LEWIS RIVER AQUATIC FUND

PacifiCorp

Pine Creek Restoration Design Project

CRAMER FISH SCIENCES®
An Employee Owned Consulting Company

Columbia Land Trust

Submitted by Cramer Fish Sciences and Columbia Land Trust

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October 21, 2022

Erik Lesko
PacifiCorp
825 NE Multnomah Street, Suite 1800
Portland, OR 97232

Re: Lewis River Aquatic Fund

Dear Erik:

We are pleased to submit the following proposal for a restoration design project on Pine Creek. Pine Creek is one of the most important Bull Trout spawning streams in the Lewis Basin. Reaches 1, 2, 4, 5 and 6 of Pine Creek are identified as high priority for steelhead and Bull Trout restoration (LCFRB SalmonPort) and previous assessments have indicated the need to restore instream (complexity, wood, gravel) and riparian conditions in these reaches. In partnership with the Columbia Land Trust, we propose to complete a holistic assessment and restoration design for appropriate sections of Pine Creek to increase the amount, quality, and resiliency of suitable Bull Trout habitat while protecting existing high-quality habitat.

We will first conduct a holistic assessment of upland, riparian, and instream conditions using previous assessment data, supplemented with targeted new field data, to identify appropriate areas for restoration. We will then develop process-based restoration designs that will assist with continued recovery of instream and riparian habitat in appropriate areas of priority Pine Creek reaches. We will focus on reaches that have lower use by spawning Bull Trout and areas of simple channel types that currently provide marginal spawning habitat. Thus, our designs will build out from Bull Trout strongholds in Pine Creek to enhance habitat and benefit Bull Trout, steelhead, and salmon recovery in Pine Creek and throughout the North Fork Lewis River.

This project addresses all three priority objectives of the Lewis River Aquatic Fund including: benefiting recovery of ESA listed species in the North Fork of the Lewis, supporting reintroduction of anadromous fish throughout the Basin, and enhancing fish habitat in the North Fork of Lewis Basin. It is also in alignment with and builds off the Bull Trout Habitat Restoration Identification Assessment (Lamperth et al. 2017). With our experience working and conducting assessments in the North Fork of Lewis, completing process-based restoration designs to restore salmon and Bull Trout habitat, and our partnership with Columbia Land Trust, we can successfully complete this project on schedule and within the budget. We look forward to the opportunity to present our proposal to the ACC. Please contact me at (206) 612-6560 or phil.roni@fishsciences.net if I can provide you with any additional information.

Sincerely,

Phil Roni
Vice President / Principal Scientist
Cramer Fish Sciences

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1 PROJECT TITLE

Pine Creek Restoration Design Project

2 REQUESTED FUNDING AMOUNT

$191,222

3 PROJECT MANAGER

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4 IDENTIFICATION OF PROBLEM

Pine Creek is one of the most important Bull Trout spawning streams in the Lewis Basin, with some areas of high-quality habitat and others of degraded habitat due to both human (forestry) and natural (eruption of Mt. St. Helens) causes. There are multiple reaches in Pine Creek and its tributaries that are priorities for restoration for Bull Trout or steelhead and previous assessments have indicated the need to address limiting habitat conditions such as channel complexity (large wood, side channels), sediment, and riparian condition. We proposed to develop restoration designs for appropriate sections of Pine Creek to increase the amount of suitable Bull Trout habitat as well as habitat quality and resiliency to disturbance. We will do this through a holistic assessment of upland, riparian, and instream conditions using previous assessment data, supplemented with targeted new field data, to identify appropriate areas for restoration and develop process-based restoration designs that will assist with continued recovery of instream and riparian habitat. We recognize that Pine Creek is a high energy stream where restoration will only be appropriate in selected areas with proper conditions and habitat potential. Moreover, any restoration efforts should occur adjacent to and protect current areas extensively utilized for Bull Trout spawning.

5 BACKGROUND

Pine Creek is a major tributary to the North Fork Lewis River and provides important habitat for one of the three remaining spawning populations of ESA listed Lewis River Bull Trout *Salvelinus confluentus* as well as important habitat for steelhead *Oncorhynchus mykiss.* It is also utilized by listed Coho Salmon *O. kisutch* and spring Chinook Salmon *O. tshawytscha*. The Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan indicates that Pine Creek is the number one area with the greatest current or potential production of Bull Trout in the upper North Fork Lewis Basin (LCFRB 2010). The plan states that Bull Trout may benefit from targeted riparian and stream channel restoration in reaches of Pine Creek.

Pine Creek drains approximately 68 km^2 and is mixed ownership by the U.S. Forest Service, private timberlands, as well as some private residential tracts in the lower reaches. Amid an upsurge of unchecked development in the mid-2000s, Columbia Land Trust collaborated with Pope Resources (a Washington-based timber company) and

Skamania County to develop a comprehensive conservation effort to protect 20,000 acres around Swift Reservoir from development. The Columbia Land Trust purchased 2,330 acres east of Pine Creek in 2013 and an additional 3,095 acres of contiguous forest land west of Pine Creek in 2014. Together, the two purchases protect the majority of the watershed from development. The 2,500 acres owned by Columbia Land Trust is being managed to benefit Bull Trout, northern spotted owls, and gray wolves. The focus of management to date has been on moving the industrially managed forest to a natural, old growth forest structure benefiting these species.

There have been periodic assessments of the conditions in Pine Creek including work by the USFS, USGS, WDFW, and PacifiCorp as well as on going spawner surveys by PacifiCorp. A watershed assessment in the 1990s by the USFS indicated concerns with peak flows due to young vegetation and high forest road density as well as mass wasting water quality concerns due to unstable and erodible sediments (USFWS 1995b, USFS 1996). More recent habitat surveys by the USGS in Pine Creek tributaries (P1 and P7) similarly showed very low levels of pool habitat, little to no large woody debris (LWD), and poor riparian condition (PacifiCorp 2016). Large woody debris concentrations in Pine Creek are low (<40 pieces per mile) and it also has low recruitment potential as a result of logging and the 1980 eruption of Mt. St. Helens. Additionally, resulting channel instability and migration have impeded mature conifer growth leading to a riparian corridor dominated by immature alders. EDT modeling efforts for Chinook, coho, and steelhead indicate that portions of Pine Creek are limited by habitat diversity (complexity/large wood) and sediment, while others, like P8, are key habitats (PacifiCorp 2016).

