PROJECT: 21-1069 P, Lower Lacamas Creek Design - Phase 1 2021

Sponsor: Lower Columbia FEG Program: SALMON ST PROJ Status: Application Resubmitted

MEETING: Initial Review

Shared: 4/2/2021

Review Status: Needs more information

Considerations:

Topics	Comments
Review Panel Comments - Initial	
Questions (response required)	
	How will the woody debris structures function with the seasonal tidal backwater effect? Will the structures stay or will they have the ability to float upwards? Do you plan to place structures at various elevations to accommodate seasonal differences in water level?
	Reply: The key take away is that the annual inundation of the proposed site is always gradual. If funded, this design will allow us to produce concepts for different types of structures that each serve a different purpose. For example, there is one small segment of young Oregon ash along the toe of the creek side of the berm. The roots are completely exposed due to constant scour from continuous influxes in flow annually. This small section of habitat is the only stable refugia below NE 3rd Ave for juvenile salmonids to rear in and protect themselves from predators (e.g., other fish and birds). Our design outcome seeks to remove the berm and reuse the material that is the current makeup of the structure (e.g., boulders, coble, and small trees) and repurpose it into a fish friendly structure (i.e., boulder ballasted large-wood structure). These types of structures will work best in this area. Once the berm is removed we can place several of these structures instream and in place of the berm. Once the entire area becomes inundated, all structures will be activated, including the ones on the floodplain.
	Is there any water temperature or other water quality information for this reach of Lacamas Creek? The project proposal would be improved by discussing potential water quality issues.
	Reply: Yes, there are water quality issues in Lacamas Creek. Most of these issues arise upstream and were created by past and present agriculture and development practices. The strategy is simple, we plan to start from the bottom and work our way up with the Lacamas Creek restoration approach. As we work our way upstream, we are focusing in on the man-made impoundments that amplify all these problems that you see Lacamas Creek is experiencing (i.e., water quality, fish passage, lack of habitat etc.). Point in case, the man-made berm below NE 3rd Ave (Camas, WA). If we can remove structures like this berm that prevent water storage and other vital floodplain processes, we can strive to improve water quality not only in lower Lacamas Creek, but the lower Washougal River too. Keep in mind that this floodplain serves and supports life in both waterbodies through its hyporheic exchange processes and riparian buffer. "The hyporheic zone provides an important contribution to the attenuation of contaminants dissolved in the channel water and to the cycle of energy, nutrients and organic compounds. Moreover, it exhibits a significant control on the transport of pollutants across the river basin."

