables

- Incorporation of findings into concept design development in Task 5

Task 3 - Hydrologic and Hydraulic Analysis and Modeling

Total Estimated Task Budget - $17,700

Watershed Science & Engineering (WSE) will complete SRH-2D hydraulic modeling to support the project design. Subtasks to be completed by WSE are as follows.

Task 3.1 – Data Collection and Coordination with USBR

Estimated Sub Task Budget - $660

WSE will collect the following data for use in the hydraulic modeling effort:

- Existing LiDAR data
- Aerial photographs
- Oblique aerial photographs of the 2009 and 2011 floods

The USBR is developing plans to set back an existing levee and restore a portion of the floodplain on the bank opposite the TU project. It will be important to coordinate the TU and USBR projects since they may impact one-another. WSE will contact the USBR project manager and the hydraulic modeling lead to discuss the project, obtain copies of their latest design plan set, and obtain the hydraulic models created to evaluate project performance. The models include:

- Existing condition USBR Schaake Project SRH-2D model
- Proposed USBR Schaake Levee Setback Project SRH-2D model

Note -- The WSE and USBR SRH-2D models intentionally use the same model code because WSE and the USBR have been working together to assess the combined performance of the USBR Schaake project and proposed actions recommended in the Yakima River Corridor Plan for the reach immediately downstream from the USBR project.

Also Note -- The USBR is contributing $2,500 which will be allocated to tasks in this scope that involve coordinating with the USBR and comparing the modeling for this project to the USBR's Shaake Levee Setback modeling.

Assumptions

- TU will furnish oblique aerials showing 2009 and 2011 flooding on the project site as possible

Deliverables

- None

Task 3.2 – Site Reconnaissance

Estimated Sub Task Budget - $2,120

WSE's project principal river engineer and staff modeling engineer will meet on site with Herrera, TU, and the landowner to discuss project objectives and to examine key project elements.

Deliverables:

- None

Task 3.3 – Existing Condition Model Refinement

Estimated Sub Task Budget - $3,190

The WSE SRH-2D model begins at the entrance to the Yakima River Canyon and extends upstream to Umptanum Road, therefore, it includes the TU project reach. WSE will refine the model to improve the level of detail it provides throughout the TU project area. Refinements will include:

- WSE will extend the model a short distance upstream from Umptanum Road to make sure that flow patterns through the Umptanum Road bridge are modeled accurately. The upstream model extension will be approximate because bathymetry is not available upstream from Umptanum Road; therefore, WSE will estimate river bed elevations. Topography in overbank areas will be based upon existing LiDAR topographic data.
- WSE will review model geometry to make sure existing project site topographic features are represented in the model (e.g. levees, ponds, etc.). WSE will also compare recent

aerial photographs with the model geometry to determine if significant channel changes have occurred which should be incorporated into the model. If they have, WSE will use judgement or, if available, survey data, to refine the model geometry.

- WSE will refine model parameters based upon engineering judgement and experience rather than calibrate the model to an observed flood event.
- The model will be compared to the USBR's existing condition model to make sure the existing Schaake Levee is represented in the model correctly.

Assumptions:

- LiDAR of sufficient resolution and accuracy is available to define the floodplain for the area upstream of Umptanum Road Bridge.
- The model will not be calibrated because the high water mark and discharge data required for calibration do not exist.

Deliverables:

- Graphical image showing model extents and existing key features (e.g. levees, revetments, etc.)

Task 3.4 – Hydrology

Estimated Sub Task Budget - $660

WSE will review existing hydrologic data developed for the Yakima River Corridor plan to obtain annual instantaneous peak flood frequency discharge estimates for the project reach. Estimates may include the 2-year event, 100-year event, and one additional discharge to be determined by Herrera, TU, or members of the TAG.

Assumptions:

- Written summary to document the hydrologic analysis will not be prepared

Deliverables:

- Table showing annual instantaneous flood frequency discharges used in analysis

Task 3.5 – Existing Condition Model Analysis

Estimated Sub Task Budget - $1,350

WSE will use the existing condition model to compute baseline hydraulic properties for the three flow events identified in Task 4.