More recent work found that Bull Trout redds in the Pine Creek Basin were 4 times more likely to occur in reaches with complex channels (i.e., more than one channel with flowing water during base flow conditions) than reaches with only one main channel and redd occurrence was negatively related to stream depth. This suggests that habitat complexity and depth at the reach scale are important factors influencing Bull Trout spawning site selection within thermally suitable habitat (Lamperth et al. 2017). The study recommends restoration actions that increase channel complexity in the coldest accessible stream reaches within the basin. Recent spawner surveys suggest that with increasing numbers of Bull Trout, spawners are moving into lower quality areas to spawn.

According to SalmonPORT, Pine Creek Reach 1, 2, 4, 5, and 6 are Tier 2 priority reaches, have high potential as contributing reaches for winter steelhead, and are designated as a high or medium multi-species priority for several restoration needs including:

- Floodplain function and channel migration process (high)
- Off channel and side channel riparian habitat (high)
- Riparian conditions and functions (high)
- Stream channel habitat structure and bank stability (high)
- Watershed conditions and hillslope processes (high)
- Instream flows (medium)

Although Bull Trout redds have been documented in Pine Creek, in 2014 Reach 1 and 4 had no documented redds and Reach 3 had only one documented redd (Fig. 1). In years of higher Bull Trout spawner abundance, such as 2021 and 2022, some redds have been documented in these reaches (PacifiCorp pers. comm). Therefore, there is an opportunity to improve complexity in these reaches for the benefit of spawning Bull Trout as well as other species, while avoiding areas of currently high-quality Bull Trout spawning habitat. Other Pine Creek reaches and tributaries (Pine Creek 3, P8, P3) are listed as Tier 4 reaches in SalmonPORT, though they may also benefit from restoration.

Given the recently improved protection and ownership status of Pine Creek, the ongoing riparian and upland forest restoration, the priority reaches identified in SalmonPORT, and previous assessment work identifying limiting factors and Bull Trout habitat restoration opportunities, there is a unique opportunity to design holistic

instream and riparian restoration in selected reaches of Pine Creek to benefit Bull Trout as well as salmon and steelhead. Pine Creek does present some unique challenges from an instream restoration standpoint given that many reaches are high energy and previous work by the USFS in Reach 2 were not entirely successful. However, that project used traditional log structures that are commonly used in low energy streams. We would let the assessment and analysis determine the type of wood placement that would be most successful and focus on more process-based approaches for placing wood. Ultimately, this project will complete a holistic analysis and successful restoration design to restore riparian and aquatic habitat function for Bull Trout and other salmonids in Pine Creek.

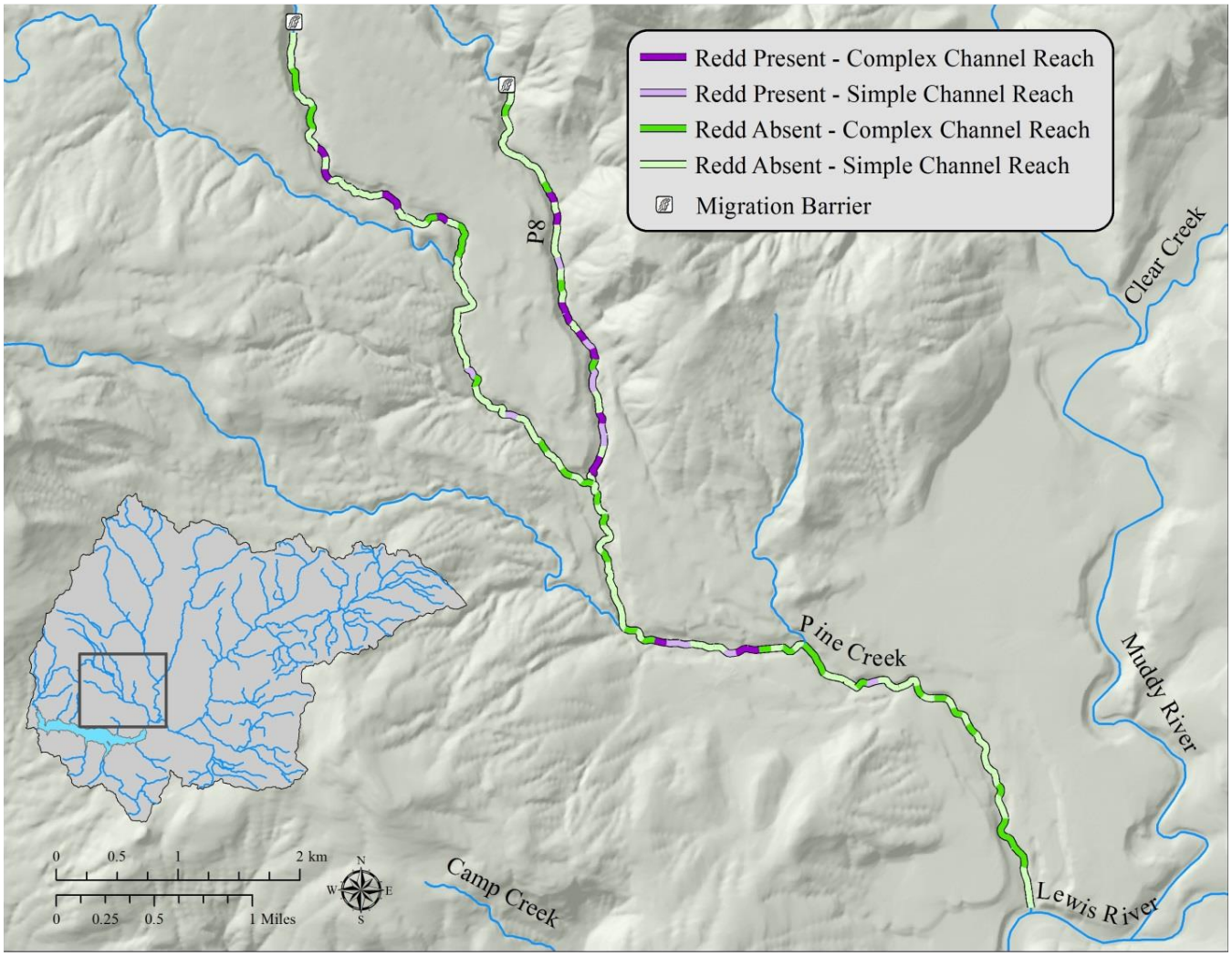

Figure 1. Map showing 100 m reaches by levels of Bull Trout redd occurrence and channel complexity in the Pine Creek basin, WA, from the Lewis River Bull Trout Habitat Restoration Project Identification Assessment (Lamperth et al. 2017).

