

Lewis River Fish Passage Subcommittee Meeting

Agenda

Thursday October 12, 2023

2:30 to 4:30 pm

Teams

Introductions, Review Agenda and Meeting Notes	All
<ul style="list-style-type: none">Meeting notes (September)	
Design Team Updates	Hansen/Higa/Karchesky
Fish Passage Study Updates	Karchesky
Capacity Comparison Presentation 30% to 60% Design Changes	Karchesky
<ul style="list-style-type: none">Yale Upstream CollectorSwift Upstream Collector	
Yale Upstream Collector Attraction Flow / Hydraulic Conditions	
Additional Comments/Questions - 30% to 60% Design Changes	All
Date for Baker Passage Facility Tour	
Date for 60% Design Presentation	
Next FPS meeting – November 9th Teams	All
<ul style="list-style-type: none">Agenda	
Adjourn	

Microsoft Teams meeting

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Phone Conference ID: 970 831 390#

**FINAL Meeting Notes
Lewis River License Implementation
Fish Passage Subcommittee Meeting
October 12, 2023
2:30 PM – 4:30 PM
MS Teams Meeting**

Attendees

Christina Donehower – Cowlitz Indian Tribe	Melissa Jundt – NOAA
Amanda Farrar – Cowlitz PUD	Bryce Glaser – WDFW
Steve West – LCFRB	Josua Holowatz – WDFW
Beth Bendickson – PacifiCorp	Peggy Miller – WDFW
Eric Hansen – PacifiCorp	Aaron Roberts – WDFW
Nathan Higa – PacifiCorp	Pad Smith – WDFW
Chris Karchesky – PacifiCorp	Jeffrey Garnett – USFWS
Erik Lesko – PacifiCorp	Keely Murdoch – Yakama Nation Fisheries
Todd Olson – PacifiCorp	Bill Sharp – Yakama Nation Fisheries

Introductions, Review Agenda and Approve Meeting Notes

Bryce Glaser, WDFW, reviewed the meeting agenda.

Design Team Updates

Yale Downstream Update: Eric Hansen, PacifiCorp, provided a general update. The design team continues working on the Floating Surface Collector (FSC) designs, including things like fish sorting bars, sorting fish on the adjacent barge, and water-to-water fish truck transport. The 60% design is moving forward with the shorter barrier and guide net system as shown at the last meeting. The FSC will have 1,000 CFS entrance flow. The design team is also exploring ways to lower the construction costs.

Yale Upstream Update: Nathan Higa, PacifiCorp, gave a brief update. The design team is progressing on towards 60% design. As mentioned in the last meeting the structures are combined and the entrance pool is enlarged, eliminating the fish ladder section in favor of a higher lock. There are delays in getting the geotechnical investigation underway, which will hamper the structural engineering (designing structure and sizing), but the biological aspects of the design are being worked on.

Swift Upstream Update: Higa provided a brief update. The fish collection features at Swift have not changed from the 30% design, but the water supply has been changed from a pump station in the canal to a gravity feed tap off the powerhouse penstock. Like Yale, Swift Geotech investigations have not started so the work is concentrating on fisheries components and water supply systems.

Fish Passage Study Updates

Fish Passage Study

Chris Karchesky, PacifiCorp, reported that the contractors conducting the 2023 study should have a draft report to him soon. He expects to get it out to this group near month end. He thought maybe he would have the contractors come in for a review of the report at the next FPS meeting. As we wrap up year two of this study, it would be good to take into consideration differences between the two years.

Karchesky noted the field trip to see PSE's Baker River fish passage facilities could possibly be in November. He will send out a doodle poll to see possible tour dates.

Capacity Comparison Presentation – 30% to 60% Design Changes

Glaser asked for better insight on how designs are changing and what that means for adult holding capacity of the upstream facilities. Karchesky indicated that the only changes to capacity occurred at the Yale upstream facility due to the change in how the fish enter and are initially held in the facility. Karchesky said that the big design change was to eliminate the long ladder and reduce the distance fish have to travel in order to reach the holding pool. Karchesky presented a walkthrough of how the configuration changed from the 30 to 60% design. Karchesky said that holding capacity has not changed for the Swift Facility from the 30% to 60% design.

Long fish ladders are a concern, so the design team took a closer look to see if there were ways to compress the area's footprint. We can take advantage of and use the existing infrastructure. The new design is easier on fish and fits well in the proposed location. It will have a horizontal crowder to push fish towards the fish lock. The new design allows for accommodating reservoir water fluctuations. Regarding the entrance portals, there is a slot in the upper wall portion (for salmonids) and low entrance points for bull trout similar to the previous design.

