Design Team Work Group Meeting Notes

11 OCT 2017

Attending in Weaverville: Mike Dixon (TRRP Staff), Kyle DeJuilio (YT), Robert Franklin (HVT), Trevor Morgan (DWR), Seth Lawrence (DWR), Nate Bradley (Reclamation), Caryn Huntt DeCarlo (TRRP Staff), Dave Gaeuman (TRRP Staff), DJ Bandrowski (YT), JD Lewis (TRRP Staff), Scott Whitman (BLM), Phil Fishella (USFS), Jenny Norris (TRRP Staff), James Lee (TRRP Staff)

Attending via WebEx: Mark Smelser (CDFW), Conor Shea (USFWS), Fred Meyer (McBain Assoc.), Ben Snyder (McBain Assoc.), Aaron Martin (YT), Andreas Krause (YT), Ken Lindke (CDFW), Wes Smith (NMFS), John Bair (McBain Assoc.)

The meeting opened as usual with introductions. Mike asked for additional agenda topics; Aaron asked for a broader discussion of metrics than what was listed on the agenda, and Andreas asked to bring up some findings about wetlands at Oregon Gulch.

Mike kicked the meeting off on a positive note by bringing up the de facto decline in TRRP budget over time due to static or slightly decreasing funding levels, and reiterated that future designs need to be developed with an eye toward maximizing long-term processes and ability to be built in phases to accommodate construction funding levels and feasibility hurdles.

- DJ reminded the group that the cost estimating tools that have been used in the past are out of date and inaccurate; suggested that volume of earth moved, wet vs. dry excavation, and haul distance are better metrics for comparing alternatives. Potentially providing a table of these and similar metrics for past projects might be useful to provide context for those who don't have an intuitive grasp of the size or potential cost of design alternatives and resulting projects.
    - **Action item: JD Lewis will work with program office and partner staff to develop this concept as we prepare for Dutch Creek, Sky Ranch, and Chapman Ranch. Will report back in winter Design meeting.**

Next topic was a group discussion of expectations of content for various levels of design reports, which grew to be quite philosophical and wide ranging, focusing on process for design development in addition to content.

- Andreas said that the previous approach should be followed wherein a 30% design should include 2-3 alternatives to move forward to a VE Study, after which a single alternative would be advanced for further development.
- Wes stated that while some teams focus on process and others on constructed habitat, what should really be done at each site is a sliding scale. Conceptual designs should be developed within the work group or subteam before being further fleshed out by an individual design team.
- Robert observed that we have failed to capture opportunities in the past to test objectives and assumptions worked as intended, and a more inclusive approach to initial/conceptual design development would have helped (i.e. Vitzhum Gulch).
- Kyle – Existing conditions report development could (should?) be collaborative as well, in addition to conceptual design work. He ahlso thinks that the objectives of the River Corridor

pilot (e.g. bank length, floodplain connectivity, valley width) could be useful in crafting site objectives to guide conceptual design development

- Jenny reminded the group that standardized metrics could be used not only to compare sites (not sure if this was meant to be sites or if it was to compare alternatives) but also to assess performance.
- DJ emphasized that metrics and analysis get more robust as designs develop
- Robert asked for clarification on when it is most important for designers to have feedback
    - Andreas says goals and objectives is a critical step, as well as the 30% design and VE study.
    - Robert emphasized that goals and objectives should include scientific objectives
    - DJ feels that the 30% design stage comparison of alternatives is just as important for getting feedback as the goals and objectives stage. The most work in the development of the design happens to get to the 30% stage.
- Wes echoed previous statements that the design history and summary of group input on design development is an important component of a report.
- Brandt added that he felt that a look at buildability/feasibility early in design development should be an required for reviewing alternatives
- Andreas putt forward that public input early in design development is key, including when developing existing conditions and at the 30% level before an alternative is advanced.

It is clear from reviewing past processes and design reports at different stages of development that the process of design report development and the content of reports have swung in different directions over time. It is also clear from this discussion that the status quo is unsatisfactory.

Action item: Interested parties (in addition to Andreas and Wes) who would like to work in a subgroup to develop a design workflow and report framework should email Mike to let him know.

Next up was a presentation by Trevor Morgan on the status of the Dutch Creek project. The state team has finished responding to comments and the comment responses were circulated to the design team. One of the big concerns was what to do if bedrock was encountered during excavation of the meander bend. Plan to address this is to have contingencies for ensuring conveyance in different ways depending on at what depth and where bedrock is encountered. Another comment/concern involved questions on the purpose of the low (700 cfs) initiation of inundation of the R1 feature, and question about whether something which inundated that frequently is really a floodplain. Rationale for the design was provided and it is now being referred to as a scour channel, rather than a floodplain. There were questions/comments about the riparian design, which will follow. The IC-1 feature was confusing to people because it is really a complex of several features; this will be addressed through breaking it into discrete components.