6 PROJECT OBJECTIVES

The overall goal of the Pine Creek Restoration Design Project is to improve instream habitat complexity and riparian habitat in Pine Creek. Specifically, we aim to:

1. Improve habitat complexity in simplified reaches through large wood placement
2. Stabilize sediment to allow for riparian succession to mature conifer forest
3. Increase side channels and spawning habitat for Bull Trout and steelhead
4. Protect existing quality spawning habitat for Bull Trout and steelhead

5. Create resting areas for spawning adult Bull Trout and steelhead
6. Improve holding pools for juvenile Bull Trout and steelhead
7. Improve overwintering habitat for salmonids
8. Reduce or stabilize incision rates in areas with floodplain pockets

We anticipate that we will focus habitat improvements on reaches 1, 2 and 4 of Pine Creek and potentially other reaches or tributaries with relatively low spawner density and simplified habitat. These reaches have areas of simple channel types and lower use by spawning Bull Trout (Fig. 1; Lamperth et al. 2017). Thus, our objective is to build out from strongholds of high-quality Bull Trout habitat in Pine Creek to enhance habitat and benefit Bull Trout and steelhead recovery throughout the North Fork Lewis River. This will also ensure protection of existing areas of high-quality Bull Trout spawning habitat in Pine Creek.

7 TASKS

To meet the project objectives, we will complete the following tasks, which are described in more detail in the Methods section below.

Task 1: Site investigation and baseline assessment

This task will include a kickoff meeting with PacifiCorp staff, the ACC and project partners; a review of existing data; a geomorphic field investigation and site survey; a riparian and geomorphic assessment; an assessment of hydrology; and development of a hydraulic model.

Task 2: Design

2.1: Alternatives analysis and concept design – 15% design

We will develop a conceptual design including up to three (3) alternatives and/or a priority tiered instream habitat approach informed by data collected in Task 1. We will submit the 15% design to PacifiCorp staff and ACC for review and discuss comments and questions via a virtual meeting.

2.1: Draft construction plan – 30% design

We will incorporate the comments on the 15% conceptual design and alternatives analysis into the 30% basis of design report and plan sheets.

2.3: Permit ready designs – 60-80% design

We will incorporate the comments from the 30% draft construction design plans into the 60-80% basis of design report and plan sheets. We will also begin the permitting process.

2.4: Final construction plan – 100% design

Comments from the 80% design plans will be incorporated into the 100% final construction plan design report and plan sheets. We will submit design drawings that will be consistent with the Washington State Recreation and Conservation Office Manual 18 guidelines and will reflect all required regulatory conditions needed to facilitate permitting, contracting, and the bid process.

Task 3: Monitoring and photo documentation

We will provide photo documentation of habitat conditions at the project site before, during and after project completion.

Task 4: Project management and coordination

This task will include time and resources for internal project management among the design team and coordination with stakeholders to complete the project. We will facilitate a project kick-off meeting with the design team, PacifiCorp, the ACC, and interested stakeholders prior to beginning the project. Creating project update memos to be submitted with invoices will also fall under this task. The design team will also participate in a final site visit to close out the project.

8 METHODS

The goal of this project is to work with Columbia Land Trust to develop a comprehensive watershed assessment and restoration design for suitable areas in Reach 1-6 of Pine Creek (from upstream of private land in Reach 1 to the migration barrier [approximately 11km]) that aims to increase channel complexity and create instream habitat by facilitating pool formation, creating cover, and restoring natural fluvial and riparian processes. The design is intended to integrate forest management practices with design elements to improve habitat in the short term as well as provide long term resiliency, incorporating the unique characteristics of this dynamic system. We will assess the hydrologic, geomorphic, hydraulic, habitat, and watershed process characteristics of the project site to develop alternatives and conceptual designs centered on process-based restoration principles (e.g., Beechie et al. 2010; Roni and Beechie 2013). Instream habitat improvement design will be driven by results from an initial watershed assessment that we will conduct to identify areas where Bull Trout redd density and channel complexity are low. In our assessment, we will leverage data from the *Lewis River Project – Limiting Factors and Identification of Restoration Alternatives to Fish Passage* (Roni and Timm 2016) as well as previous and ongoing habitat and spawner surveys (e.g., Lamperth et al. 2017, PacifiCorp unpublished). For those reaches with simple habitat, we will then develop conceptual plans (15%) through draft construction (30%), permit-ready (60-80%), and final construction plans (100%).

The following tasks detail the methods we propose to complete a holistic habitat restoration design that complements Columbia Land Trusts' management plan and BMPs for their Mount St. Helens Stewardship Area. We will begin the project by assessing geomorphic, hydrologic, and hydraulic conditions within the project area to evaluate site conditions. These analyses will allow us to determine appropriate restoration strategies, high-quality areas to avoid or protect, and low-quality areas where treatments should be focused. We will use results from the site investigation and assessment to develop and analyze design alternatives before advancing to a conceptual design. However, because site access is limited and to avoid damaging the recovering forests and riparian areas, we anticipate the most suitable treatment will be large wood additions through helicopter placement[1] and possibly some low impact riparian treatments. Through wood additions, we expect short-term habitat responses in the form of local sediment erosion and deposition that creates predictable locations of pools and bars. Increasing hydraulic variability will also improve sediment sorting, allowing distinct and clean patches of spawning gravel to form near the structures. The expected long-term habitat responses include increased floodplain access, sediment retention, water retention, stabilization of fluvial features, and overall increased habitat complexity. Although Pine Creek is a relatively high-gradient and high-energy system, there are several

[1] We recognize that previous large wood placement efforts using traditional bank attached log structures in lower Pine Creek and Clear Creek have not been successful, which is consistent with what we have seen in other basins. Any wood designs using wood placement will focus on using appropriate methods that mimic natural wood in similar channel types.

floodplain pockets that can be engaged to reduce stream power and create reaches with lower gradient and higher potential for sediment and water storage. Other direct benefits of large wood additions for fish include increased cover from high water velocities and predation, more and deeper pools, sediment sorting for improved spawning grounds for adult salmonids and winter concealment opportunities for juvenile salmonids, and an increase in areas with high suitability for rearing. Large wood jams can also help stabilize and protect existing and developing floodplain pockets to allow a mature conifer canopy to develop in the riparian area. Overall, implementing an appropriate treatment within Pine Creek will kick-start the recovery of instream fluvial processes while the uplands in the Pine Creek watershed continue to recover.

