To: Shin-Roei Lee
From: A.L. Riley
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Date: June 13, 2014

Subject: Review of modeling received on June 6 and related questions

We have reviewed the modeling for Alternatives 1-4 from June 5, 2014 deliverable, as well as Alternative (Alt) 4+ provided by HDR on June 6, 2014.

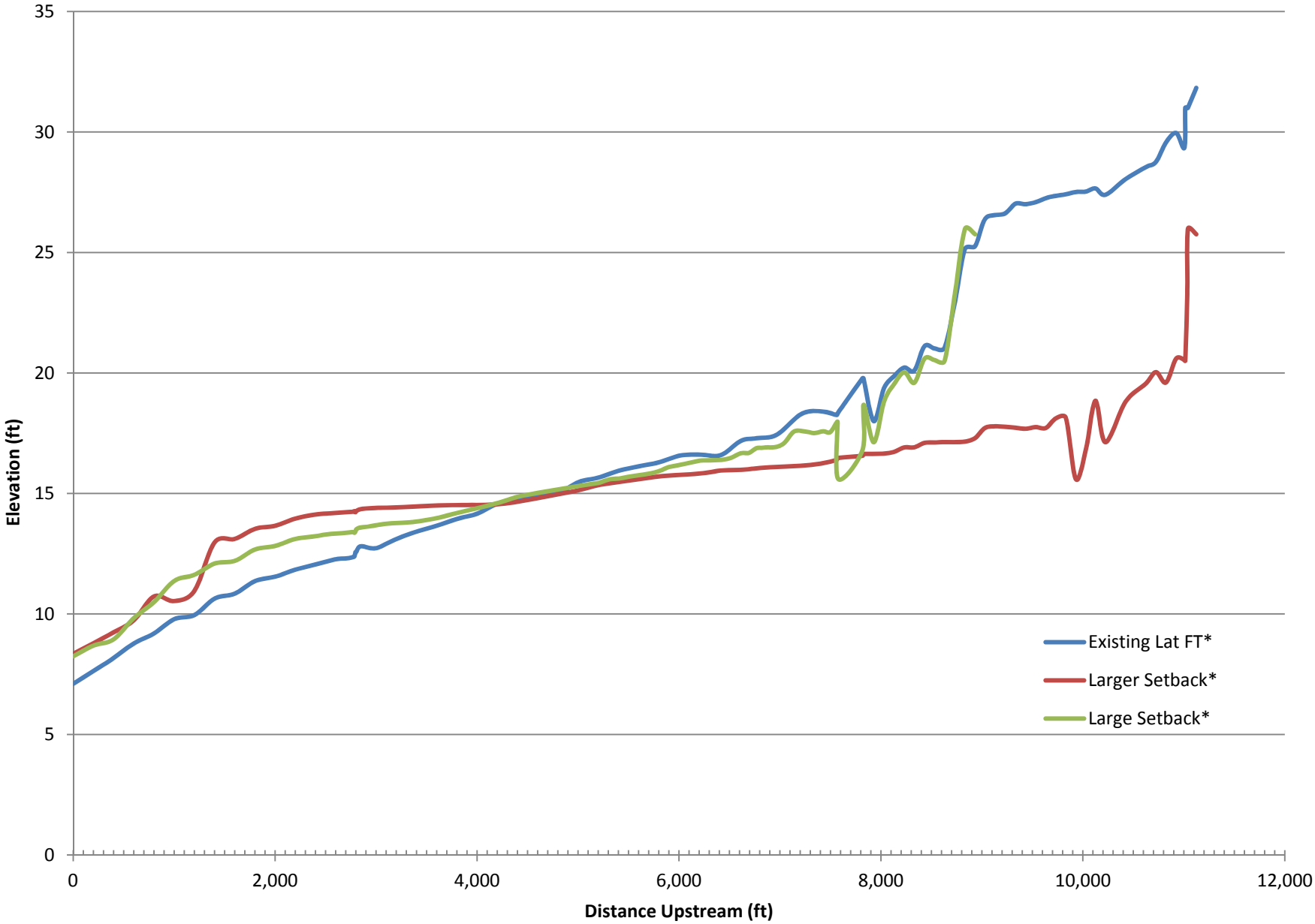
Our first observation is that the degrading of the levee in the mudflats at the outer Faber Tract (or SF Bay levee degrade) and the setback levee alternatives have substantial benefit for lowering water surface elevations (WSEs) for a long distance upstream, even upstream of Highway 101. We are attaching a profile from the model that illustrates the WSEs (Attachment). The attached profile uses data from the model labeled "large setback" and "larger setback". These terms are not clearly defined. The description of geometry files and plans are not always clearly laid out in the "Description" section in the RAS and are not consistent between the two models. It is easy to lose track of different plans and combinations. Therefore, we would like to request cross sections and WSEs for the stations used in the model from the vicinity of Friendship Bridge to the downstream stations for both Alt 3 and Alt 4 of June 5 and June 6 model runs. Our main question relates to the setbacks shown in the model: how wide are these different setback assumptions (Alt 3, Alt 4, large setback, larger setback, etc.)?

The SF Bay levee degrade and setting back the levees have a benefit throughout the entire reach except for a hydraulic jump at about 800 to 1,400 feet from the mouth of the San Francisquito Creek (see the Attachment). The model indicates that degrading the SF Bay levee is causing this hydraulic jump, not setting back the levee. One question is how do we smooth out the hydraulic jump at this location by running the model in the downstream area with a different regime of flow types (e.g., mixed flow as opposed to subcritical flow)? The other key question is how do we avoid the fill of the inner Faber Tract levee to reduce impacts to the inner Faber Tract marsh and the clapper rails?

Selection of appropriate values for roughness is very significant to the accuracy of the computed WSEs. Use of a low roughness coefficient would underestimate WSEs. Currently the model runs were based on 0.03 as the roughness coefficient, which is a typical value used for modeling concrete channel. Per our earlier request to increase the roughness coefficient, please use a minimum of 0.05 for the modeling assumptions in order to get a functional riparian-marsh plain environment between the levees.

We will be sharing the latest model and these questions with the CA Department of Fish and Wildlife hydraulic modeler.

Attachment – Profile Comparison



* Plan names as extracted from HEC-RAS files provided by HDR