- DJ initiated conversation about spoils placement. What material is being placed on river left? At this point, having that spoils area affords us flexibility. We can stage material in what will be the point of the new meander bend and then place it on river left following flooding the new channel, which will mitigate need to drive spoils across river. We also should ensure that there is flexibility in defining our spoils areas for NEPA purposes, and the polygons should be expanded to include NFS land.

- Mike brought up how tight the construction window is and the need for careful attention to feasibility and sequencing early on.
    - Aaron is concerned about another project overlapping with steelhead guide season and Chinook spawning; this was a big issue this year. He does not want to see what we did this year repeated.
    - Kyle suggested that we may be able to get latitude to complete work during traditional in-channel window, then finish construction in the dry and get permission to cross a single time after the in-channel window to demob equipment.

Fred Meyer then presented an overview of the phased implementation approach to Chapman Ranch. He had discussed with the HVT team and Mike the need to take a look at how to break the project into buildable components. They investigated a number of angles on cost saving and potential roadblocks to feasibility. Depending on the phase in question, the approach will include some significant volume of work in the dry, which would potentially allow for some winter construction. There was brief discussion from DJ and others on the potential cost savings on this. They do not propose to import coarse material; large rock will be from the large fraction of native material, which will save on hauling and road impact costs. The initial focus of their approach is to propose work on BLM land to minimize land ownership complications. There will be large wood features but these will incorporate lessons learned from previous projects and there will be more emphasis on smaller wood features. Meanders have been adjusted to reduce the volume of cut while maintaining alluvial objectives. It is possible to maintain cut and fill balance in the mining claim area if this necessary. Fred provided an overview of an approach with discretely buildable components (i.e. one phase can be built without the other) which isolates land ownership and work types to phases. The HVT team proposes to have a 100% design complete in December of 2017.

- Aaron asked about quantifiable objectives for rearing habitat; they will include habitat curves
- Mike asked about the "Phase 4" upper portion of the side channel, which seems to have been the most divisive feature in previous reviews
    - Aaron emphasized the high habitat value of side channels relative to many other types of rehabilitation effort
    - Kyle reiterated that side channels will flow at some flow even if they don't maintain at base, so don't focus on "failure". He also asked about potential for deposition in mainstem to shunt additional water into side channel.
- Fred brought up the opportunities for mass grading either as a component of building one of the phases, or to be done in between phases (off-season)
    - Wes asked about comparing trade-offs of mass grading to promote opportunities for channel meander vs. directly constructing habitat
    - Mike thinks that for NEPA purposes we should discuss possibility of mass-grading in the dry as a standalone facet of our action independent of specific phases to facilitate analysis and build-in flexibility. He also mentioned that this phasing approach permits the analysis of the whole but implementation of some or all parts at different times.
- There was extensive discussion of the implications of mining claims; more to come on that topic.

Dave Gaeuman then gave an overview of a well-developed concept that he and Robert Stewart had developed before Robert's departure; the concept emphasizes two separate major floodplain lowering

efforts, all in the dry with the exception of a downstream tie-in to the existing side channel; also there would be an area of channel expansion downstream of the existing boat ramp to promote bar/floodplain development on river left and potentially increase flow into an existing side channel.

- John opined the importance of lowering the downstream area between the side channel and the river to promote riparian growth
- Mike brought up that a benefit of this concept is that the vast majority of the excavation is dry, so while it is an exceptionally large volume, the unit costs would be much lower than many recent projects
- James brought up doing bird surveys early (the year before) to let us know where we are likely to have issues with bird nesting delays
- Fred asked about the relative place of Chapman Ranch vs Sky Ranch in the queue for compliance; there was brief discussion on this but there was also follow up on this topic offline later.
- There is general, strong sentiment within most of the Design WG that Sky Ranch (and other projects) need to go through a more inclusive process for conceptual design development – followed up on below
- James brought up the option of aggrading the channel to reduce the volume of excavation
- DJ inquired about the objectives of the channel expansion because of experience with lack of performance at previous channel expansions; the intent is to facilitate further growth of the bar on the opposite side
- Robert is interested in seeing information about the duration of flows at different rates on the proposed lowered surfaces (how long is long enough)
- There was discussion of the location/facilities for a boat launch, though this was viewed by some as possibly premature, Fred brought up the angle of leveraging state recreation funding to pay for that portion of the project
- Andreas offered input based on pond monitoring data at Oregon Gulch which could inform the design of ponds at the Sky Ranch site. He said that the pond will need to be deep in order to maintain adequate dissolved oxygen due to macrophyte growth.
    - Ken also is concerned that design should ensure water temps and conditions are not conducive to bullfrog breeding, as bullfrogs are invasive predators of both other amphibians and juvenile salmonids.
- Wes specifically requested circulation of some preliminary existing conditions background prior to an as-yet-unscheduled objective and concepts meeting, including a flow to habitat curve for the current channel.