Glaser mentioned the size/capacity of facility to hold fish. In the original presentation, the ladder was significant; now it's not there. He said there is uncertainty with the elevation capacity. Under normal Merwin Reservoir operations, there will be the ability to hold over 6,000 adult 7-pound coho in the entrance and holding pools (more than four times the original design). Actual fish capacity is dictated by reservoir elevation. Glaser asked about a table of comparisons.

Pad Smith, WDFW, asked if the effective capacity was real and will fish occupy the whole space or will they orient at top or bottom. Karchesky said at the Merwin Fish Collection Facility they use the full space available. You still have oxygen capacity with volume. Smith then asked about the entrance and whether fish could be trapped in the holding pool. Karchesky said there are still some things to consider for the facility, one being the fishing position (v-trap entrance). At the Baker facility, they use v-traps at the entrances and can regulate it per fish abundance. If you get a lot of fish you can manipulate the entrance and how many fish are coming in at one time. Smith then asked when clearing fish from holding pool into lock, does the lock have the capacity of the entire holding pool? Also, does the sorting pool have the same capacity? Karchesky replied that the short answer no. The design intent is to operate much like the Merwin facility where there can be a high fish density in the holding pool and then metered into the lock. There will be water flow weirs to que fish to jump into the lock area and you can also use the crowder to move fish towards

the lock entrance. At Baker they have a camera system and you basically meter fish into the lock (several hundred fish). Then the lock closes and moves fish up to the sorting area. Once the number of fish in the holding pool decreases, you can then raise the horizontal screen and push the remaining fish into the lock. Smith mentioned he was just trying to get a handle on how it operates. Do we have an estimate on fish per hour to process? Karchesky replied that at Merwin we can process a lot. The limiting factor of how many fish the facility can process is related to how far you need to truck the fish. The timing is really limited by how many trucks you have. Glaser said, so the entrance pool itself doesn't have a v-trap and they can come and go from there. Instead of a vertical crowder, it's horizontal. It seems you would have to keep the "door" between the entrance and holding pool closed as you're crowding fish towards the fish lock. Can you open the doors? Karchesky said the design team is working through this issue.

Karchesky noted that at high reservoir elevations, the holding pool is bigger than the original design; it has quite a bit of room because we're taking out the ladder. It creates a big box. The lock system is taller. He thinks it's a more efficient approach. Glaser asked about reservoir operations. Todd Olson, PacifiCorp, said typical for this time of year, Merwin Reservoir is within the top five feet of pool elevation. Unlike Swift, a Merwin Reservoir drawdown impacts more recreation facilities and at 227 feet, we impact the Speelyai boat launch. When we think we are going to be at a low reservoir elevation, we advise the public. It's super rare to be at 225 feet for a maintenance event. Glaser added, so that would mean more often than not it would be at a higher holding capacity. Karchesky added it was a good challenge for the design team and was pleased with the revised design. Peggy Miller, WDFW, wondered if this design was lamprey friendly. Karchesky said it is more so than what we had with the fish ladders. There is flexibility if it's an issue and there are a lot of ways with the new design that you could address it. Smith asked if all the slots are open at the same time and are they managed the same way. Higa said the intention is to have a combination of upper slot and lower ports open. We haven't quite yet figured out the hydraulics. Karchesky added that the overarching intent is a jump style entrance and deep water slower entrance (carryover from the 30% design).

For the Swift upstream facility, it is unchanged from the 30% design. Glaser said the Yale upstream design is more elegant and he is happy with the fish capacity. As we get further along, he is thinking how the horizontal crowder is going to work. Melissa Jundt, NOAA, said in her mind she can see loading fish into the holding pool, and is concerned about moving parts and the mashing of fish because of operation, or they get underneath something. PGE style has the same infrastructure that we are planning. Karchesky agrees and has been discussing it with the design team. He will also look at the Clackamas facility. There will be more to come on this.

Miller asked about the "sort building layout no touch" schematic from the previous presentation. It wasn't labeled which facility it was. Karchesky said he made a note last month that it was flipped because the design team is still uncertain of the orientation of that portion of the facility and have been moving it back and forth as they try to figure it out. It was the same design for each facility whether left or right.