8.1 TASK 1: SITE INVESTIGATION AND BASELINE ASSESSMENT

Subtask 1.1 Existing data review

Existing data (e.g., water quality, fish habitat, streamflow gages, previous reports, GIS data, etc.) will be compiled, reviewed, and analyzed for applicability to the project. We will also identify critical data gaps and develop a plan to fill data gaps. This task will be completed efficiently owing to prior data review during the *Lewis River Project – Limiting Factors and Identification of Restoration Alternatives to Fish Passage* (Roni and Timm 2016). It is expected that additional data sources will be utilized that are more site-specific and/or related to instream habitat design.

Subtask 1.2 Site survey and geomorphic field assessment

The site survey will supplement existing LiDAR topography (QSI 2018) by conducting a bathymetric river survey where LiDAR did not penetrate the water surface or where conditions have changed significantly since 2018, as well as a survey of road crossings, geomorphic and hydraulic features, and areas of interest required for design. An up-to-date topobathymetric surface is critical for designing functional process-based instream habitat features, defining project risks, assessing floodplain/floodway impacts, and meeting environmental compliance and permit requirements. Given the remoter nature and satellite coverage of the project site, it is anticipated that this survey will be comprised of cross sectional and longitudinal survey confined to the active channel adequate for supporting a one-dimensional (1D) hydraulic model.

The site survey will also establish survey controls for design and construction. The survey will be completed using a survey-grade real-time kinematic (RTK) global positioning system (GPS) unit and/or a survey-grade total station. Survey data will be sent to the Online Positioning User Service (OPUS) for post-processing and conversion to the preferred coordinate system (North American Datum (NAD) 83, Washington State Plane, South Zone, horizontal projection), and to the North American Vertical Datum (NAVD) 88, using international survey feet as the vertical projection. Survey data will be merged with LiDAR to create a composite surface for analysis and design. The geomorphic field investigation will occur concurrently with site survey and include geomorphic unit delineation, large wood survey, substrate survey, channel and valley condition assessment, and bank conditions/erodibility and avulsion assessment for the entire project site. We will cater the field investigation to the specific limiting factors, known impacts, geomorphic and hydrologic setting (Roni and Beechie 2013), and desired project outcomes. We will develop or refine a tailor-made rapid assessment survey and implement it through a custom tablet app to increase efficiency.

Subtask 1.3 Geomorphic and riparian assessment

The geomorphic and riparian assessment will incorporate existing data, field survey data, and hydrologic and hydraulic outputs to assess the geomorphic and riparian condition of the project site and applicability of instream habitat designs and any riparian treatments. We will begin our geomorphic assessment by evaluating existing remote sensing and GIS data to characterize the reach and assess landscape-scale parameters that affect fluvial processes. We will then validate our spatial analysis and fill remaining data gaps using a tailor-made rapid

assessment survey. Our field survey will be supported by custom tablet apps modified to fit the specific needs of Pine Creek and this project. The assessment will also include a synthesis of historic changes, geomorphic trajectory, limiting or driving factors, and project implications. We will develop a relative elevation model (REM) to identify flood channels and characterize floodplain connectivity to support a holistic restoration design. The geomorphic assessment will analyze the Beechie and Imaki (2014) channel type and WDFW habitat and PacifiCorp spawner survey data to determine appropriate instream habitat methodologies based on the relevant habitat-forming processes, as well as existing redd locations. In our experience, pre-existing large-scale reach classification products require validation and are often not readily usable off the shelf. The riparian assessment will determine appropriate methodologies and assess post-disturbance riparian condition and trajectory. We intend to implement our own reach characterization framework, but products such as Beechie and Imaki (2014) are useful as additional lines of evidence and the input parameters are valid, which allows for some cost savings by eliminating the need recalculate several metrics. Doing so will ensure that our recommended restoration actions and subsequent designs do not impact current spawning areas, are appropriate and sustainable for these reaches, and any propagated downstream effects are accounted for.

Subtask 1.4 Hydrologic assessment

We will complete a site-specific hydrologic assessment for the project. Recurrence interval flows based on the United States Geological Survey (USGS) Gage 14216800 Pine Creek near Cougar, WA, and Gage 14216900 Pine Creek at mouth near Cougar, WA will be analyzed utilizing USGS Bulletin 17C flow frequency analysis (England et al. 2019; Mastin et al. 2016). Additional streamflow statistics relevant to aquatic habitat and watershed processes will also be determined to assure that the instream habitat design is impactful at flows relevant for aquatic organisms and natural processes (Granato et al. 2017). Results from the hydrologic analysis will provide the inflow information for the hydraulic model. The hydrologic assessment will also include projections for climate change and resulting project implications (Beechie et al. 2012). We will include a specific hydrologic assessment evaluating the influence of post-eruption hydrologic conditions and incorporate watershed trajectory into the proposed design (Major and Mark 2006).

Subtask 1.5 Hydraulic analysis

We will develop a 1D hydraulic model to assess hydraulic characteristics, analyze existing and proposed conditions, support the geomorphic assessment, and analyze project risks. The hydraulic model will utilize inputs developed in Task 1 (e.g., topography, inflow, substrate, and cover) to compute hydraulic outputs such as depth, velocity, shear stress, and water surface elevation. The hydraulic model will include a specific assessment analyzing the influence of post-eruption conditions including a risk assessment of debris flows and incorporation of watershed conditions trajectory on hydraulic conditions. Hydraulic model results will be computed at typical recurrence intervals (bankfull-, 2-, 5-, 10-, 25-, 50-, and 100-year) as well as at flows significant to aquatic organisms and climate change projected flows. Model outputs are critical to understanding flood risks, floodplain activation, watershed processes, bank stability, sediment mobilization, and ELJ stability analyses. We will validate the input parameters and results of the hydraulic model using remote sensing and field surveys. The project location is not within a regulated floodway/floodplain; however, county requirements can be more stringent than FEMA regulations. Therefore, we will work with PacifiCorp to find a successful solution to FEMA or county floodplain/floodway regulations, including preparation of a CLOMR/LOMR or no-rise assessment.