Action item: Mike will circulate an existing document, such as it stands, for Sky Ranch in advance of a brainstorming meeting where we will develop objectives and use oil pastel pencils (not crayons, Wes) to sketch out concepts. A poll to set a date will follow shortly.

A brief discussion was had to follow up on an IDT meeting comment regarding the use of design team staff to develop engineering designs and/or facilitate compliance for tributary restoration projects, thus freeing up Watershed WG funds for project implementation.

- Robert is concerned about siphoning off resources that aren't necessarily available as it is. This concern was echoed later by Andreas.

- Seth commented that DWR does a lot of tributary restoration design work, and that it is less complex than Design WG – type designs. He felt it would be an appropriate use of TRRP resources.
- Wes brought up possibility of agencies/NGOs doing joint proposals, wherein the NGO could develop concepts and implement the project and the agency design staff would develop the engineering design.
- **While not exactly an action item, this topic is bookmarked for further discussion by IDT**

A habitat metrics discussion was then spearheaded by Aaron, who focused on the use of capacity to compare design alternatives.

- It was brought up that it is important to compare design alternatives using the same metrics and methodology as would be used in an associated effectiveness monitoring proposal.
- Robert to see at time series of capacity across a habitat as a means of comparing designs, which prompted a brief sub-discussion on that topic.
    - SSS might be a more appropriate approach but it is not sensitive to changes at that scale
    - Kyle brought up that Nick Som has cautioned program biologists not to use capacity as an additive metric, because it is constantly increasing and decreasing depending on flow and could be misleading. He added that it is arbitrary to choose a hydrograph which we are unlikely to repeat.
    - John mentioned that regardless of whether or not it is appropriate or misleading to use capacity over time , you would expect the relationship between alternatives to be the same so it could have utility for a hydrograph of interest to compare alternatives
- Nick S will be developing a script to compute capacity from SRH 2D or other 2D outputs, potentially in time to compare Sky Ranch concepts.
- We need Nate Bradley to finish the updates to 2D model before capacity can be used as a metric. There is still some work required before he can finish this work.
- Given that we won't have surfaces for additional Sky Ranch alternatives until February or so, there may be time to use capacity as a metric.
- Aaron mentioned interest in using some of the River Corridor Pilot metrics like floodplain inundation and edge length to compare alternatives as well, and John mentioned using some riparian metrics (e.g. area of river <6' above river, acreages of conversion like terrace to water, change in riparian veg cover)
- Dave mentioned that most of these river corridor metrics are better suited for problem/objective description than alternative exploration

Action item: Aaron, Dave, John, Damon will work as a subgroup to develop explicit proposal for which of these metrics in addition to capacity will be used in design development, and for what purpose. Follow up at design meeting that follows November Sky Ranch concept meeting (likely January).

We then moved on to a discussion of site revisits. Mike kicked it off by bringing up concerns voiced by both landowners and program biologists about lack of maintenance impacting function of heavily utilized features (e.g. Sawmill and Salt Flat side channels) which could potentially be repaired with relatively little cost.

- John stated that we expect features to change and not exactly perform as designed over time, and perhaps we shouldn't mess with things unless they pose a safety feature.
- Fred asked (based on the example side channels) if we really want to promote more spawning up high in the river anyway.
- Kyle elaborated on nuance in what defines a revisit; there is a difference between a site that never performed as designed (e.g. Vitzhum Gulch) and a site that is no longer performing as designed (e.g. Sawmill side channel).
- Mike brought up the unrealism ore really restoring a natural river in a managed system, and the perspective of financial prudence in maintaining features being relatively low cost compared to building new ones, particularly given the inherent challenges to building our way to restored salmon populations.
- John said that our fisheries flows have been higher more frequently than initially anticipated (due to concerns with riparian encroachment during drought, etc) impacting the function of some of these features, but acknowledged that some maintenance is realistic
- Dave stated that we are never going to see the kind of dynamism that was anticipated in the flow study, but can maintain a river that functions with these flows.
- Aaron thought the discussion was waxing toward philosophical and suggested it might be better suited for the Fish WG, others chimed in that IDT might be a better fit.
- Nate pointed out that standard practice in engineering documents includes description of a design life;, a starting point for discussion of both new features and existing features could include maintenance required to get the feature to its design life
- Brandt opined, and Nate echoed, that it is wasteful fi we don't take low hanging fruit like simple fixes or improvements to tweak existing features.
- Dave challenged the group by asking who thinks juvenile rearing habitat is still limited, and Aaron followed up that in addition to building habitat to existing flow regimes, we need to be able to turn the flow dial.
- Fred suggested that we should also consider revisits based on failed assumptions of previous designs, such as bar formation at Reading Creek.
- Nate wisely offered that looking back at what has worked and what hasn't presents opportunities and should guide what would be done where in revisits

Action item: Subgroup consisting of Brandt, DJ, Mike, other? will meet to propose a framework for evaluating potential revisits that will be briefed to the IDT prior to being brought forward to TMC.