Yale Upstream Collector Attraction Flow/Hydraulic Conditions

Jundt asked about post construction studies. When the powerhouse is on and off there are different conditions that could disrupt fish passage. She suggested maybe adding some documentation so that in the future others will know the item was considered. Specific to the pumping capacity, there have been a lot of supply issues recently, resulting in long lead times; thus she recommended adding additional capacity to avoid the inability to power up if pumps break down. She asked Karchesky if he was thinking of 300 CFS and then having redundancy of capacity at stations so we can maintain 300 CFS of attraction water. Karchesky replied yes, the intent was to have redundancy on station. For example, at the Swift FSC we have two additional attraction pumps in case one of them fails. Replacement time is about 2-3 hours. Karchesky said it was like that in the original 30% design. We would build infrastructure so we can quickly replace pumps if needed. In consideration of adding pumps, space for additional pumps could be considered, then pumps added later after the construction and a study period where results show need for additional flow. This approach is similar to how we did things for the Merwin Facility. Jundt asked if it was about the cost of running the pump. It's good to hear that you could put them in, in 3-4 hours. She is comfortable with having the hardware onsite that you could put in if need be. Karchesky said that was helpful, and having the parts and pieces on site is valuable.

Smith said we've discussed fish capacity and back-up plans for redundancy. The next step which relates is how the entrance hydraulics are looking. Have we done enough to see if they're in the right place? It's chaotic in the tailrace. We're very close to the powerhouse and maybe we should have some discussion on selection of where the entrance portals go and amount of flow through portals. Karchesky said the other piece to consider is how frequent or infrequent the powerhouse runs. Notably in spring and fall, Yale powerhouse doesn't run a lot. Typically it runs as a grid load-following facility. Literally, it's a lake environment in that area for a lot of the time. We have a Lewis River Monitoring and Evaluation plan which was created from a Settlement Agreement requirement. Included are a number of performance criteria for the facility, including adult trap efficiency that looks at how fish can successfully pass through a facility. It's important to see if anything hinders fish from finding the entrance. Karchesky provided an example of the studies conducted after the Merwin Trap was built (2014) that identified the lift and conveyance system as being the bottleneck for meeting collection efficiency metrics and not adding attraction flow or more entrances. Smith said the information was helpful but he is still trying to catch up on multiple years of work. Jundt said a desktop analysis was done on entry exposure. She will share it with him. Karchesky noted that the fish behavior studies for the Merwin Trap took five years to complete. For hydraulics, you look at the number of fish in the tailrace during powerhouse flow changes. You quantify things. Jundt said this one will be more than two years of study. In the comment section, can we track this. She asked if there would be technical memos with the 60% design. Hansen said yes, we can have an information exchange. We talked about providing the same type of information as we did on the 30% design. There will be colored 3D drawings to show detail. Jundt asked if the changes will be documented and why? Hansen said yes, that will be part of the 30% to 60% design process for the final 60% design of Yale Downstream. It's straight forward. Barrier guide net location is one example of a change from the 30% design. At Yale Upstream, there are more details. Jundt said she made a big comment on attraction flow and it might be good to document why changes were made. Hansen said we'll document how it operates and subsequently how fish are loaded on the trucks. As far as spare pumps, one way is to have them onsite in the warehouse so if one pump goes out, you can take it out and put a new one in. That's what you're asking, correct? Jundt said yes, in the next few years of implementation, it

would be good to memorialize that comment was made and then show this is how we agreed, and that it's ok to go forward with the current attraction flow. For example, Hansen said we are proposing to have a new pump on site. Twenty years ago, the extra pump would be shown in an O&M manual. For the 60% design, we'll add it to the design itself, and talk about it when we go through the presentation at the December 2023 meeting.

Smith asked if we had a comment document? Hansen said yes, it will be a document just like the 30% design and included as part of the 60% design review process. Jundt said it's needed for this one and just because the changes are so dramatic, it might be helpful to have a separate document. Glaser added that we created the Fish Passage Subcommittee to be part of the ACC, and that it would be good to have a high-level comment matrix to capture capacity concerns and attraction flows similar to what was done for the 30% design. It could be in a spreadsheet format that we could circulate for folks to add any high level comments we want to document. It could be similar to what we did for the 30% design in that it was a spreadsheet showing comments and PacifiCorp's responses. PacifiCorp would then update it. It would be a living document. Jundt's original thought was that comments could be documented and it would be beneficial to have a living comment response matrix. We can also use the comment matrix to point to work products (tech memo or a design drawing note) so we don't lose track of things. It will take time to work on items with the design team. Olson added he thinks it would be good idea. It can be included in the notes and at each meeting we'll give an update on it. There may not always be a comment response but at least we'll have a record of it. Glaser suggested keeping it relatively simple, they'll populate it, and we can then discuss it at each meeting. **ACTION ITEM** – Karchesky will create and send out the comment matrix spreadsheet for folks to populate.

