Cherry Creek Stream Reclamation at 12-Mile Park - Channel Sedimentation

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This memorandum documents the sediment deposition within Cherry Creek at 12-Mile Park since May 2013 through a series of photos taken in May and June of 2013 compared to photos taken in late November or early December of 2013. Jim Swanson, Bill Ruzzo, Cory Hooper, and Aaron Cook walked the area downstream of Phase 1 on December 12, 2013 to try to determine the cause of the sedimentation. The site walk did not result in definitive causes for the sedimentation, although it was obvious that areas downstream of Phase 1 also saw a rise in the channel invert.

Based on the results of the site visit and comparison of recent photos with photos taken in 2012, the invert of Cherry Creek has risen by approximately 12 to 18 inches in some locations since the summer of 2012. As a result in the rise in the channel invert at those locations, the design for Phase 2, specifically the top of boulder elevations, was evaluated. The following changes are proposed for the Phase 2 design:

Control Line TS1 Top of Boulder Elevations

- Match top of boulder elevation at tie in to Phase 1
- Raise top of boulder elevation by 6 inches from Station 0+50 to Station 2+50. Between Station 0+00 and 0+50, the top of boulders will transition from no increase to a 6 inch increase.
- From Station 2+50 to Station 3+00, transition from a 6 inch increase in the top of boulder elevation to a 9 inch increase.
- From Station 3+00 to end of Control Line TS2, raise top of bolder elevation by 9 inches.

Increasing the top of boulder elevations by more than 6 to 9 inches would set the top of boulder elevation above the existing topography.

Control Line TS2 Top of Boulder Elevations

- Downstream of Creek Access #4, transition local grading to a 1 foot increase in the top of boulder elevation. Maximum transition length will be 10 feet.
- From Station 6+62 (downstream edge of Creek Access #4) to Station 10+07 (upstream edge of Creek Access #6, raise top of boulder elevations by 1 foot.
- From Station 10+07 to Station 10+17, transition top of boulders elevation from a 1’ rise to no rise (transition back to the original vertical alignment over 10 feet).

Raising the top of boulder elevation by 1 foot will put the top of boulder between 12 and 15 inches above the existing channel invert.

Photos Summary:

Photos 1 and 2 show the boulders constructed during Phase 1. At the time of construction, the 3-foot diameter boulders were approximately 1-foot buried and 2-foot exposed. Currently, the boulders are approximately 6 to 8 inches exposed.

Photos 3 and 4 show an overbank area near control line TS2 Station 4+40. In June, 2012, the overbank area was above the invert of Cherry Creek and dry. The photo taken in December, 2013 shows the invert of Cherry Creek has raised and the overbank area is wet.

In Photos 5 and 6, a tree is shown extending horizontally from the bank. In the photo from May, 2012, the horizontal section of the tree is above the channel invert. The photo from December, 2013 shows the horizontal section of the tree is at the channel invert.

Based on the results of the comparison of recent photos with photos taken in 2012, the invert of Cherry Creek has risen by approximately 12 to 18 inches inches since the summer of 2012.

Photo 1: Phase 1 boulders (May, 2013)

Photo 2: Phase 1 boulders (November, 2013)

Photo 3: Overbank area (June, 2012)

Photo 4: Overbank area (December, 2013)

Photo 5: Tree extending from bank (May, 2012)

Photo 6: Tree extending from bank (December, 2013)