Project Review Comments

PROJECT: 21-1061 R, SF Toutle Lower Brownell Reach Restoration

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

MEETING: Initial Review

Shared: 4/2/2021

Review Status: Cleared

Topics	Comments
Review Panel Comments - Initial	
General Comments (response not required)	
	This is a well developed and well presented proposal with specific final design tasks laid out to implement a process based restoration treatment in the Brownell Creek Reach of the SF Toutle. This is the first of 4 phases for treating this reach. The sponsor has an implementation plan to complete all 4 phases; final designs will be completed prior to implementation of each subsequent phase based on current conditions in the reach. The objectives and design elements for the reach are specific and tied to prioritized limiting factors. In addition, the specific needs of different species are considered within the types and location of large wood treatments planned for the reach. There is extensive riparian treatment proposed as well to complement the efforts in stabilizing floodplain surfaces to promote riparian growth.
	Conceptual designs were presented to SRFB for review prior to this proposal being submitted. The sponsor modified the project implementation in response to reviewer and stakeholder inputs.

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MEETING: LE Review

Shared: 4/15/2021

Topics	Comments
Lead Entity Comments	
Questions For Applicant	
	Could you achieve the same anticipated benefits by using less intensive and costly methods, such as installing beaver dam analogs? Describe the cost-benefit of the proposed restoration methods. Recommend reviewing some studies by the University of Idaho-Moscow that assessed hyporheic flow using low tech. methods.
	Reply: Low tech methods can increase hyporheic flow along the margins of the floodplain adjacent to the channel. The right bank floodplain restoration including activating the right bank high flow channel; installing pile-ballasted floodplain roughness structures; dispersal of loose floodplain wood/slash; and increase in beaver-focused revegetation will all improve hyporheic zone recharge and may increase beaver activity on the right bank. These activities could increase hyporheic flow into the right bank channel margins. Low tech methods and overall beaver activity has less of an impact in active floodplains of larger rivers than they do in small-medium size waterways. Beaver typically don't pond water and build permanent lodges in the lower SF Toutle floodplain. They prefer to dam up tributaries flowing across terraces that are isolated from the active floodplain as is evident on the right bank terrace above this project reach. What we're proposing with the hyporheic obstructions will not be any more intensive or costly than building habitat complexity structures as shown on sheet 5 of the plans. Essentially, we are adding three extra structures to the plan. Due to the economy of scales associated with treating over a half mile of broad floodplain reach, the overall expense will not be substantial but the potential uplift could be really beneficial.
	What is the reason to hold off on Brownell tributary restoration work, and instead starting with restoration of habitat in the mainstem South Fork Toutle? This is the reverse approach of your earlier work upstream.
	Reply: This is a great question. Brownell creek is nothing like Bear, Harrington, or Little Cow Creeks upstream. It is a highly channelized, bedrock-dominant stream with minimal existing habitat value. Thus, work in Brownell Creek may require very aggressive and expensive work that may not be justified. Thus, we will continue to evaluate alternatives for Brownell Creek as we prepare to propose Phase II funding in 2023.
	How are you identifying your restoration phases for Brownell Creek?

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	Reply: Final design drawings and planning for Brownell Creek itself will be completed with the next proposal in 2023. The phasing for the Brownell Reach of the SF Toutle is based on LCFEG capacity to implement the projects within the grant timeline. It is also based on our ability to produce cost share for the SRFB proposals and the amount of regional funding we receive. If our regional allocation was increased, we could scale up and speed up the implementation. The four-phase approach is based on using SRFB funding. If an alternative funding source is identified that we can use to fund one or more of the other phases, we may be able to scale up and speed up the implementation.
	Expenditures related to hyporheic obstruction project components should be clearly delineated in the proposal budget. This is key given the uncertainty around the functional outcomes.
	Reply: We do not have specific plans for the hyporheic obstructions and therefore cannot adequately budget them out. The cost for materials will be about $1,500 per structure (1 large log, 4 boulders) and the cost to install them will be about $1,500 per structure. Thus, for three hyporheic obstructions, it will cost approximately $9,000 to install them. The cost to design them will also be a fraction of the total AE budget. Assuming the overall cost is about $15,000 and the overall project cost is $911,881, this component will comprise less than 2% of the total budget. We did not include these structures in the proposal to add uncertainty to the application. We added these structures to show that we are thinking critically about addressing the key limiting factors for Chinook with this project. We know from previous work in the SF Toutle that Chinook prefer cover nearby their spawning habitat (i.e. habitat complexity structures) and we suspect based on the best available science and field observations that SF Toutle Chinook key in on areas of upwelling. If we can strategically create both cover habitat and increase upwelling in areas where we know the hyporheic zone is already shallow, we may be able to create dependable spawning habitat for Chinook that will persist for decades.
	Subsurface structures will not be harmful, although not sure if they will support hyporheic flow improvements given watershed processes in the Toutle system.
	Reply: Thank you. We agree. This is a small component of the overall project (~1.6% of the budget). The investment is low. The risk is low. The certainty of success is medium based on LCFEG's experience and knowledge of the processes in play in this watershed. The potential uplift is high.