Additional Comments/Questions – 30% to 60% Design Changes

No additional comments were made other than what was covered above.

Date for Baker Passage Facility Tour

ACTION ITEM: Karchesky will circle back with PSE Baker Facility and then put together a Doodle Poll with a date range.

Date for 60% Design Presentation

The 60% Design meeting is scheduled for December 14, 2023. WDFW requested that given the holidays and year end, more time be given for the FPS and ACC to prepare comments. PacifiCorp agreed to extend the comment period to mid-February, 2024.

Next FPS Meeting: November 9, 2023.

Agenda Items

- Swift Upstream – Biological monitoring, potential issues with powerhouse attraction flow, velocities, and configuration for fish. Jundt had a concern because she doesn't know much about Swift No. 2 powerhouse operations and tailrace flows. Amanda Farrar, CPUD, told Jundt they don't have a desktop analysis but she could send her a link to some information. Jundt

added if there is concern about powerhouse attraction then we should be concerned with putting the upstream passage facility in the bypass reach. This may be a potential study.

- High level Swift 2 discussion.

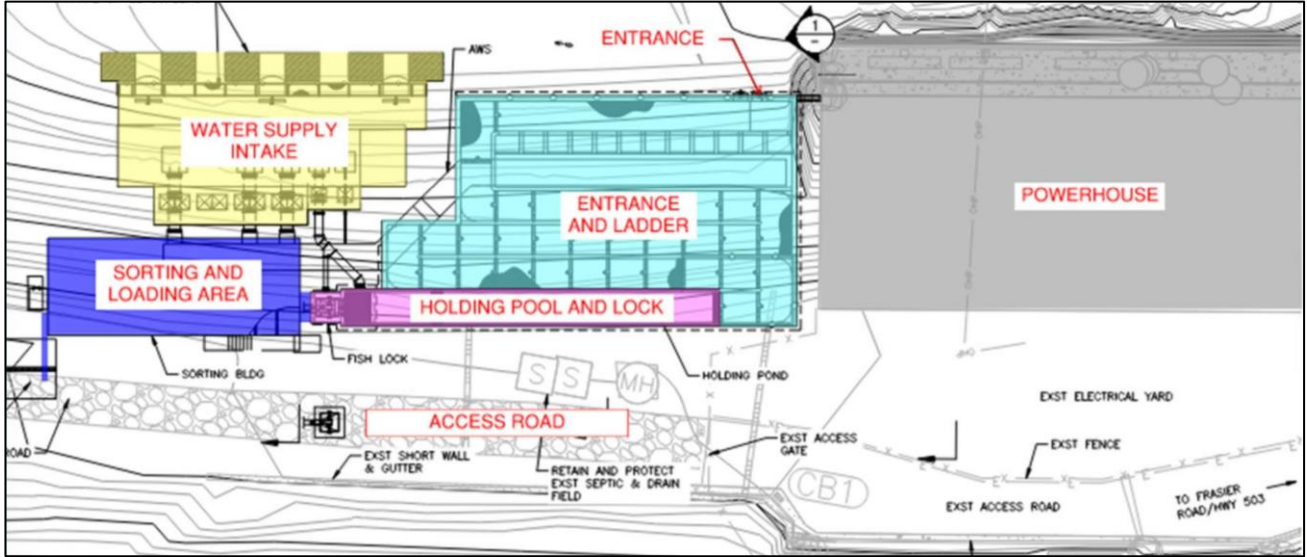
Action Items from October 12, 2023	Status
Review/provide comments on draft September 14, 2023 meeting notes.	Ongoing
Karchesky will create and send out a 30% to 60% design comment matrix.	Completed
The group will populate the 30% to 60% design comment matrix.	Ongoing
Karchesky will contact PSE Baker Facility for possible tour dates and then put together a Doodle Poll with a date range of choices.	Completed

The meeting adjourned at 4:33 PM.