Assumptions:

- Written summary to document the existing condition modeling will not be prepared

Deliverables:

- Graphical images showing computed water surface elevation, depth, and velocity results for the three events will be generated.

Task 3.6 – Alternatives Analysis

Estimated Sub Task Budget - $4,215

WSE will model up to two preliminary project alternatives for three discharges. The alternatives can include any combination of levee setbacks and/or habitat restoration actions (e.g., filling in the existing borrow pit, plantings, or constructing side channels etc.). Graphical images will be created to show flow patterns, water surface elevations, depths, and velocities, as well as difference plots to show how simulated hydraulic conditions differ from existing conditions. The results will be presented to Herrera, TU, and the landowner via a conference call to support refinements to one of the two alternative. WSE will refine the model, rerun it, and create graphics to display the results which will be presented to Herrera, TU, and the landowner. This will be the preferred alternative.

WSE will use model results to determine if the proposed alternative complies with Kittitas County floodplain development regulations, rules that restrict the impact a project can have on adjacent properties. If impacts are unacceptable, WSE will recommend refinements to achieve compliance.

WSE will modify the preferred alternative model to include the proposed USBR Schaake Levee Setback Project. The model will be rerun and graphics created to show how hydraulic conditions change with and without the USBR Schaake project in place.

A teleconference will be held with Herrera, TU, and the landowner to review the results. If the results are acceptable, a meeting will be held with the Technical Advisory Group (TAG) to present the preferred alternative.

Assumptions:

- Up to two alternatives will be modeled
- Herrera, TU and the landowner will recommend refinements to one of the two alternatives. These changes will consist of minor refinements, not major concept changes
- Written summary to document the modeling will not be prepared

Deliverables:

- Graphics showing model results
- PowerPoint slides for presentation to TAG

Task 3.7 – Final Refinements Preferred Alternative

Estimated Sub Task Budget - $1,315

WSE will refine the preferred alternative model to reflect agreed to recommendations by TAG members. The model will be rerun both with and without the proposed USBR Schaake Levee Setback project. The results will be presented to TU and the landowner, the TAG, and the USBR, all via teleconference.

Assumptions:

- TU will coordinate / schedule the teleconferences.
- Assume three different teleconference calls.
- Written summary to document the modeling will not be prepared

Deliverables:

- Graphic showing the model results

Task 3.8 – Hydraulic Design Technical Memorandum

Estimated Sub Task Budget - $0

TU has requested that no hydraulic design memorandum be prepared at this time. If documentation is needed, it will be prepared through a contract amendment.

Assumptions:

Deliverables:

- None

Task 3.9 – Support for Permits

Estimated Sub Task Budget - $0

No allowance is included for WSE to provide materials for the Kittitas County Floodplain Development permit or Joint Aquatic Resources Permit Application (JARPA).

Assumptions: If documents are needed they will be prepared through a contract amendment

Deliverables:

- None

Task 3.10 – Meetings

Estimated Sub Task Budget - $2,920

WSE will participate in the following meetings:

- Project kick-off meeting and site reconnaissance
- One project design meeting to be held at Herrera's office
- Up to three teleconference meetings
- One TAG meeting in Ellensburg

Deliverables:

- Meeting presentation materials

Task 3.11 – Administration

Estimated Sub Task Budget - $980

WSE will coordinate daily activities, communicate with the Herrera project manager, and prepare and submit monthly invoices and brief progress reports.

Task 4 - Professional Site Survey

Estimated Task Budget - $4,774

Immediately following selection of a preferred alternative and endorsement by the project TAG, we will mobilize Cruse & Associates to complete field survey data acquisition. Survey data associated with the LiDAR for channel and floodplain topography available from the Puget Sound Lidar Consortium will be augmented with ground survey of proposed areas of site grading.

Assumptions

- Survey will not require boundary lines or property line adjustments or locations. Kittitas County GIS Parcel Layer will be sufficient for design.
- Survey of finish floor elevations of off-site properties will not be required
- Survey of potential channel capture or flow split associated with large scale channel movements (into the pond, etc.) will require an additional surveying effort which would require a contract amendment
- Existing model bathymetry and topography is adequate for design

Deliverables

- AutoCAD files of site survey base map.