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Improvements to Make Project Technically Sound (response required)	
	Rather than using the Oregon ash on the floodplain for habitat structures, the project sponsor should consider importing conifer pieces that would be larger in size and last longer.
	Reply: Thanks for your feedback. Our design will consider small imported pieces of wood (e.g., small root wads and stumps).
	This is a complicated site with several hydrological, geomorphological, water quality, and social issues. The project sponsor will be working with key stakeholders, but the exact direction of the restoration work is uncertain. The project would be improved by narrowing its focus to one or two specific fish habitat elements, such as removing the berm and creating pilot channels to increase floodplain inundation and/or addressing invasive species and riparian forest conditions.
	Reply: Thanks for your feedback. We have narrowed the focus of our project to three areas instream habitat, removal of man-made impoundments, and riparian buffer enhancement. We have already identified issues at the project site that hinder juvenile and adult anadromous salmonids (e.g., berm and lack of instream habitat). Both bottlenecks were identified during the project development phase. Now that we now were to start if we get funding, we can start by looking at these constraints and expand our focus from there. The riparian enhancement for Lacamas Creek will be implemented in a series of phased projects too. LCFEG has already applied for CCCWRF funding to start Lower Lacamas Creek Riparian-Phase 1, which is the first phase of riparian work and its site is adjacent to this project's site.
	Please elaborate on SMART objectives to identify biological goals that are specific and measurable (e.g., reduce invasive species area by 90% , reconnect at least 500 feet of side channel length, add at least 200 conifer trees per acre of riparian area). The current objectives are simply implementation goals.
	Reply: Please keep in mind that this is a design-only project at this moment in time. The reason why we decided to go with this approach first is because we want to cover all our bases. Just from being onsite and making general observations, it's evident that there are a few man-made impoundments that have created serious problems for adult and juvenile anadromous fish below NE 3rd Ave (Camas, WA)(i.e., Berm, culvert, dam). Our first objective is to hire and establish a scope of work contract with an experienced and knowledgeable engineering firm. The engineer will be brought on to help us to tease out all of the SMART objectives and quantify our biological goals. We will also host a project kick-off meeting at the site with the City of Camas and the engineering firm. The purpose of this meeting is to establish project roles and responsibilities and to create an effective line of communication between LCFEG, the landowners, and the firm. Shortly after this meeting, we will bring on ARCHAEOLOGICAL SERVICES LLC to complete a cultural resources assessment at the project site. We will also host three stakeholder meetings that will be open to the public. Our goal is to provide all parties an opportunity to give feedback and provide input as to the direction of the project. Additional SMART objectives will be established while working on the design.
General Comments (response not required)	
	The project sponsor is working in a high priority area at the confluence of Lacamas Creek and the Washougal River that would benefit multiple species of salmon and steelhead.

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	Reply: Please view the link below. https://youtu.be/mfZqplKz83s
	The sponsor has done a great job of engaging stakeholders and emphasizing the use of low-cost, light-touch, practical solutions for addressing the limitations at the site.
	Reply: Thank you. I graciously appreciate all of your support.

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MEETING: LE Review

Shared: 4/15/2021

Topics	Comments
Lead Entity Comments	
Questions For Applicant	
	Will structures be designed to be submerged?
	Reply: Yes, the structures will be designed to be submerged. During the seasonal inundation period the entire site, including the structures will be submerged underneath approximately six to eight feet of backwater. Large stumps and smaller root wads (10-15' long w/ a big fan) will be used to create habitat structures for juvenile anadromous salmonids. The smaller root wads will be oriented at a 45-Degree Angle with the root-fans facing upward and the stem-side down and buried in cobble, to emulate natural wood accumulation that occurs in the lower reaches of Lacamas Creek and the Washougal River.
	During the design process, will you consider water level frequency and seasonal inundation patterns?
	Reply: Yes. Over the course of the design for lower Lacamas Creek, we will study seasonal inundation patterns. We will also keep water level frequency and climate change in consideration, as potential factors that could affect the long-term success of our project. All habitat structure concepts considered in this design, will be constructed to accommodate the trend of changing weather patterns.
	Given the tidal nature of the habitat and the adjacent industrial area, how will you consider in your design approach water quality issues that affects juvenile fish (i.e. turbidity, contaminants)?
	Reply: We understand that the problems that the Lacamas Creek watershed faces didn't happen over night. This watershed has a very long history that dates back over a century. This design will serve as the roadmap to restoration for lower Lacamas Creek (below NE 3rd Ave). We will keep in consideration the adjacent industrial area, tidal influences, water quality, etc. But to completely address the water quality issues that Lacamas Creek faces, will require a lot more funding and and expansion of our design, to include the dam, farms, and development, which all contribute to the pollutants found in the watershed. With that being said, even though Lacamas Creek is in rough shape, juvenile salmonids are still using it for spawning and rearing. Follow the link below. Enjoy! ;) https://youtu.be/mfZqplKz83s
	Are you designing for multiple habitats and flow regimes in light of the tidal-influence? Is your design process aimed at low flow and warm water slack water scenarios, or is the focus on high flow and cold water riverine scenarios?

