

## Jeff Merrill

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**From:** Gus Williams [gwilliams@ducks.org]  
**Sent:** Tuesday, July 05, 2016 11:54 AM  
**To:** Jeff Merrill  
**Cc:** Steve Liske  
**Subject:** RE: Jeff's and Curt's comments/questions - 90% designs

Thanks for the review Jeff. I marked up your comments below. In addition I will be able to address these at our meeting on Thursday.

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**From:** Jeff Merrill [mailto:Jeff.Merrill@oregonmetro.gov]  
**Sent:** Tuesday, July 05, 2016 10:50 AM  
**To:** Gus Williams  
**Cc:** Steve Liske  
**Subject:** Jeff's and Curt's comments/questions - 90% designs

Hi Gus,

I have had a chance to review the 90% design drawings and I've compiled my comments/questions here. Curt had only one question so I've including his here with mine. I've indicated the page and drawing # that the question/comment refers to and hopefully they'll make sense to you. If not, let me know and I can clarify or we can discuss them on Thursday. If I get more comments from the team ahead of time, I'll send them along – otherwise we can discuss them on the fly on Thursday. Here they are:

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- Drawing 1 – 6: Concrete cutoff wall appears on the opposite side of the structure than I expected. The soil piping begins on the upstream side of the structure so that is where I expected to see the wall installed. **Noted. In addition I could not see visual piping erosion on either side on last visit?. More discussion needed.**
- Drawing 2 – 6: Stair access on both the headworks and the tailworks grating was mentioned in the Phase 2 scope of work – to access the trash racks and do work around the culvert openings. Is this shown on the design drawings? If not, is the cantilevered work platform adequate to allow operation of the trash racks and perform cleanout operations? **I will add the stair details to the design set. I changed the trash rack design to offer better access during high water events. With much consideration I feel that this option will perform better.**
- Drawing 3 – 6: Labeled 'Elevation Swivel Gates' – should this be 'Elevation trash racks' or 'Trash racks: elevation' for consistency/clarity? **Horizontal swivel trash rack is proper description**

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- Drawing 1 – 8: Stair access on both the headworks and the tailworks grating was mentioned in the Phase 2 scope of work. Is this shown on the design drawings? **There is no need for stairs at this location. The walkway will be at same elevation as the top of structure.**
- Drawing 4 – 8: Just want to confirm that this specifies a 6" gap between the bars of the trash rack (applies to Drawing 4-6 as well) for adequate fish passage. **There is a 4" clear gap between bars in this design. We can change if needed.**

- Drawing 3 – 8: Labeled ‘outlet swivel gates: elevation’ – see comment above for Drawing 3 – 6 on consistency/clarity. **Horizontal swivel trash rack is proper description**
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  - Drawing 5 – 11: note says “Full set of aluminum stop logs. No(t) required for center bay”. Just wanted clarification on this...I think we’re only putting new stop logs in the fishway, so I assume this refers to the center bay of the fishway. If I’m correct I couldn’t remember why we didn’t need logs there. **Aluminum Stoplogs are for the fish ladder entrance only. The center bay does not use stoplogs. There is a vertical slot baffle used in this bay. No plan to replace. Should we make this out of Aluminum?**

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- Drawing 2 – 13: Does debris boom need a detail drawing? Perhaps since this is an ‘off the shelf’ item there is no need for a drawing and the specs will be outlined in the bid sheet. **I will add more detail. I will call out the specific type of boom on the drawing.**
- Drawing 2 - 13: existing sliding gate being replaced with sliding flap gate – does this gate need to be replaced? I don’t believe we need to add tide gate functionality to this gate. Phase 2 scope of work just mentions the 2 tide gates being replaced. **At first I was planning on adding just a lock tab to this smaller flap gate. After closer review I felt that this gate would not rise high enough for locking the flap gate closed. We could save money by not making this gate replacement a flap gate.**

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- Drawing 1 – 14: fish ladder – clarification on filling with LDF and drilling holes. Phase 2 scope says we will cut slots to modify the ladder and add baffle wall stiffener. Is this what the design is describing? **After closer review I decided that I would change the design. The vertical slots would change the function of the weir pool system to a vertical slot system. The problem with this concept occurs at the transition from the big deep pools and the smaller pools upstream. The deep big pool would no longer backwater the upper small pools. A large vertical jump would occur at the large and small pool intersection. This would not work for upstream migration. It would be OK for downstream migration. In regards to the critter entrapment, having a shallow pool will allow them to have a bottom to assist there exit. In addition we could place a small ramp or block step at the weir to assist critters as they travel between pools .**