8.2 TASK 2: DESIGN

Subtask 2.1 Alternatives analysis and concept design – 15% design

We will develop a conceptual design including up to three (3) alternatives and/or a priority tiered instream habitat and riparian approach informed by data collected in Task 1. We focus on a fish-centric, science-driven approach

to river restoration, bringing together biological and physical habitat features relevant to the needs of aquatic organisms and fluvial processes. It is anticipated that the conceptual designs will include a wide variety of restoration techniques and construction methodologies ranging from low impact processed based restoration to engineered log jams. The proposed conceptual alternatives will consider their ability to ameliorate climate change (Chandler 2016; Beechie et al. 2012) and improve water quality (WDOE 2016) as well as key components identified in Task 1. The conceptual design for the riverine system will be developed to incorporate forest management plans and BMPs from *Mount St. Helens Stewardship Area Management Plan 2013-2022* (CLT 2013). AutoCAD will be used to combine LiDAR and survey data, along with spatial data layers to create base maps for the conceptual designs. Design drawings will be consistent with RCO Manual 18 Design and Restoration Project guidelines and reflect all required regulatory conditions needed to facilitate permitting, contracting, and the bid process.

The conceptual basis of design report and plan sheets will be submitted to PacifiCorp and ACC staff for review. We will organize a virtual meeting with PacifiCorp and the ACC to discuss the comments and provide any clarification needed on responses.

Subtask 2.2 Draft construction plan – 30% design

We will incorporate the comments on the 15% conceptual design and alternatives analysis into the 30% basis of design report and plan sheets. It is anticipated that major design element may change at this time. Draft construction 30% plan sheets will be developed for the selected alternative and will likely include additional detail and analysis from the 15% design but may not include all the components of the final drawing package. Additionally, the hydraulic model will be updated to reflect the proposed conditions and preliminary ELJ stability calculations will be completed as well as identification of project risks. The draft construction basis of design report and plan sheets will be submitted to PacifiCorp and the ACC for review.

Subtask 2.2. Permit ready designs - 60-80% design

We will incorporate the comments on the 30% draft construction design plans into the 60-80% basis of design report and plan sheets. It is anticipated that minor design elements may change at this time. Permit ready 60-80% plan sheets are likely to include all the components of the final drawing package. Additionally, the 60-80% design package will include quantities and construction cost estimates based on bid tabulations from recently constructed projects in a similar location as well as tabulations developed by other agencies. The hydraulic model will be updated to reflect changes in the design plans and ELJ stability will be assessed. Quantities, areas of impact, and other information required for environmental compliance and permitting will also be determined at this stage.

Subtask 2.3 Environmental compliance and permitting

All regulatory information needed to facilitate environmental compliance and permitting will be provided by CFS with assistance from CLT. As the preliminary designs are being developed, we will begin developing the permit applications. The permitting process will begin by submitting a Joint Aquatic Resources Permit Application (JARPA) to relevant local, state, and federal agencies for review. At a minimum, we expect this project will require a Hydraulic Project Approval (HPA) from the WDFW, a 401 Water Quality Certification from the Washington Department of Ecology, an aquatic land use authorization from WADNR, and a County Shoreline Permit. Through the JARPA, we will apply for the Fish Habitat Enhancement Exemption which would expedite the permit process for the HPA, Shoreline Permit, and potentially the State Environmental Policy Act consultation, if a review is triggered. For any work occurring on USFS property, a NEPA consultation may be required unless the proposed actions fall under an existing programmatic. We do not expect a Section 404 or Section 10 permit from the Army Corps of Engineers will be required; however, that will be at the discretion of the Corps representative.

Subtask 2.4 Final construction plan - 100% design

Comments on the 80% design plans will be incorporated into the 100% design final construction plan design report and plan sheets. It is anticipated that minor design element may change at this time. The final construction 100% design will be a bid-ready package that will include final plans, specifications, quantities, construction cost estimates, and all required information to facilitate permitting, contracting, and the bid process. The drawings will be finalized with the seal and stamp of the designer(s) and delivered in digital format to PacifiCorp. If requested, a scope for construction support can be developed. Key elements of this project are anticipated to include large wood installations, riparian planting, and low-tech process-based restoration (LTPBR) techniques. These elements can be subject to interpretation and/or vary based on construction conditions. Having the designer of record on-site during construction is beneficial for efficiency and project success.

Subtask 2.5 Submit final design plan set and basis of design documents

Design drawings will be consistent with the Washington State Recreation and Conservation Office Manual 18 guidelines and will reflect all required regulatory conditions needed to facilitate permitting, contracting, and the bid process.

8.3 TASK 3: MONITORING AND PHOTO DOCUMENTATION

As per the National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects, we will provide photo documentation of habitat conditions at the project site before, during, and after project completion. We will include general views and close-ups showing details of the project and project area, including pre- and post-construction. We will label each photo with the date, time, project name, photographer's name, and documentation of the subject activity. Photo points will be collected using a GIS app so that the point can be easily relocated, and the photo reproduced in subsequent years. The timing of photo collection is shown in the table below.

Photo	Timing
1	Pre-construction
2	Post-construction as-built
3	Post one high flow
4	3 years after construction
5	5 years after construction

In addition, we will outline a detailed effectiveness monitoring plan based on previous effectiveness monitoring we designed for the Lewis River, western Washington, and the Columbia River Basin (Roni et al. 2020a,b; 2022). This leverages pilot studies we have under way using the latest remote sensing techniques to efficiently monitor floodplain, riparian, and large wood projects. These studies not only monitor the project's overall physical and biological effectiveness, but also evaluate specific design elements to assist with adaptive management, if needed. Based on the methods outlined in the monitoring, plan we will collect required pre-project data during the design phase. This typically includes pre-project topo-bathymetric surveys, habitat surveys, and habitat suitability modeling. In addition, the long-term redd surveys will serve as additional biological monitoring of project success.

8.4 TASK 4: PROJECT MANAGEMENT AND COORDINATION

Kickoff meeting

At the onset of the project, we will organize a virtual kickoff meeting with Aquatic Fund Subgroup to the Aquatic Coordination Committee (ACC) and other project partners to introduce the consultant team, clearly define goals, methods, expectations, communication, schedule, and the project management process. Time will be allotted to discuss any questions or concerns.

