REVIEW COMMENTS

Contract Number:

DESIGN DOCUMENT TYPE						DOCUMENT	PROJECT	DATE
	DESIGN MEMO		CONCEPT		FINAL	ACC Plan Review	**Lewis River Acclimation Ponds**	6/8/11
X	PLANS & SPECS		PRELIMINARY					

REVIEWER						ACTION TAKEN ON COMMENT		
		NAME Bryan Nordlund	X	GENERAL		STRUCTURAL	**REVIEW CONFERENCE** (A = Comment accepted) (If not accepted explain)	**RESPONSE** (C = Correction made. List drawing or paragraph number whwere correction made) (If not corrected, explain)	**Reviewer Initials**
		National Oceanic and Atmospheric Administration		CIVIL		HYDRAULIC			
		PHONE NUMBER 360-534-9338		MECHANICAL					
				ELECTRICAL					

ITEM NO.	DRAWING SHEET SPEC PARA	COMMENTS	REVIEW CONFERENCE	RESPONSE	Reviewer Initials
1	General All Sites				
		Each site should undergo a hydraulic assessment to assure that velocities in the channels, approach velocities on the outlet screens, flow rate per number of fish, and flow volume per number of fish are safe for holding fish for extended time periods. This assessment needs to include consideration of the entire stream flow range expected during the acclimation period.		General Design Section added to the Operation-Construction-Issues Technical Memorandum for 90% Submittal.	
		A predation protection plan should be developed and be implemented, including allowances for fish to escape detection and predation.		Predation will be dealt with as best as possible. The plan is to provide adequate cover and larger substrate to allow the opportunity for escape.	
		The outlet screen designs should provide easy debris cleaning and removal. Minimally, the outlet screen structure design should be revised to include redundant slots so that a clean screen can be installed prior to a dirty screen being removed. Optimally, these screens should be replaced with some sort of self-cleaning screen, such as a solar or hydraulic motor driven panel screen. The screen area needs to be sufficient to preclude impingement of acclimation fish, including oversizing for debris accumulation if a manually cleaned screen is installed. If a manually cleaned screen is used, consider that the screen could require multiple daily cleanings, due to the currently unknown airborne debris load that enters the channel. The outlet screen hole size could probably be increased to 3/16" or 1/4", because fry sized fish should not encounter the screens.		Outlet structure is designed with redundant slots. Project intent is to evaluate the manual screen system during operations to determine debris loading and manual cleaning requirements. Outlet screen has been revised to a 1/4'" by ½" slotted screen for 90% design.	
		All outlet pipes used to provide volitional release should be of adequate length and weight to be easily handled and installed by a two-person crew.		Maximum length of 6" release pipe will be 20' and be flanged for bolt connections. This section weighs less than 60lbs. and can easily be handled by two people.	

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2	Clear Creek	The intake screen should be self cleaning as described above, and should generally be designed to achieve NMFS and WDFW screen design criteria. Since fry-sized fish could encounter this screen, 3/32" hole openings or 1.75 mm slot openings should be the maximum screen mesh used. A clear path egress route needs to be provided to allow fish to escape from the intake area.		The intake structure is sized to allow for the installation of a drum screen in the future if needed. Clear Creek provides good sweeping flows across the front of the intake structure during the acclimation period which should prevent clogging and allow easy egress for fish on the stream side of the screen. Screen hole size is 3/32" in 90% drawing set.	
3	Muddy River	Infiltration galleries sometimes plug and fail to provide the original design flow. An operational plan for this site should include an assessment of infiltration gallery flow in advance of fish plants in the acclimation channel, allowing sufficient time for necessary adjustments to be made including a scenario where the infiltration gallery plugs with sediment. A screened back-up pump should be available to augment or replace infiltration gallery flow, if flow decreases occur. A maintenance plan for bedload management needs to be developed.		A back-flush system has been included to aid in lifting the gravels and increasing flows into the infiltration gallery. A portable pump is included in the design for back-flushing the system. Flow will be proven adequate before fish are placed. The operation manual will include a plan for bedload management.	
4	Crab Creek	This site could assessed for vulnerability to overtopping by stream flow, considering the stream channel constriction that appears to be required (note: placing this under the bridge would exacerbate this constriction). Interspersing root wads and other woody debris would probably enhance protection from predation.		Root wads have been added to the 90% design. The streamflow record is fairly long-term and allows for estimating design flows. Care will be taken to make allowances for expected flow in the 10% frequency. However, if the pond is overtopped due to very unusual high flow, then the fish will not likely be lost – just released to the system earlier.	