Task 5 - Conceptual Design Drawings

Estimated Task Budget - $5,595

Based on input provided by TU and TAG staff and key site features identified in Tasks 1-4, Herrera will develop three levee setback project alternatives for further discussion. The alternatives will cover a range of approaches intended to meet the stated project goals, and will

capture issues raised in discussions with stakeholders. Documentation of design alternatives will be a combination of plan view drawings, basic narrative text, and conceptual cost estimates.

Assumptions

- Herrera will develop the conceptual designs using a combination of ArcGIS and AutoCAD, taking advantage of features of each software platform as appropriate.
- Herrera will develop conceptual design plans using Herrera CAD standards.
- Conceptual design plans will include, as needed, up to 2 sheets each (Plan View with Notes and Details). In addition, a Cover Sheet/Vicinity map will be developed that includes all 3 alternatives.
- Initial hydraulic modeling to inform alternatives development (in Task 3) will occur concurrent with this task.
- Herrera will submit one draft copy of the conceptual design sheets for review and comment by TU. Following receipt of consolidated comments on the draft plans, Herrera shall make revisions to produce the final version of the conceptual design plans.
- Cost estimates will be developed to a level acceptable for planning purposes.

Deliverables

- Conceptual design plan set in electronic (Adobe PDF) file format including a cover page/vicinity map and 3 to 6 plan view drawings showing locations and types of potential restoration actions.
- Planning-level cost estimates for proposed restoration options including design, permitting, and construction costs.

Task 6. Preferred Alternatives Feasibility Assessment Support

Estimated Task Budget: $6,041

Herrera will provide qualitative technical support to TU with regard to assessing the three concepts/alternatives plus the no-action alternative. The alternatives will be analyzed based on a suite of factors including: potential fatal flaws, geomorphic suitability, benefit to fish habitat and fish populations, ability to distribute and deliver irrigation water, long term maintenance considerations, efficacy of permitting, and overall cost effectiveness.

Herrera will present the alternatives and supporting analyses to the project TAG and land owner for consideration and use in selection of a preliminary preferred alternative.

Assumptions

- Up to three concepts/alternatives plus the no-action alternative will be analyzed.
- A qualitative assessment of the hydraulic effects of the proposed alternatives will be conducted as part of the alternatives analysis in order to determine feasibility of each alternative with respect to flood and erosion risk and habitat effects.
- Herrera will briefly assess the effects the project may have on geomorphology and sediment and wood transport, and whether or not a proposed alternative will be geomorphically stable/sustainable in the long term.
- Herrera will assess each of the alternatives to inform the project team and stakeholders about specific permitting considerations that may affect selection of the preferred alternative.
- Biological assessment of the alternatives will be provided by the TAG and TU with minimal input from the Herrera team.
- Herrera will present results from the alternatives analysis to stakeholders during at a meeting at TU's office.

Deliverables

- Presentation of alternatives analysis to the TAG and land owner for consideration and selection of a preferred alternative.

Task 7. Preliminary Design (Permit Level Design)

Estimated Task Budget: $19,784

Herrera will advance the conceptual design of the chosen preferred alternative to preliminary design phase adequate for permitting and SRFB approval. We intend to include all information important for permit applications on the preliminary design drawings, to enable expediting permit application submittals to support the project schedule.

The completed preliminary design submittal to TU will satisfy all SRFB preliminary design requirements as well as the needs of permitting. The completed package will include a preliminary construction cost estimate, an outline of construction contract specifications, a preliminary design report (including description of existing conditions, the alternatives and alternative analysis process, design considerations, hydraulic and geomorphic analyses and engineering calculations supporting the design, and stakeholder consultation), and design drawings.

Assumptions

- Herrera will develop preliminary design plans using Herrera CAD standards.
- The outline of anticipated specifications for construction will be based on WSDOT/APWA format.
- The budget for this task is based on development of up to 10 design drawing sheets. The anticipated drawings are as follows:

    1. Cover Sheet/Vicinity Map
    2. Existing Conditions
    3. Site Plan and Proposed Work
    4. General Notes
    5. Structures Plan and Notes
    6. Structure Details
    7. Levee Grading Plan
    8. Profiles and Sections
    9. Sequencing and Water Management Plan
    10. Temporary Erosion and Sediment Control Plan and Details

- Herrera will submit the preliminary design plans and a preliminary construction cost estimate to TU and the Technical Advisory Group (TAG) for one round of review. Following receipt of consolidated comments we will make necessary refinements to the design and proposed conditions hydraulic modeling to reflect TU and TAG input on the preliminary design plans.
- Cultural resources and critical areas work will be performed by others or will be an amendment to this contract.
- TU will write and compose any design reports needed. Herrera will provide support.