Project management and coordination

This task will include time and resources for internal project management among the design team and coordination with stakeholders to complete the project. Creating project update memos to be submitted with invoices will also fall under this task. The design team will also participate in a final site visit to close out the project.

9 SPECIFIC WORK PRODUCTS

Task 1: Site investigation and baseline assessment:

- Draft and Final existing conditions sections of the basis of design report detailing all elements of Task 1
- Package of maps, spatial data, and analysis developed in Task 1
- Hydraulic model with outputs at all analyzed recurrence intervals

Task 2.1: Alternatives analysis and concept design – 15% design:

- Conceptual basis of design report
- Conceptual design plan sheets for up to three (3) alternatives
- Meeting notes for conceptual design comment response meeting

Task 2.2: Draft construction plan – 30% design:

- 30% basis of design report
- 30% design plan sheets

Task 2.3: Permit ready designs – 60-80% design:

- 60-80% basis of design report
- 60-80% design plan sheets, specifications, and cost estimates
- Submittal of completed permit applications

Task 2.4: Final construction plan – 100% design:

- Final 100% basis of design report
- Final 100% design plan sheets, specifications, and cost estimates
- Final 100% proposed condition hydraulic model

Task 3: Monitoring and photo documentation:

- Pre-project effectiveness monitoring data collection and brief report with photos and descriptions
- Shapefiles and/or KMZ files of photo points with retained images

Task 4: Project management and coordination

- Status update memo with the submission of the project invoices (provided throughout the life of the project).

10 PROJECT DURATION

This will be an approximately one and a half-year design project, beginning in May 2023 and ending in October 2024, which will allow construction to occur during the 2025 fish window, if funding is available. A detailed schedule for each task and deliverable is provided below. This schedule assumes a six-month turnaround period for relevant permits.

Task/Deliverable	Schedule
Project initiation	5/1/2023
Project management	5/1/2023 – 5/30/2024
Project kick-off meeting	5/5/2023
Task 1: Site investigation and baseline assessment	5/5/2023 – 8/1/2023
Existing data review	5/5/2023 – 5/15/2023
Geomorphic field investigation and site survey	5/15/2023 – 6/1/2023
Hydrologic, hydraulic, and geomorphic assessment	6/1/2023 – 8/1/2023
Submit Deliverables for Task 1	8/1/2023
Task 2: Design	8/1/2023 – 5/30/2024
Task 2.1: Alternatives analysis and concept design – 15% design	8/1/2023 – 11/1/2023
Develop concept design and alternatives analysis	8/1/2023 – 9/1/2023
Meeting notes for conceptual design review meeting with PacifiCorp and the ACC	9/1/2023
Revise conceptual design and submit preferred alternative package	10/1/2023
30-day PacifiCorp and ACC review period	10/1/2023 – 11/1/2023
Task 2.2: Draft construction plan – 30% design	11/1/2023 – 1/1/2024
Address 15% design review comments	11/1/2023 – 12/1/2023
Submit 30% basis of design report and plan sheets	12/1/2023
30-day PacifiCorp and ACC review period	12/1/2023 - 1/1/2024
Task 2.3: Permit ready designs – 60-80% design	1/1/2024 – 3/1/2024
Address 30% design review comments	1/1/2024 – 2/1/2024
Design confirmation field visit	1/1/2024
Submit 60-80% basis of design report, plan sheets, specifications, and cost estimate	2/1/2024
Submit permits	1/1/2024 – 2/1/2024
30-day PacifiCorp and ACC review period	2/1/2024 – 3/1/2024
Task 2.4: Final construction plan – 100% design	3/1/2024 – 10/30/2024
Permits approved	8/1/2024
Address 60-80% design review comments	3/1/2024 – 10/30/2024
Submit 100% bid ready design package	10/30/2024

Project close-out site visit (with PacifiCorp, Cowlitz PUD, and ACC representatives)	10/30/2024
Task 3: Monitoring and photo documentation	
Develop monitoring plan	5/30/2024 – 10/30/2024
Pre-Construction	10/30/2024
During Construction	Included in construction phase budget
Post-Construction	Included in construction phase budget

11 Permits and Authorizations

All regulatory information needed to facilitate environmental compliance and permitting will be provided by CFS with assistance from CLT. As the preliminary designs are being developed, we will begin developing the permit applications. The permitting process will begin by submitting a Joint Aquatic Resources Permit Application (JARPA) to relevant local, state, and federal agencies for review. At a minimum, we expect this project will require a Hydraulic Project Approval (HPA) from the WDFW, a 401 Water Quality Certification from the Washington Department of Ecology, an aquatic land use authorization from WADNR, and a County Shoreline Permit. Through the JARPA, we will apply for the Fish Habitat Enhancement Exemption which would expedite the permit process for the HPA, Shoreline Permit, and potentially the State Environmental Policy Act consultation, if a review is triggered. For any work occurring on USFS property, a NEPA consultation may be required unless the proposed actions fall under an existing programmatic. We do not expect a Section 404 or Section 10 permit from the Army Corps of Engineers will be required; however, that will be at the discretion of the Corps representative.

We have successfully obtained these permits for many large wood addition, fish passage, and river restoration projects in Washington State in a timely manner. Our preferred approach is to contact regulatory agencies early within a project's timeline to get them involved and help identify potential hurdles or constraints. Identifying concerns early allows us and our partners to address issues and incorporate solutions in the planning and design phases of a project. In our experience, regulatory agencies can be a strong supporter and ally if they feel engaged in the project.

Columbia Land Trust is the owner of the land used for access to the project site as well as a collaborator in the project. We have included the Landowner Acknowledgement Form as Attachment A.

12 Matching Funds and In-kind Contributions

We are in discussion with stakeholders and project partners regarding matching funds and in-kind contributions.

13 BUDGET

13.1 ESTIMATED BUDGET

Cramer Fish Sciences will work with PacifiCorp to meet all project objectives on schedule and on budget. We estimate the total cost of the project to be $191,222. Budget assumptions are discussed in the section below and budget details are shown in the following table.