**Lewis River License Implementation
Fish Passage Subcommittee Meeting
October 12, 2023**

Presentation Materials

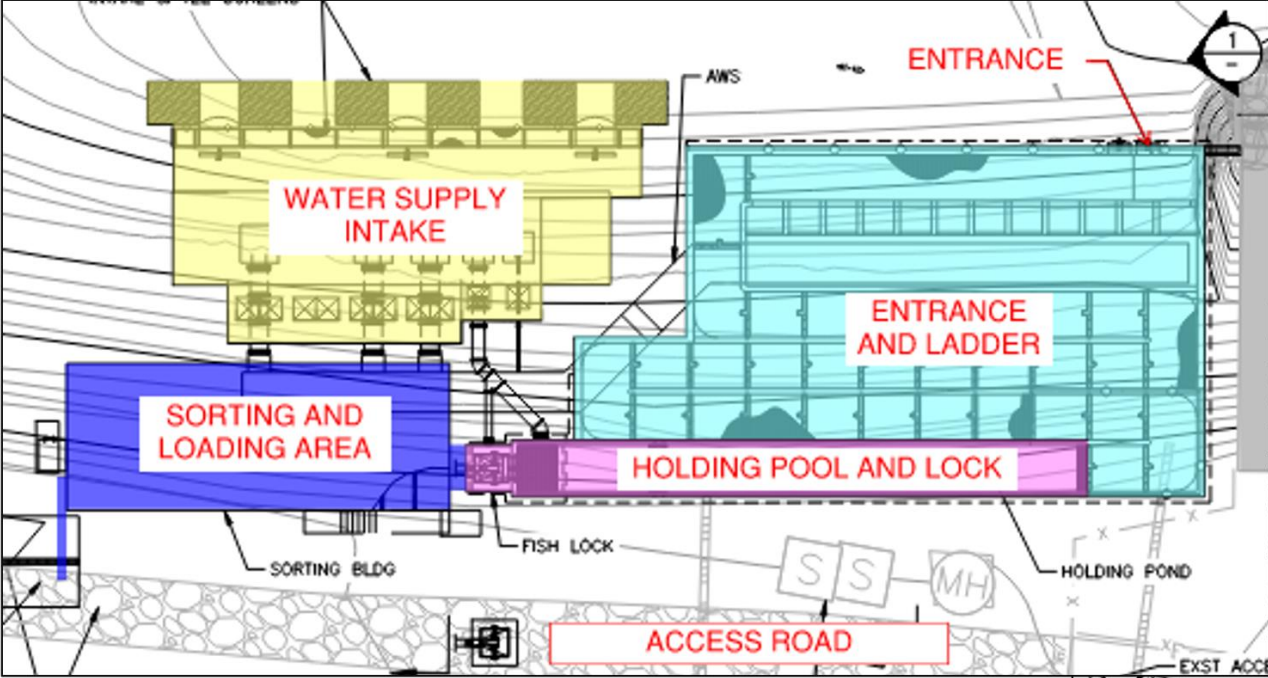
Yale Upstream Passage



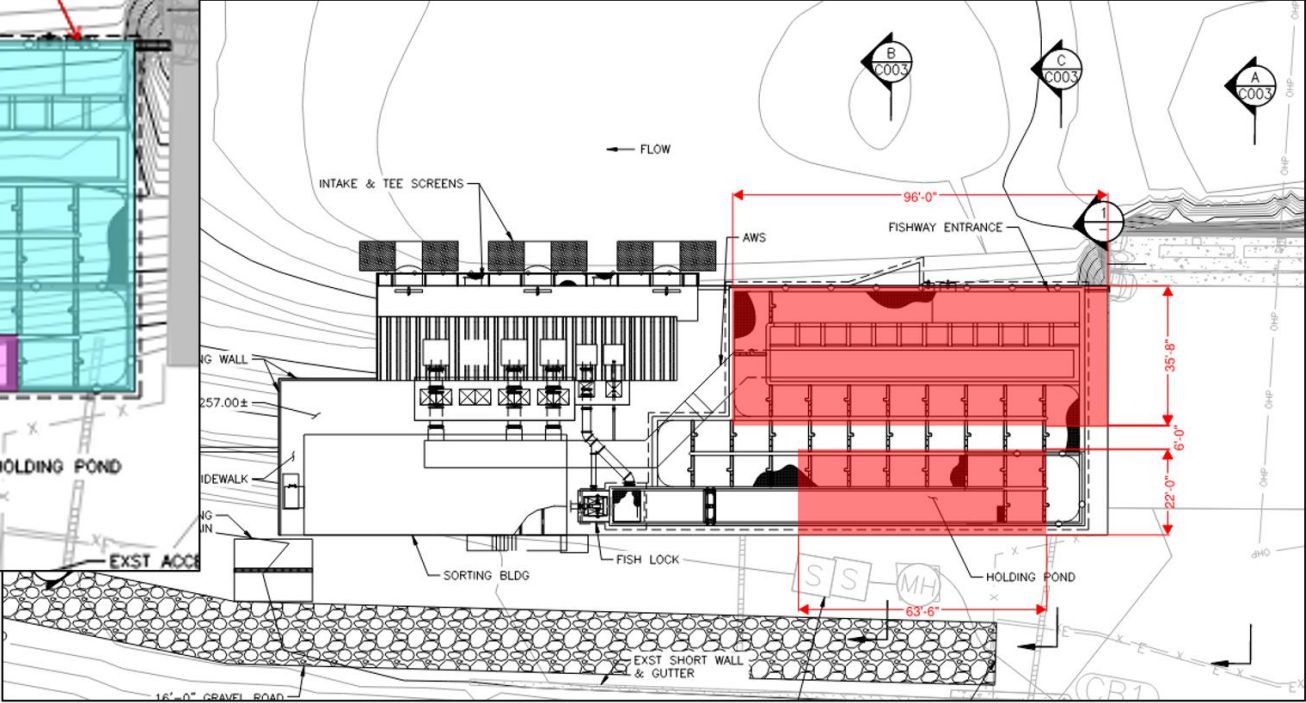
30% Design



Yale Upstream Passage