	Reply: Yes, we the design will cover multiple flow regimes (low-high) as well as seasonal inundation, habitat availability, riparian buffers, and man-made impoundments.. Lower Lacamas Creek Design-Phase 1, will provide multiple structure concepts, some instream and others strategically placed throughout the floodplain that are only active part-time. When flows are low, the structures will be dormant and serve as a food source for bug life (fish food), cover for animals, and to help establish native plants (e.g., willow, dogwood, cottonwood, etc.). Our design will use an ecosystem-based restoration approach to restore lower Lacamas Creek, vital thought process will be used to establish this project.
	Have you considered importing offsite wood sources and species, such as Douglas fir, so that existing deciduous trees can continue to provide shade benefits? Douglas fir also have greater longevity in the aquatic environment, which will provide more long-term habitat benefits.
	Reply: We have, but after a careful observations and continuous studying of lower Lacamas Creek and the project site, we have come to the conclusion that deciduous trees grow very well in this habitat. They also provide just as much shade and nutrients (leaf liter) to the floodplain floor, which translates to fish food (e.g., bug life consuming the organics) and an opportunity to strengthen the riparian buffer due to the excellent growing conditions at the site.
	Provide an update on how you plan on collaborating with local partners during the design process. As a starting point, recommend reaching out to the Lower Columbia Estuary Partnership to discuss tidal restoration considerations.
	Reply: We have already reached out to the LCEP (during the development phase of the project offered LCFEG reached out to LCEP an offered them an opportunity to contribute to this project), this happened two years ago before we summited the last SRFB grant application for this project. We feel confident in our staff and their knowledge of the project site, Lacamas Creek and the Washougal River and STRONGLY feel that we can handle this design project just fine. LCFEG, has put in a lot of foot work developing this project and a relationship with the City of Camas, WDFW, and local community members. If it turns out that we were to need assistance with this project, we will reach out to LCEP again and offer them another opportunity to provide input with this project.
	Describe the benefits of maintaining existing wood and rock material.
	Reply: There are many cost and time saving benefits for maintaining the wood that is already onsite. After carful examination of the berm, I noticed 5-10 medium-large size boulders buried within and 9 behind the structure, along with multiple cubic-yards of small to large-sized substrate material (spawning gravel). Additionally, there are multiple trees (Oregon ash, Cottonwood, etc.) growing on top of the berm that we plan to remove when we deconstruct the berm. We will save this material and implement it into instream habitat structures for rearing juvenile salmonids. This strategy for repurposing the onsite wood and rock as opposed to importing material, will save us thousands of dollars on the backend.
	Define what a “light touch approach” is for this project area.
	Reply: Light-tough approach- simply means that we will use a very delicate, careful, and sensitive approach while we are working on restoring lower Lacamas Creek. To interpret further, we don't intend to go in with heavy equipment and level the area, just simply identify the man-made obstructions and impoundments (e.g., berm) and correct them without disturbing areas that are productive and functional for anadromous salmonids.

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	This is a complex site, and many environmental factors need to be considered during the design process. It is recommended that you identify which salmonid life histories and their associated bottlenecks you plan on targeting with this project. This will help provide clarity on the preferred approach and desired outcomes. Make sure to identify what the expected resultant biological lift is.
	Reply: Thanks for the feedback.
	Given the site complexities, encourage you to work with regulators as you move through the design process.
	Reply: Thanks for the input we intend to work with regulators through the entire design process
	This is a very sensitive site, and is home to species other than fish. Make sure to consider how the project could impact broader ecological functions.
	Reply: We will.
	Agree there are opportunities to improve habitat in the river right Lacamas creek channel, but concerned that the other proposed project aspects may not have benefits and, potentially, could degraded existing conditions. Additional clarity in approach and expected outcomes are necessary.
	Reply: Existing conditions of lower Lacamas Creek are already heavily degraded, which is why we have decided to start out with a design first to identify and capitalize on opportunities to restore the instream and floodplain habitat of lower Lacamas Creek. Thanks for the feedback.