13.2 BUDGET ASSUMPTIONS

We developed this budget under the following assumptions:

- The available LiDAR is adequate to complete the design with the addition of a targeted field-based topographic survey to account for recent channel migration and bathymetry. We assume LiDAR adheres to Washington State Department of Natural Resources Lidar Acquisition Technical Specifications and USGS Lidar Base Specifications 1.3 including survey control standards, vertical and horizontal accuracy standards, metadata standards, tiling schemes, and naming conventions, and accurately represents existing non-submerged topography.
- We assume that the topographic survey will be completed during wadable conditions.
- The selected design alternative(s) will focus on large wood additions.
- Additional collaboration, site-visits, meetings, or tasks beyond the scope of this proposal would be budgeted on a per-task basis, as needed.

CRAMER FISH SCIENCES® An Employee Owned Consulting Company	Projected Hours									Expenses		
	Phil Roni $247	Reid Camp $162	Philip Luecking $192	Tyler Rockhill $154	Technical Writer $133	Biologist $108	Bio Technician $67	Columbia Land Trust $100	Labor Subtotal	Equipment	Travel	Totals
Objective 1: Site investigation and baseline assessment												
Task 1.1 Exisiting data review	0	16	0	16	0	16	16	8	$8,660			$8,660
Task 1.2 Geomorphic field investigation and site survey	0	24	0	24	0	60	60	12	$19,297	$3,000	$5,000	$27,297
Task 1.3 Geomorphic and riparian assessment	0	40	0	10	0	0	40	24	$13,100			$13,100
Task 1.4 Hydrologic assessment	0	0	8	20	0	0	10	0	$5,296			$5,296
Task 1.5 Hydraulic anlaysis	0	0	8	60	0	0	0	0	$10,798			$10,798
Objective 1 Subtotal	0	80	16	130	0	76	126	44	$57,151	$3,000	$5,000	$65,151
Objective 2: Design												
Task 2.1 Alternatives analysis and concept design – 15% design	8	16	16	60	4	8	12	12	$20,300			$20,300
Task 2.2 Draft construction plan – 30% design	8	16	12	60	4	8	12	12	$19,532			$19,532
Task 2.3 Permit ready design – 60-80% design	4	12	12	50	4	8	12	10	$16,155			$16,155
Task 2.4 Final construction plan – 100% design	4	8	12	40	4	8	12	10	$13,964			$13,964
Task 2.5 Permitting	0	16	0	8	4	8	20	8	$7,363			$7,363
Objective 2 Subtotal	24	68	52	218	20	40	68	52	$77,314	$0	$0	$77,314
Objective 3: Monitoring and photo documentation												
Task 3.1 Monitoring plan development	10	6	0	6	0	0	0	8	$5,164	$1,000	$ 750	$6,914
Task 3.2 Pre-construction photo documentation	0	0	0	0	0	12	12	12	$3,302	$1,000	$ 750	$5,052
Objective 3 Subtotal	10	6	0	6	0	12	12	20	$8,466	$2,000	$1,500	$11,966
Project management	40	20	0	20	8	0	0	20	$19,258			$19,258
Project kickoff meeting	8	8	0	8	0	0	0	4	$4,902			$4,902
Update memos (provided with invoices)	8	8	0	8	0	0	0	0	$4,502			$4,502
Project close-out site visit	10	10	0	10	0	0	0	10	$6,628		$1,500	$8,128
Objective 4 Subtotal	66	46	0	46	8	0	0	34	$35,291	$0	$1,500	$36,791
Total Project Hours	100	200	68	400	28	128	206	150				
Total Project Costs	$24,675	$32,340	$13,066	$61,740	$3,734	$13,824	$13,843	$15,000	$178,222	$5,000	$8,000	$191,222

14 PHOTO DOCUMENTATION

As per the National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects, we will provide photo documentation of habitat conditions at the project site before, during, and after project completion. We will include general views and close-ups showing details of the project and project area, including pre- and post-construction. We will label each photo with the date, time, project name, photographer's name, and documentation of the subject activity. The timing of photo collection is shown in the table below.

Photo	Timing
1	Pre-construction
2	Post-construction as-built
3	Post one high flow
4	3 years after construction
5	5 years after construction

15 INSURANCE

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 6/17/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: John Munson
Brightline Insurance Services, LLC 15305 Dallas Pkwy, Suite 100 Addison TX 75001	PHONE (A/C, No, Ext): 312-420-0747 FAX (A/C, No): E-MAIL ADDRESS: jmunson@brightlineinsurance.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : TRAVELERS IND CO	25658
INSURER B : TRAVELERS CAS INS CO OF AMER	19046
INSURER C : Travelers Property Casualty Co of Amer	25674
INSURER D : TRAVELERS CAS & SURETY CO	19038
INSURER E : ATLANTIC SPECIALTY INS CO	27154
INSURER F :	

INSURED
S.P. Cramer & Associates, Inc.dba Cramer Fish Sciences
7525 NE Ambassador Pl., Suite C
Portland OR 97220

COVERAGES **CERTIFICATE NUMBER:** 547138220 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:	Y	Y	680-4T947828-22-42 680-4T947017-22-42	6/18/2022 6/18/2022	6/18/2023 6/18/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 300,000 $ 5,000 $ 2,000,000 $ 4,000,000 $ 4,000,000 $
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY	Y	Y	BA-4T948284-22-42-G	6/18/2022	6/18/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $ $
C	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 0	Y	Y	CUP-4T948524-22-42	6/18/2022	6/18/2023	EACH OCCURRENCE AGGREGATE	$ 2,000,000 $ 2,000,000 $
D D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	UB-4T948444-22-42-G UB-4T948376-22-42-G	6/18/2022 6/18/2022	6/18/2023 6/18/2023	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
E D	Watercraft Liability Misc. Professional Liability	Y Y		B5JH32181 107654925	6/18/2022 6/18/2022	6/18/2023 6/18/2023	Each Occurrence Limit Each Claim/ Aggregate	1,000,000 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
All covered operations of the named insured subject to policy conditions, limitations and exclusions.

CERTIFICATE HOLDER

For Informational Purposes

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

ACORD 25 (2016/03) The ACORD name and logo are registered marks of ACORD

16 LITERATURE CITED

Beechie, T., and H. Imaki. 2014. Predicting natural channel patterns based on landscape and geomorphic controls in the Columbia River basin, USA. Water Resources Research 50(1):39–57.