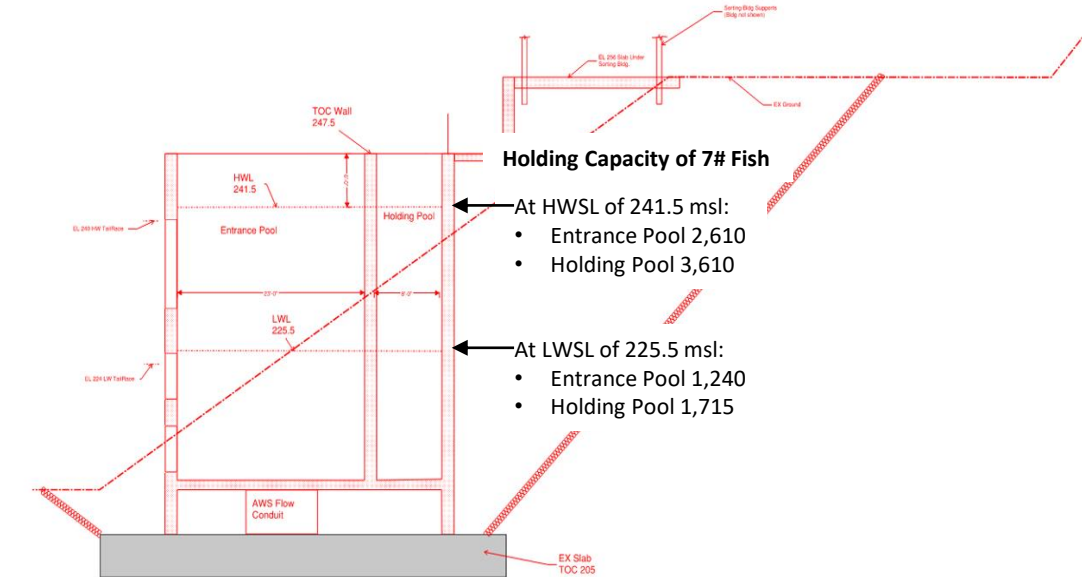
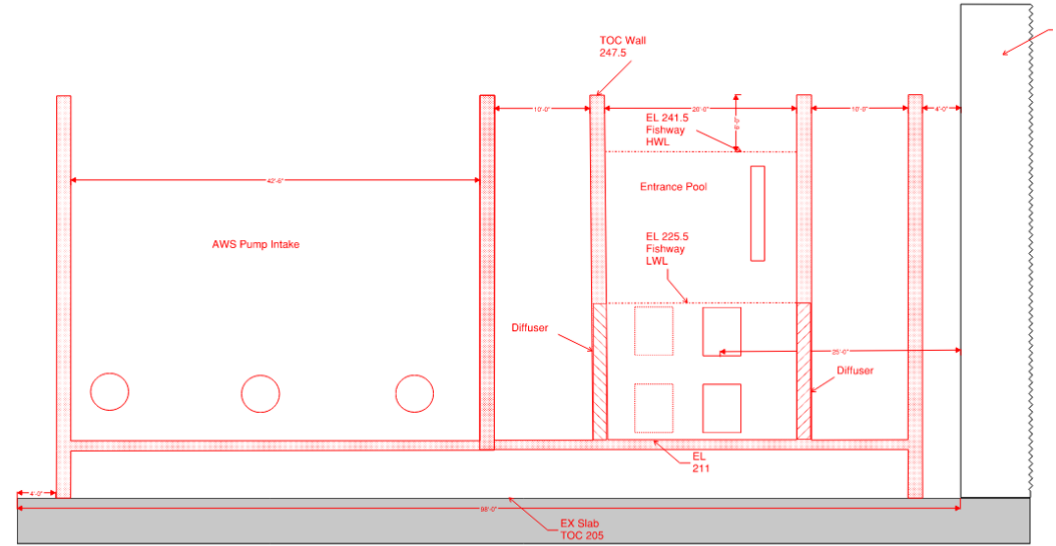
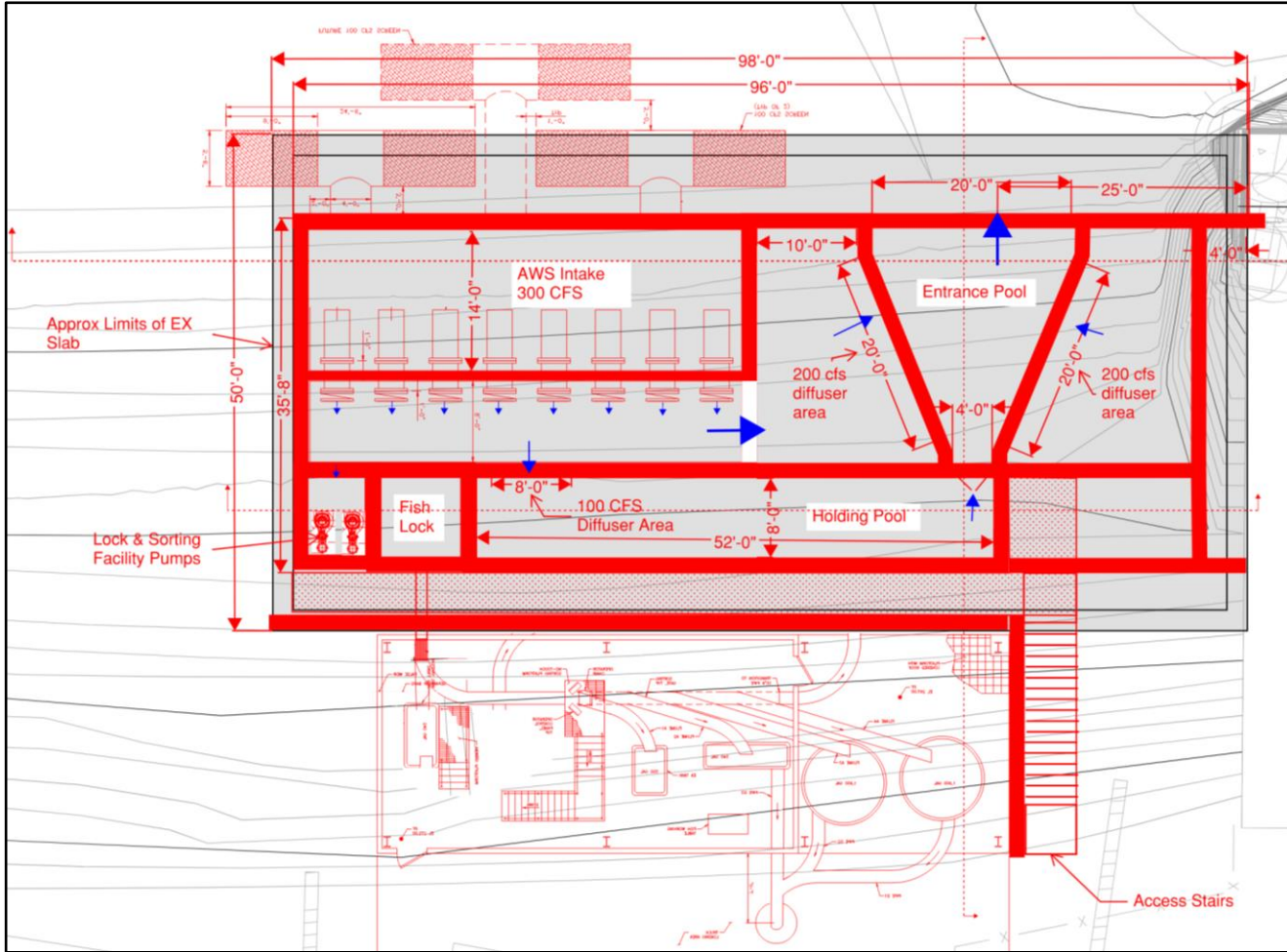