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- Drawing 1 – 15: replacement of small sliding gate – see notes for 2 -13 above.
- Drawings 4 – 15 and 5 – 15: noticed the detail was the same as for the Mult. Channel trash racks. Wanted to make sure this was correct since S&B is vertical and Mult. Channel is horizontal. **After closer review I determined that the Horizontal swivel trash rack would be a better option for this site. Safety , functionality, and price led me to change this design from a Vertical Swivel rack to a Horizontal swivel rack. The horizontal swivel rack should allow debris and or people to exit from inside the box culvert. I will discuss this in more detail at our meeting.**

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- Drawing 2 – 17: bevel gear operator – clarification on whether bevel gear operator will be able to utilize a wheel and/or a gas powered device. **Yes to both**

- Drawing 2 – 17: replacement of small sliding gate – see notes for 2 – 13 above.

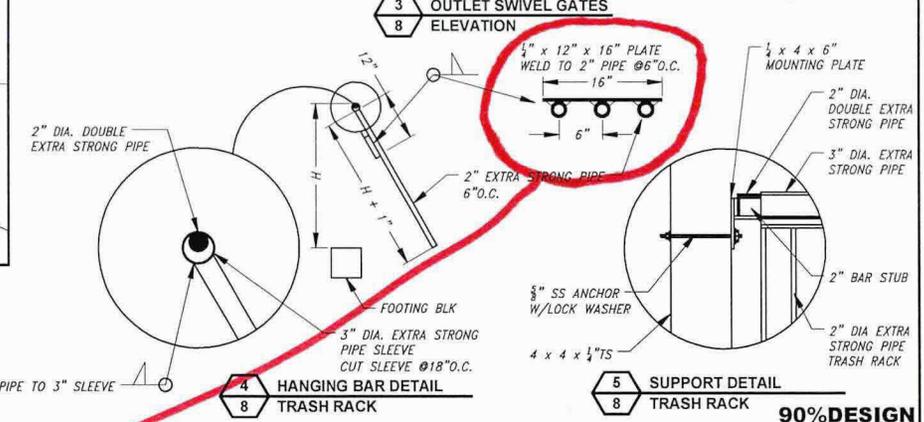
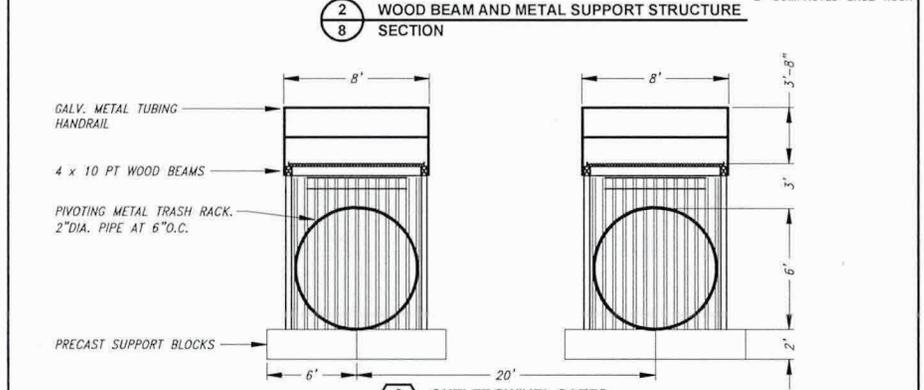
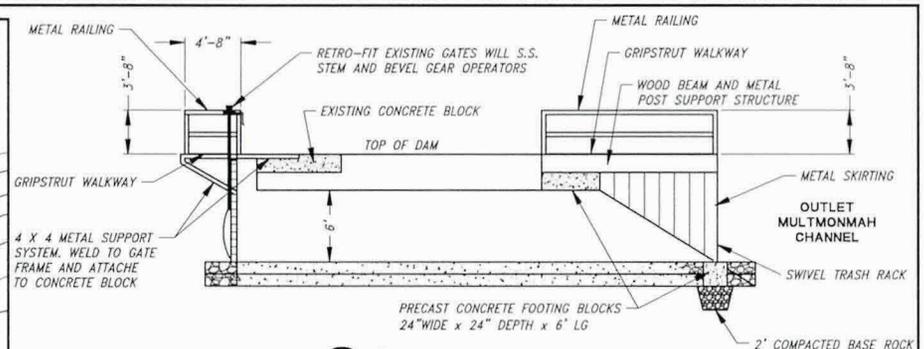
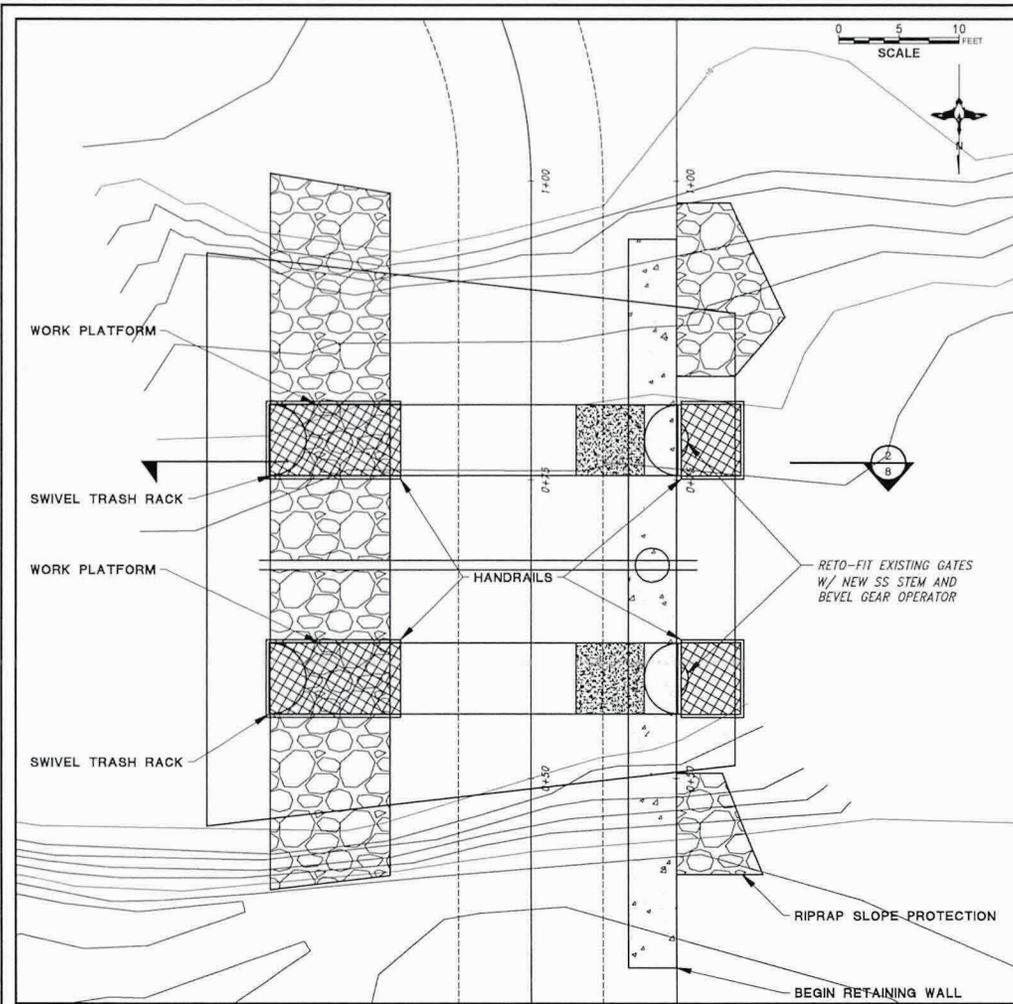
Let me know if you have any questions about these. We'll see you Thursday.

Thanks,

Jeff Merrill  
Associate Natural Resource Scientist  
Conservation Program

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REV. NO.	DESCRIPTION	DATE	APPROVED



PROJECT NO. US-OR-32-8	DATE 6/22/2016	DESIGNED BY GW
METRO: MULTNOMAH CHANNEL NORTH SITE		DRAWN BY CMC
WCS IMPROVEMENTS		SURVEYED BY
		CHECKED BY
		SHEET NO. 8 of 18

CONFIRMING THAT THIS SPECS A 6" GAP BETW. THE BARS IN THIS TRASH RACK? IF SO - OK.