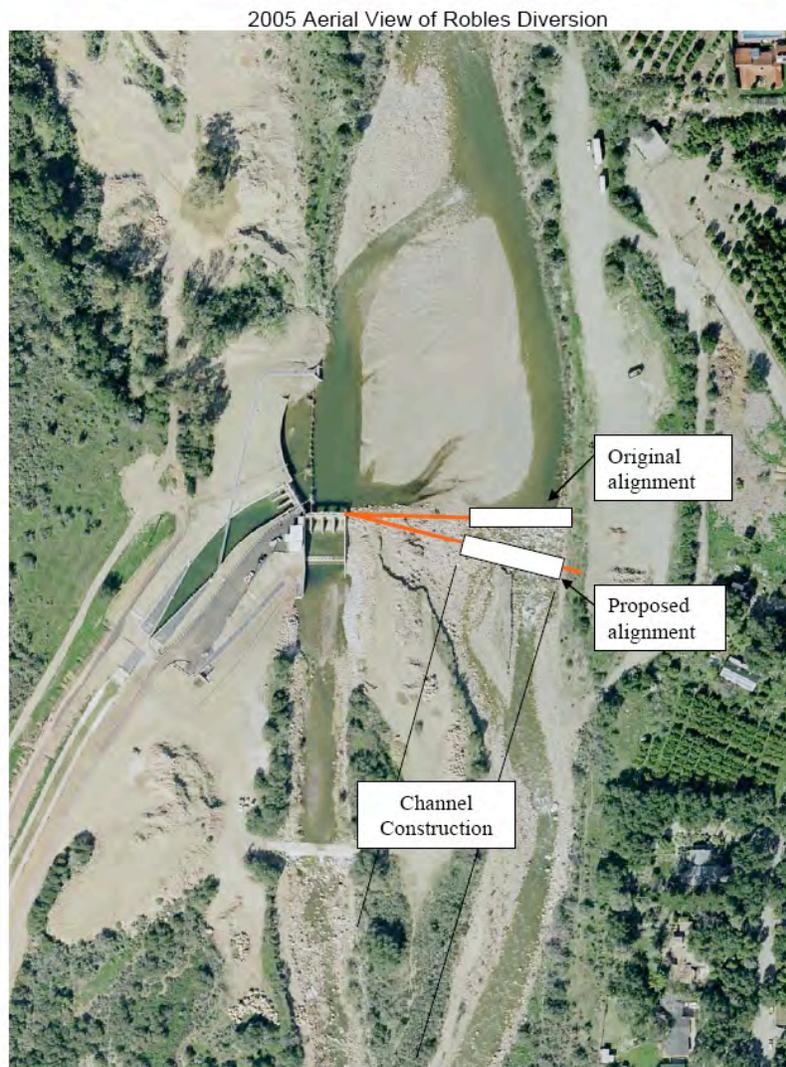


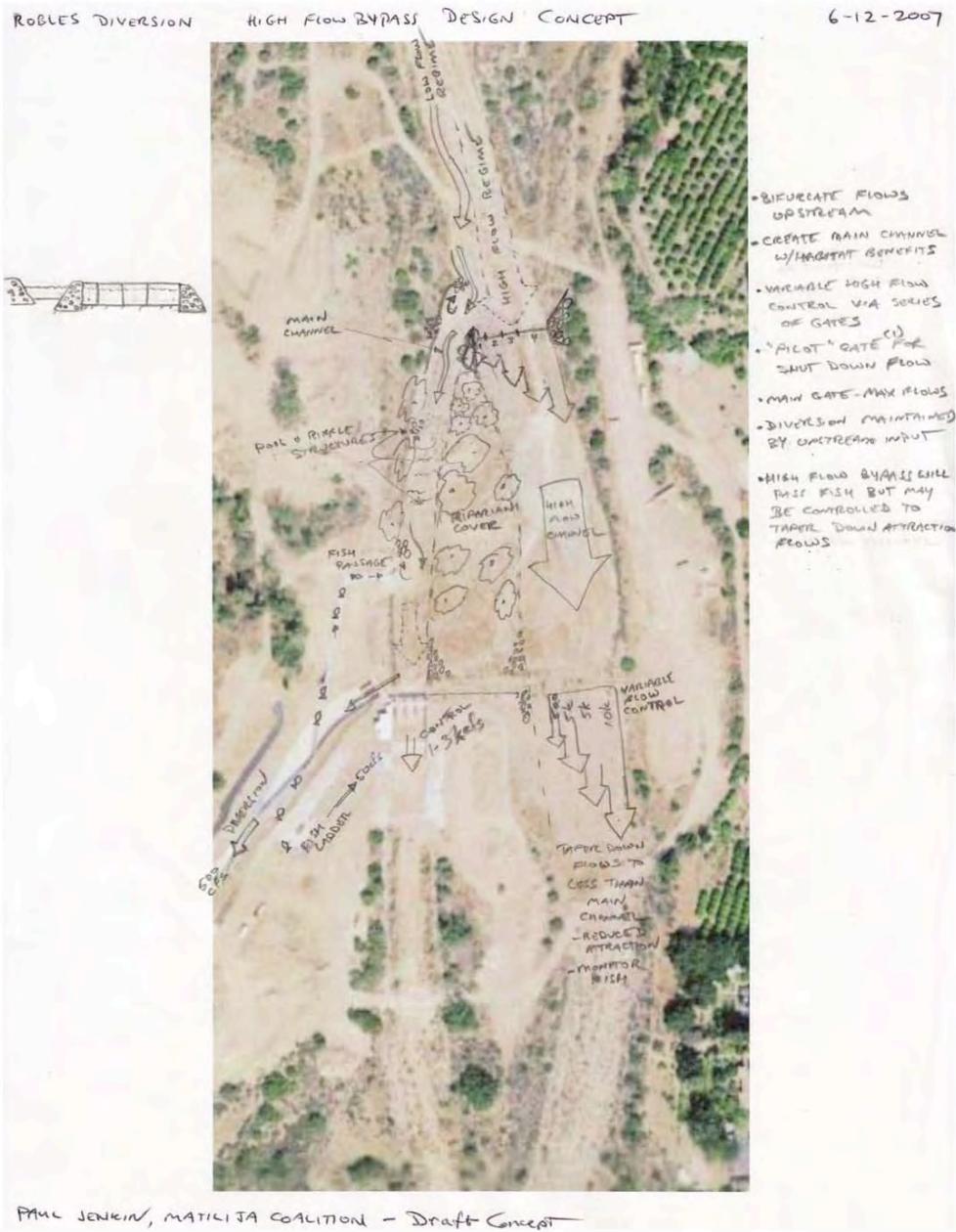
Robles High Flow Bypass Design Description of Scour Pool Alternative

The intent of the high flow bypass modification to the Robles Diversion Dam is to solve the problem of sediment accumulation. The Feasibility Study included a proposed new radial gate structure that would open during high flow events to flush sediment downstream. The figure below shows a variation on this from the *Value Engineering Study on the ROBLES DIVERSION PROJECT Ventura River Basin, CA June 2007*. Physical modeling was showcased in Denver on Feb 11, 2008.

The primary concerns with this project component are providing for fish passage and adequate integration with the existing facility and the proposed levee. Successful design should achieve the ecosystem restoration project objectives, most importantly restored natural sediment transport and fish passage.



The *Value Engineering Study, June 2007*, includes a proposal to “bifurcate flows upstream.” This proposal located radial gates, as included in the Feasibility Study, at an upstream location. The intent is to create a separate low flow diversion channel that would be designed to exclude sediment. In this manner, high flows would be able to transport sediment downstream without impeding diversion or fish passage.