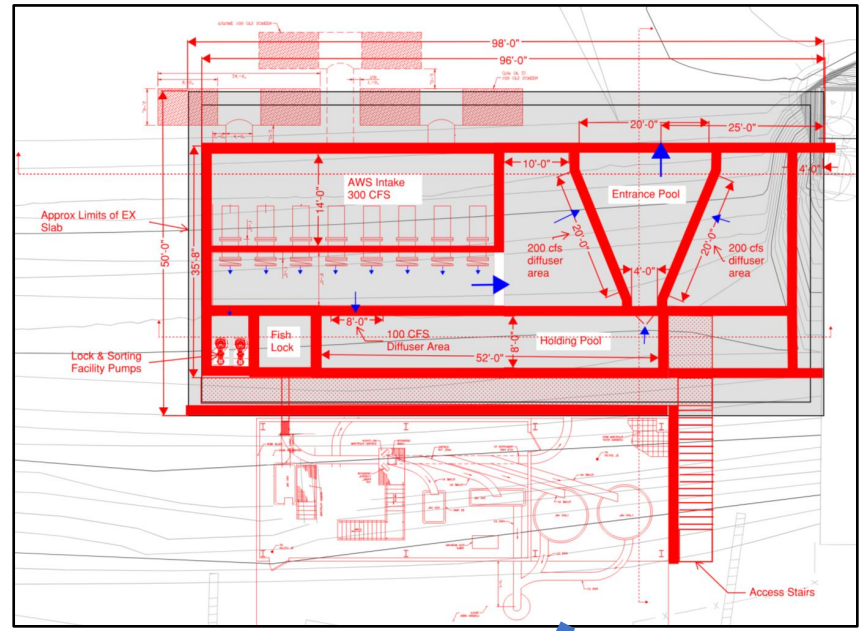
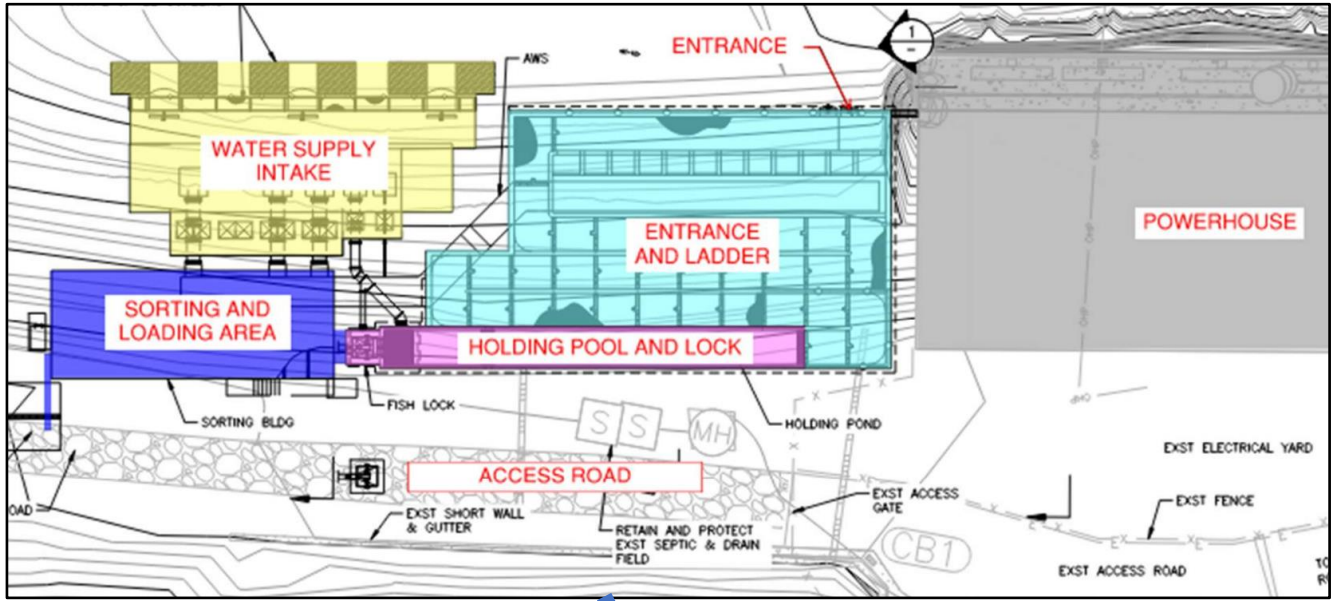
30% Design



Proposed Design

Yale Upstream Passage





30% Design	Capacity	60% Design
6,096	TOTAL	6,220

* Holding Capacity of 7# Fish