Copper River Watershed Habitat Enhancement Project

Cordova EVOS Sites COP 43, 44, & 45 - 65% Plans & Specs

DOT&PF Hydraulics Group Comments

General Comment: Plan set does not include Hydrologic and Hydraulic Summary Tables (H&H Tables) for each culvert crossing. Please include H&H Tables on the applicable C sheets (C-200, 201, 202 or C-400, 401, 402) for each culvert installation. See DOT&PF Highway Preconstruction Manual Section 1120.5 for H&H Table required information.

General Comment: Was a roadside safety analysis performed on the proposed installation? Proposed changes include: embankment foreslopes, road profile and the addition of roadside hazards in the clear zone (culvert ends). A roadside safety analysis is recommended to ensure that the final road configuration meets applicable standards.

Plan Sheet V-101 & V-102:

1. Add Milepost 25 sign to NE of Cop44 outlet.
2. The sheets indicate that the existing Cop44 & Cop45 culvert are 36” x 48” Structural Plate Pipe Arches (SPPA). Are they Corrugated Metal Pipe Arches (CMPA)? Typically culverts in this size range are CMPA.

Plan Sheet C-100:

1. Add Milepost 25 sign to E of Cop44.
2. The low point between Cop43 & Cop44 (sag) in the profile view appears to be lower elevation than the crowns of the proposed culverts. Consider a continuous grade raise over the entire project limits.

Plan Sheet C-100:

1. Recommend adding additional riprap to foreslopes. The 3ft wide collar is substantially less than DOT&PF typical installation. We typically place 2 x diameter/span (D/S) each side of the culvert on the inlet and 1D/S each side of the outlet, to armor against elevated flow velocities from contraction/expansion. Recommend placing Erosion Control Geotextile, Class II, under all riprap & stream substrate.
2. Generally we specify materials already in the contract to blend into the stream/culvert substrate, when possible. It generally achieves an adequate result with much less cost/effort by the contractor to produce a small quantity of specialized material. In this case a mix of riprap (coarse) and E-1 surface (fine) could be used, as these materials are already specified in the contract.

Plan Sheets C-200, C201 & C-202:

1. See General Comment above RE: H&H Tables.
2. See comment Re: riprap collar on Sheet C-100.
3. Consider expanding the legend hatching. It’s difficult to differentiate between the hatching types.
4. (Only C-201) Add Milepost 25 sign to E of Cop44.

Plan Sheets C-400, C401 & C-402:

1. See General Comment above RE: H&H Tables.
2. Recommend placing Erosion Control Geotextile, Class II, under all riprap & stream substrate.
3. Will stream substrate be placed in the excavated portion of the channel bottom downstream of the outlet? What if existing material is too fine to be stable at design flow? Recommend adding note to ensure material placed is similar to specified stream substrate (stable at design flow) or to place specified stream substrate.
4. Similar comment as from DOT&PF M&O Re: Min cover at inlet shoulder. Minimum should be 2.0 feet for a gravel road, perhaps more. Grading of the road can significantly alter (0.5-1ft) the road elevations over time.
5. (Only C-400) There appears to be 0.5ft drop in the upstream pond elevation from the proposed installation. Has the effect on the habitat been considered?

Plan Sheets C-500, C501 & C-502:

1. Section B: Will stream substrate be placed in the excavated portion of the channel bottom downstream of the outlet? What if existing material is too fine to be stable at design flow? Recommend adding note to ensure material placed is similar to specified stream substrate (stable at design flow) or to place specified stream substrate.

**Specifications:**

Section 602-2.01 Materials:

1. Does the project require Concrete, Reinforcing Steel and/or Structural Steel? If not, recommending removal.

Section 611 Riprap:

1. Does the project include a revetment? If not, delete reference to revetment. Is the plan to place borrow/organics in the riprap voids? DOT&PF has specified this type of bank protection in special cases, however, it can create maintenance issues clearing embankment foreslopes and is not recommended at this location.

Section 690 Waterway:

1. Does the revegetation plan include live willow staking and/or live siltation? Willows are referenced in 690-3 sections, but are not defined in material section. Nor are harvesting, storage and planting techniques covered in this or other sections. This has been a successful technique for streambank revegetation. Recommend adding willow revegetation techniques into the plans/specs.

Section 690-2.01 Materials:

1. Will Spruce Trees be utilized for planting? If not, recommend removing from the section.
2. Channel Armor Substrate is not defined in 204.
3. See comment above Re: willow revegetation.

Section 690-3.04 through 3.07:

1. Many references to willows without description of harvesting, storage, planting, etc. Recommend adding additional detail Re: willow revegetation.

Additional General Comments:

Cordova EVOS Sites COP 43, 44 and 45 Plan 65% review.

AADT info: I believe you had requested ADT for the CRH. I have attached some info that may be of help. After talking to our traffic folks, there is a differential once you get past the airport of course at about MP 13. In a nutshell out by the culverts, we are looking at an average AADT of 95

Sheet G-002 ESCP Note No.2, Seems as though contractor is directed to use supersacks, is this in-lieu of the detailed Cofferdams then?

Suggest requiring contractor to submit a water handling plan that can be reviewed/approved 10 days prior to work.

Note 7, have potential stockpile or staging areas been identified?

Sheet G-003, Cofferdam: require culvert to be installed in the dry or foundation approval by engineer prior to culvert placement.

Sheet C-100, there is a general concern of being able to maintain minimum cover heights over the culverts along with having two segmented grade raises. It has been suggested to try and lengthen the grade raise extents for more gradual transitions. The other consideration is that appears top of the COP 43 culvert is above the elevation of the roadway between COP 43 and COP 44. Is it feasible that the road between Stations 7+00 and 12+50 could overtop? Are we creating a low water crossing?