Recent consultation revealed an alternative design for water diversion. Analysis and model testing have demonstrated the feasibility of this concept, and the city of Bellingham plans to remove the aging diversion dam on the Middle Fork Nooksack River and replace it with a withdrawal structure that will not impede the river's natural flow. This concept is based upon engineering a constriction in the river to provide controlled hydraulics for both water diversion and sediment flushing.
<http://listserv.wa.gov/cgi-bin/wa?A2=ind0507C&L=ECOLOGY-NEWS&P=357>

nhc



1) View looking upstream at the Alternative 4 intakes operating at 900 cfs. Note the boulder ramps downstream of each intake and the addition of a more gradual alignment to the left side upstream abutment walls. (DMG_6773)



2) Overhead view of the Alternative 4 intake abutments operating at 10,000 cfs. (DMG_6755)

MIDDLE FORK NOOKSACK RIVER
INTAKE ALTERNATIVES HYDRAULIC MODEL STUDY
Design Development Testing
Alternative 4 – Three Sets of Intakes with Boulder Ramps
PHOTO PLATE 4-12

Such a concept may be feasible for the Robles Diversion, as illustrated below, and warrants further consideration. The “scour pool” would be located upstream of the current diversion dam, and would use river hydraulics to scour increased sediment loads away from the diversion intake.

