**Feedback on Ridgefield Pits Technical Memo**

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Alternative 1: No Action/Passive Recovery of Pits

The no action alternative is obviously the least expensive and this is the only reason to choose this alternative.

I was surprised to see so few predatory fish in the pits while snorkeling. In fact, I was surprised to see so few fish period using the pits that the EFL currently runs through. It appears that the overall lack of forage fish also diminishes the use by predatory fish. There is a huge volume of open water that is providing virtually zero benefits to any fish, native or non-native. I have not snorkeled the isolated pits.

The primary reason that the no action alternative is a poor choice is due to the fact that there is so much potential for chum and Chinook spawning and coho and steelhead rearing that is currently not used due to the unnatural state of the river. This includes the area within the immediate vicinity of the pits as well as downstream of the pits where the EFL becomes channelized. Some of the channelized nature must be due to the disconnected sediment transport associated with the pits.

Further, the models suggest that the pits will take decades or more to fill the currently active pits. At this time, the EFL will like avulse into one of the other pits at which time it will take decades more to fill those pits and so on and so forth until the entire area is brought back to grade and can start to function more naturally. If we have the know-how, means, and funding to do so, there is no reason to wait for the river to fix itself.

Alternative 2 & 2A: Relocate Main Channel Back Into/near Pre-1996 Avulsion Channel

I agree that some channel re-alignment is necessary but as stated in the memo, attempting to create a single-thread channel in this reach would be fighting natural processes. This is really evident by the current channel network directly upstream of the pits where abundant wood is creating a dynamic, multi-thread channel network more representative of the 1854 river valley. In the case of the EFL where Clark County is purchasing large amounts of the lower floodplain and there is an opportunity to allow the river to spread out and function in a manner that resembles historic conditions, we must take advantage of this opportunity. So many of our rivers have been diked, ditched, and relocated for the convenience of development that to try and restrict flow into a single-thread channel would be a terrible missed opportunity and would not seize the maximum ecological opportunity associated with floodplain-wide restoration.

Alternative 3: Full Floodplain & Pits Re-Grade

This alternative has the greatest certainty of success which outweighs the increased cost associated with the amount of woody material required to accomplish this task. Critics of this alternative will likely say that if you spread the water out too much, there won’t be enough water in any one channel for fish to survive. What we have seen in systems like the SF Toutle which has a high sediment load, wide floodplain, and merely lacks the structure shown in the Alternative 3 map, is that the river will choose a dominant path or two each summer depending on where the sediment builds up over the winter and that the amount of hyporheic flow supplements the multi-thread channel network with cool, fresh water, even in isolated pools. The result may be an overall reduction in large pool area (which isn’t currently functional) but an overall increase in preferred habitat associated with smaller pools with woody cover and cool water. The floodplain will become saturated over the wet months and then will be slower to release the water during dry months simple because the conveyance through the reach has been reduced.

There is a strong argument that can be made for strategically recommending that the river occupy areas of cooler water with the expectation that these are the areas where there will be cool upwelling post construction. I’m not opposed to slight filling of the cooler ponds as long as flows are encouraged to occupy these areas. I don’t think that these areas should be left as off-channel habitat that will fill in over time because that doesn’t maximize their benefits. I would like to see one of the dominant channels flowing through these cooler pits because the upwelling associated with the cool water is preferred spawning habitat for chum and Chinook. These fish won’t spawn if there isn’t adequate flow, depth, and sediment size. These fish also may not spawn in an area that has adequate flow, depth, and sediment size but is in an area of downwelling instead of upwelling. Last, a fine-sediment bottom, off-channel pond may provide some warmer winter rearing habitat or cooler summer rearing habitat but those are not the limiting factors for Chinook or chum.

Last, this alternative is inherently unpredictable as are natural rivers. While my recommendations are to initially nudge the river into these cooler ponds, restoring natural processes means restoring a river’s ability to be dynamic. Thus, I would not consider it a failure if the EFL migrated away from the intended alignment in the first few years. In fact, I would be disappointed if it did not migrate some following the first bank full event.

I would like to see more discussion on the pre-construction of side channels versus allowing the river to create them itself. Are you proposing to remove all of the fish, divert the water, regrade the entire floodplain, spread wood out, and then let the river do what it does? Or are you proposing to strategically pick log jam locations, install piling to assist meeting the stability associated with key pieces, pre-grading side channels, etc.? Or are you even at this stage of design yet?

Side-channel Reconnections

I would like to see both the upper and lower side channels activated during winter base flow elevations. I would not be disappointed if the entire EFL abandoned the left bank downstream of the Mill Creek confluence to occupy the right bank where there is some hyporheic flows, more shade, and there would be less pressure on the high, sandy bank on river left.

I have some concerns about the lower side channel getting stuck against rip-rap used along the NE Storedahl Pit Rd. If the entire river migrates to the right bank, it would have a difficult time leaving a rip-rap wall and may abandon the entire left side of the floodplain.

Mill and Manley Creek Confluence

I understand this is a difficult location to work due to the current bar migration through the center of the floodplain and the risk associated with working near a sandy bank with a private landowners deck hanging over the side. Thus, any concerted effort to maximize cold water refugia that is completed in a strategic manner is supported.

Mill and Manley Area CMZ Expansion

If the county is willing, do it!