Deliverables

- 11"x17" digital .pdf files of the draft and completed Preliminary Design (permit level for the selected alternative)
- Itemized construction cost estimate to accompany the preliminary design plan submittals

- Construction schedule to accompany the preliminary design plan submittals
- Outline of special provisions supplementing the WSDOT/APWA standard specifications for contract bidding in Microsoft Word electronic file format.

Task 8. Final Design

Estimated Task Budget: $18,227

This task is dedicated to furthering the design to contract and bid ready documents.

Following review and response on the preliminary design from the SRFB, Herrera will conduct a brief telephone conference with TU to outline the strategy to move forward to Final Design/Construction Bid Set. During 90% design development Herrera will address SRFB/permitting comments on the preliminary design package and the preliminary design technical report, as well as comments received from the TU and TAG.

Assumptions

- At this phase of design we expect to have baseline hydraulic modeling complete to the point that significant changes in proposed channel form and geometry are not expected going forward, hydraulic effects of the project are understood sufficiently to address flood risks, any potential grade control structure placements, construction access, planting, and project limits will remain relatively consistent for the remainder of the project design and development process.
- Herrera will submit draft 90% design plans to TU and the TAG for one round of review to gain their final comments on the design. Following receipt of consolidated comments we will make necessary refinements to the design package to reflect TU and TAG input on the 90% design plans, resulting in a Final Design package.
- At this point the permit review comments and draft permit conditions will be available, enabling Herrera to move quickly to finalize design production with construction-ready bid documents with minimal modification.
- Herrera will develop final design plans using Herrera CAD standards.
- Specifications for construction will be written in WSDOT/APWA format
- TU will write and compose any final design report(s) needed.
- The budget for this task is based on development of up to 10 drawing sheets as follows:

    1. Cover Sheet/Vicinity Map

2. Existing Conditions
3. Site Plan and Proposed Work
4. General Notes
5. Structures Plan and Notes
6. Structure Details
7. Levee Grading Plan
8. Profiles and Sections
9. Sequencing and Water Management Plan
10. Temporary Erosion and Sediment Control Plan and Details

Deliverables

- 11"x17" digital .pdf files of the 90% complete design for review by TU
- 11"x17" digital .pdf files of the final design (signed and stamped by a licensed engineer)
- AutoCAD files of the final design plan set.
- Itemized construction cost estimate to accompany the 90% and final design plan submittals.
- Construction schedule to accompany the final design plan submittal.
- Special provisions supplementing the WSDOT/APWA standard specifications for contract bidding in Microsoft Word electronic file format at 90% and 100%.

Task 9. Project Management

Estimated Task Budget: $4,868

Herrera will manage the consultant team and will be responsible for the following project management duties:

- Communication with TU Project Manager: Through informal phone calls and e-mail Herrera's project manager will keep the TU project manager updated on the status of the overall project and work of specific project tasks. This will include working together to set dates and times for all landowner and technical committee meetings. Subconsultants will manage their staff as appropriate and will be in regular communication with Herrera's project manager.
- Monthly Project Invoices: Herrera's project manager will prepare and submit monthly invoices. The invoices will include progress reports with

a brief summary of the work that was completed during the invoiced month. Subconsultants will prepare and submit monthly invoices to Herrera.

- Subconsultant Agreements: Herrera will prepare and manage contracts for all subconsultants.

Assumptions

- At the outset of the project our project manager, Gus Kays, will collaborate with the TU project manager to agree upon the target dates for conceptual design and draft alternatives analysis milestones.

Deliverables

- Monthly Invoices and Progress Reports.
- Regular communication with TU project manager by phone and email.

Total Project Budget: $90,685