Big Wood River Diversion Dam Remediation Project

Comments on the Draft Design Plans for Client Review dated 2/11/2025

Irrigation District 45 & Triangle Irrigation District – 2/26/2025

Jim Gregory – TU comments in red 3/7/25

Sheet G-002

General Note 5 indicates the contractor is responsible for all permits. It seems like we should say which permits we will secure and which ones they need to secure. I assume we will do IDWR Channel Alteration, ACOE 404, IDEQ 401, and Blaine County (if needed).

In the estimated quantities rock ramp boulders indicate 90 at 42". The Biota design indicated 141 at 42". Just double checking to see if we backed off on that on purpose.

Sheet No. C-102 -Rock Ramp Plan and Profile

1. We would like to better understand the design of the proposed Rock Bench and Log Jam Structure. It would be helpful if you could share the results of the flow modeling based on high, normal, and low flow CFS rates and what the expected water elevation will be on the west side of the river along the Rock Bench. We have a few concerns:
    - Does the Rock Bench accelerate the water speed on the rock ramp as it flows over the dam and continues down the ramp?
    - Since the bank full line diverts to the west downstream of the dam and appears to follow the existing dyke structure, could the river overtake the Rock Bench at high flows? Would it make sense to extend the Rock Bench further upstream closer to the dam in order to protect the Rock Bench from erosion during high flow conditions?

- The rock bench and associated wood are on a gravel bar that is building progressively rather than eroding. I think the sloped concrete sill will perpetuate this situation. It seems like the pressure side of the river is on the other side. Will the bench and wood create additional pressure on the outside bend and does it need additional material on that side, rather than on the inside bend?

2. Boulder sizing – we would prefer to see a mixture of boulder sizes, including some that are much larger than the recommended 3.5 ft. diameter. Also, the embedment of the boulders at 1/3 boulder height specified seems low to us. By embedding them deeper within the ramp, we hope to minimize future maintenance needs.
    - I agree that the boulder embeddedness seems too low. I would think ½ to 2/3 embeddedness would be better.
3. The linear alignment of the boulders directly below the notch is a concern for fish passage. Will these be embedded in the ramp? Do you see any issues at low flows? Jim Gregory comment: The arrangement of boulders in the ramp low-point (notch) will reduce water velocity across the concrete notch and make it more passable for fish. At low flows, there will be enough spaces between the rocks for fish to move between them or over the area as water pours between them. I would suggest repeating this arrangement of rocks at regular intervals down the ramp so that resting pools (step-pools) are formed.

<u>Sheet No. C-103 Typical Sections and Detail</u>

1. Detail A – Dam Notch Typical Section – the west-east slope of the top of the dam at 1.3% looks like it might be too much, but it may be the scale of the drawing cross section is exaggerating the actual slope. Please consider if the slope is OK as is or should be reduced.

2. Detail B – Typical Section – how will the 10 ft. wide trough below the dam notch be constructed along the length of the rock ramp? Compacted rock and aggregate/fill material to form the trough seems like it will become a maintenance problem in the future.

Sheet No. C-104 Proposed 2 Log Structure Details

1. Detail 3 – Rock Bench Detail – The 2:1 max slope of the Rock Bench Gradation seems excessively steep. We understand this is dictated by the bank full bench elevation. If we reduced the slope of the Rock Bench, would that adversely affect the design and size of the Rock Bench?
2. Note 2: We do not feel that there are any existing trees onsite that could be used for the construction of the two log erosion control structures.
3. Note 6 on page C-104 discusses racking material that I assume is the green in the drawing. It is not clear what holds this in place.
4. Note 7 would be more clear if detail 3 showed a difference in the rock bench fill and the rock ramp fill.
5. The proposed gradation looks like it has very few fines. The fines are needed to keep the water on top of the ramp, rather than running through the spaces in the ramp rocks.

Sheet 106

1. I just found out that Blaine County has a list of approved native species, which are the only ones allowed when they permit a project. While this may not need a Blaine County permit, it might be worth checking their plant list if you have not already.

Sheet No. C-107 Access, Staging, and Dewatering Plan

1. General – we need to discuss the preferred access routes on the east side near the Howard Preserve for heavy haul and equipment access.
2. General – please discuss the type of coffer dam envisioned for construction and installation methods.

3. The coffer dam shows a complete coffer, presumably sending all the water down the canal. Unless water is really low and all water in the river is pertenient to water rights in the canal, this is not possible. We can not dry up the river, nor do we want to. There might need to be a sequencing sheet showing coffer and work on one side of the river then coffer movement for work on the other side.

Sheet No. C-501 Existing Dam Structure Plan and Profile

1. Notes item 2 – we would like to see more detail on the recommended methods of protection for the existing dam walls during construction, such as recommended bracing, downstream wall supports, subgrade protection methods, etc. This may belong under drawing C-502 under Proposed Construction Sequence Notes.

Sheet No. C-502 Construction Sequence

1. For Sequence 1, we are concerned that the dam must be supported before any cutting or demolition takes place. We recommend adding some small concrete pours along the downstream wall in order to support the underside of the structure to create a solid base under the dam before cutting or demolition work starts. This would be continued for all construction sequences. This might be the plan, but the support wall isn't shown until sheet 508 and shows geosynthetic filter fabric being placed under already poured fill under the sill.
2. Can you explain how the bulk head form would typically be installed in the dam structure for each of the four concrete pours? Is there any reason to not install all of these once the sill is opened up in the notch area and remove the need for the 3' holes every 15 feet?
3. Do you think that dowels would need to be installed within the dam walls in order to provide tension members to hold the dam walls solidly during concrete pours? Let us know your opinion on protecting the walls during concrete installation.

4. Do you see any issue or concerns placing the rebar inside of the dam structure? We assume the 18-foot access hole created near the notch area will be used for all interior access.
5. Note 1.3 – Just double checking to see if sand blasting the inside surfaces of the concrete dam is necessary.

Sheet 503

1. The thickness of the concrete on the sill appears to be thicker than I anticipated. I thought we discussed a few inches, while it looks like maybe 1' next to the notch and 1.5' on the west side. I couldn't find the elevation of the existing sill, but it looks like the notch is now at about existing sill level. The Resource Legacy Fund TU got the additional funding through has the objective to remove dams. I convinced them that burying the dam was equivalent to removing it. Then I convinced them that a notch and raising the sill 4" was pretty close. Given their objective, raising the dam up to 1.5 feet and leaving the notch at the existing grade might be hard for me to sell to them.

Sheet No. C-508 Scour Repair Detail

1. Detail 1 – Scour Repair – when pouring concrete up against the downstream side of the dam walls, will pins or dowels need to be epoxied into the sides of the wall prior to pouring so that the concrete does not separate from the dam over time? Is this not a concern as it would be buried under the Rock Ramp?
2. What is the purpose of the Geosynthetic Filter Fabric shown under the dam for the scour repairs? Is this a fabric-like material or more of a grid-like material? We want the flowable concrete to lock firmly into the rocks and structure below the dam, and feel the fabric may hinder this. I agree. This will undoubtedly leave spaces around the logs and rocks (and I really don't like putting fabric in projects – though in all fairness, I don't do concrete).

General Concerns

1. We have heard that a lot of the existing Federal grant funds have been put on hold. Do you think that BOC or JUB should contact the BOR to confirm our grant status? We understand upcoming BOR grant application windows have been put on hold.
2. Do you have any recommendations for maintenance for the rock ramp going forward and expected costs?
3. For the construction cost estimate, we would recommend increasing the contingency from 15% to 20%.
4. Can you provide an estimate for JUB bid preparation, construction contract support/admin, and construction management services?