Beechie, T., H. Imaki, J. Greene, A. Wade, H. Wu, G. Pess, P. Roni, J. Kimball, J. Stanford, P. Kiffney, and N. Mantua. 2012. Restoring salmon habitat for a changing climate. River Research and Applications 29: 939-960.

Beechie, T. J., D. A. Sear, J. D. Olden, G. R. Pess, J. M. Buffington, H. Moir, P. Roni, and M. M. Pollock. 2010. Process-based principles for restoring river ecosystems. BioScience 60(3):209-222.

Chandler, G. L., S. P. Wollrab, D. L. Horan, D. E. Nagel, S. L. Parkes, D. J. Isaak, D. L. Horan, S. J. Wenger, E. E. Peterson, J. M. Ver Hoef, S. W. Hostetler, C. H. Luce, J. B. Dunham, J. L. Kershner, and B. B. Roper. 2016. NorWeST stream temperature data summaries for the western U.S. Fort Collins, CO: Forest Service Research Data Archive. Available online at: https://doi.org/10.2737/RDS-2016-0032.

Columbia Land Trust (CLT), and MB&G. 2013. Mount St. Helens stewardship area management plan 2013-2022.

England, J. F., Jr., T.A. Cohn, B.A Faber, J. R. Stedinger, W.O. Thomas Jr., A. G. Veilleux, J. E. Kiang, and R. R. Mason. 2019. Guidelines for determining flood flow frequency — Bulletin 17C (ver. 1.1, May 2019): U.S. Geological Survey Techniques and Methods.

Granato G. E., K. G. Ries, and P. A. Steeves. 2017. Compilation of streamflow statistics calculated from daily mean streamflow data collected during water years 1901–2015 for selected U.S. Geological Survey streamgages: U.S. Geological Survey Open-File Report 2017–1108.

Lamperth, J., A. Groskopf, and B. Michaelis. 2017. Lewis River bull trout habitat restoration project identification assessment.

Lower Columbia Fish Recovery Board (LCFRB). 2010. Washington lower Columbia salmon recovery and fish and wildlife subbasin plan. Available: https://www.lcfrb.gen.wa.us/librarysalmonrecovery

Major, J., and L. Mark. 2006. Peak flow responses to landscape disturbances caused by the cataclysmic 1980 eruption of Mount St, Helens, Washington.

Major, J., T. Pierson, and K. Scott. 2005. Debris flows at Mount St. Helens, Washington, USA.

Mastin, M. C., C. P. Konrad, A. G. Veilleux, and A. E. Tecca. 2016. Magnitude, frequency, and trends of floods at gaged and ungaged sites in Washington, based on data through water year 2014 (ver 1.2, November 2017): U.S. Geological Survey Scientific Investigations Report 2016–5118.

PacfiCorp. 2016. Lewis River hydroelectric project (FER Nos 211, 2213, 2071, and 935) new information regarding fish transport into Lake Merwin and Yale Lake – June 2016. PacfiCorp, Portland, Oregon.

Quantum Spatial. 2018. Washington FEMA 3DEP 2018 LiDAR technical data report. Contract No. G16PC00016, Task Order No. 140G0218F00367.

Roni, P. 2020. Lewis River basin implementation monitoring plan for habitat restoration in lieu of fish passage. Prepared for PacfiCorp, Portland, Oregon.

Roni, P., and T. Beechie. 2013. Stream and watershed restoration: a guide for restoring riverine habitat and processes. Wiley Blackwell, Chichester, U.K.

Roni, P., C. Clark, K. Ross, R. Camp, M. Krall, J. Hall, and R. Brown. 2020. Using remote sensing and other techniques to assess and monitor large floodplain and riparian restoration projects. Recreation and Conservation Office, Olympia, Washington.

Roni, P., M. Krall, J. Kvistad, S. Burgess, and K. Ross. 2022. Action effectiveness monitoring program – 2021 annual report. Prepared for BPA, Portland, OR.

Roni, P, and R. Timm. 2016. Lewis River project – limiting factors and identification of restoration alternatives to fish passage. Prepared for PacifiCorp Energy, Portland, OR.

U.S. Forest Service (USFS). 1995a. Middle Lewis River watershed analysis. Gifford Pinchot National Forest.

U.S. Forest Service (USFS). 1995b. Upper Lewis River watershed analysis. Gifford Pinchot National Forest.

U.S. Forest Service (USFS). 1996. Lower Lewis River watershed analysis. Gifford Pinchot National Forest.

Landowner Acknowledgement Form

Landowner Information

☒ Mr. ☐ Ms. Title: Stewardship Director

First Name: Ian Last Name: Sinks

Contact Mailing Address: 850 Officers Row, Vancouver WA 98661

Contact E-Mail Address: isinks@columbialandtrust.org

Property Address or Location: Pine Creek watershed - Between Forest Road 60 and 8320

I certify that Columbia Land Trust *(Landowner or Organization)* is the legal owner of property described in this grant application to the Lewis River Aquatic Fund. I am aware the project is being proposed on my property or access across my property is needed. **My signature authorizes the applicant listed below to seek funding for project implementation, however, it does not represent authorization of project implementation pending my final approval of plans and specifications and signature on a formal landowner access agreement.**

Landowner Signature

10/20/2022
Date

Project Applicant Information

Project Name: Pine Creek Restoration Design Project

Project Applicant Contact Information:

☑ Mr. ☐ Ms. Title: Vice President/Principal Scientist

First Name: Phil Last Name: Roni

Mailing Address: 1125 12th Ave. NW, Suite B-1, Issaquah, WA 98027

E-Mail Address: phil.roni@fishsciences.net

Lead Entity Organization: PacifiCorp and Cowlitz PUD

Landowner Agreements

Landowner agreements are required for restoration projects on land that the sponsor does not own. Provide PacifiCorp with a signed landowner agreement with your Lewis River Aquatic Fund Application.

The agreement is a document between the sponsor and the landowner that, at a minimum, allows access to the site by the sponsor and Lead Entity Organization staff for project implementation, inspection, maintenance, and monitoring; clearly states that the landowner will not intentionally compromise the integrity of the project; and clearly describes and assigns all project monitoring and maintenance responsibilities.

The landowner agreement remains in effect for a minimum of 10 years from the date of project completion. The date of project completion is the date indicated in the sponsor's fund application. It is the sponsor's responsibility to inform the landowner of this date.