Solider Creek Migration Barrier Removal Project
2002-2005

Evans Bar Road—Crossing #1

Left Photos—Inlet and Outlet of the 8-foot diameter culvert during low flows

Right Photos—Inlet (top) and outlet (bottom) during February 2004 storm flows

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Excavating the 8-Foot Culvert in 2004

Left Photos—The culvert in place & tree/brush removal

Above—Excavating the culvert

Right Photos—The culvert exposed

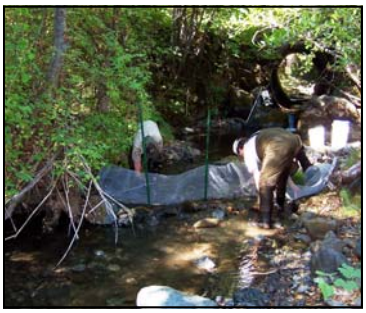
Above—Removing the culvert

Upper Left—Excavating back the slopes

Middle Left—Channel after pipe excavation

Left Photo—Looking downstream at installed detour bridge on Crossing #1, Fall 2004

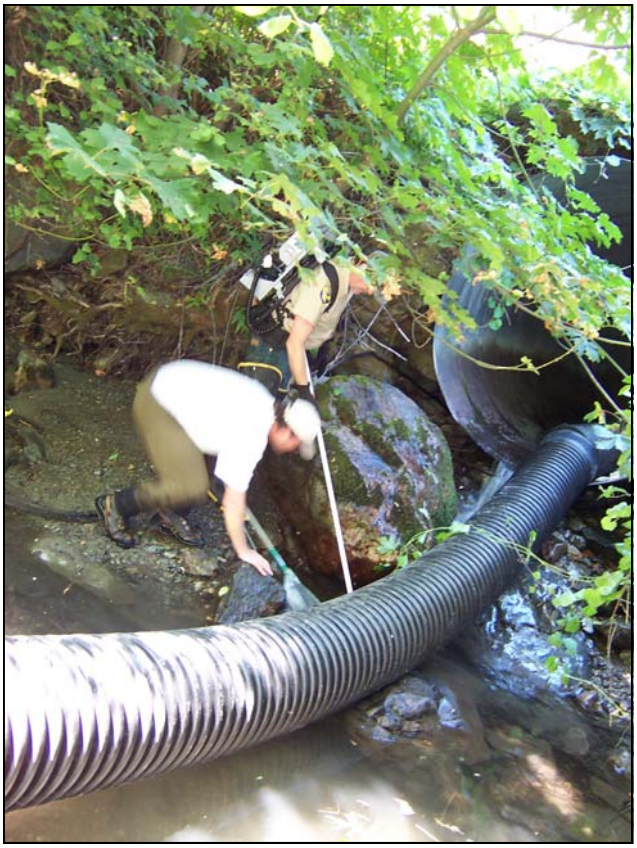
Right Photo—Erosion control with mulching after culvert removal and detour installation, Fall 2004



2004—Crossing #1

Diversion Installation and Fish Relocation Efforts

Conducted by Ross Taylor (5C fishery biologist; Jim Thompson (CDFG Habitat Specialist); Christine Jordan (5C Migration Barrier Coordinator); Roger Brown Construction (Project Contractor)



Upper Photo—YOY Coho salmon at Crossing #2

Right Photo—YOY Steelhead at Crossing #2

Crossing #1

Additional concrete was required below the footing areas to stabilize the bedrock due to an error in the geotechnical investigation report

Left —6 foot depth of extra concrete below surface.

Right Photo—3 feet depth of extra concrete below surface.

Concrete Pour at Crossing #1

Upper Left—empty forms for footings with interior rebar and wingwall rebar exposed

Upper Right—concrete pour with extension hoses. A 6-sack mix was utilized to assure faster curing time

Middle Photos—vibrating the poured slurry and the cured north and south footings

Lower Right—overall view of work area showing 15” diversion culvert outlet and fish screening

Crossing # 1—Arch Assembly and Installation

Upper Left—arch delivered in sections

Upper Middle—arch installed, backfilled & compacted to Engineering standards

Upper Right—Checking bolt tightness and overall view of the crossing area

Left—framing for wingwalls and headwalls

Lower Left—view of arch installed with cured wingwall & headwall concrete

Lower Right—View within arch showing rip-rap placement

Dutch Creek Road—Crossing #2

Upper Photo—Inlet of the 8-foot diameter culvert showing velocity in the culvert and the inlet drop that poses another barrier for juveniles moving upstream

Lower Photos—Inlet area of the 8-foot culvert showing debris loading and plugging during a February 2004 winter storm event.

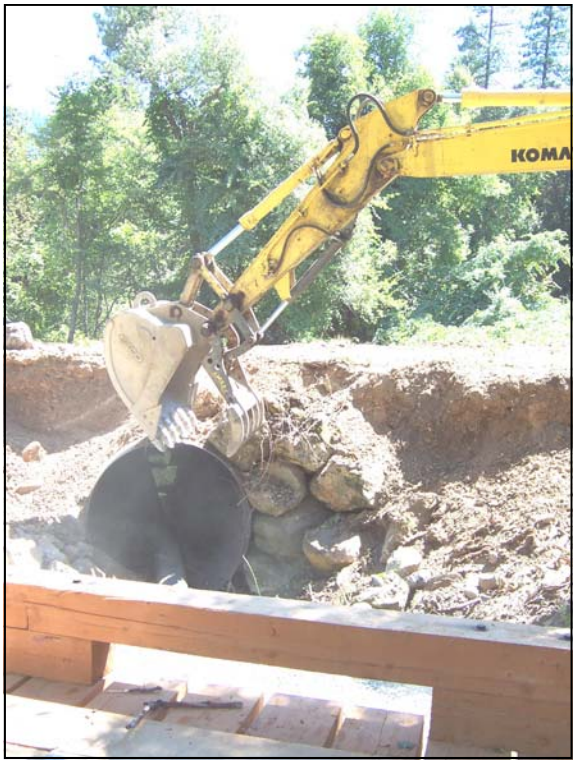
The Trinity County Department of Transportation maintenance crews would spend multiple hours at this, and Crossing #1, during heavy rains and flood events

Outlet at Various Flows

Upper Right — Low flow with outlet jump

Middle Right— Moderate Flows

Lower Right— High flows during February 2004 storm event



Crossing #2

Upper Photos—excavation of 8-foot culvert and rock to be used as rock slope protection

Right—Overall work area showing 15” diversion culvert and footing areas excavated

Lower Left—concrete footing poured and stemwall forming with wood frames

Lower Right—oil absorbing boom at outlet of 15” diversion culvert

The concrete footings on Crossing #2 were set below ground level and backfilled. Shorter stemwalls (right) are exposed and the arch is attached to the stemwall surface

Crossing #2

Upper Left—footings poured and stemwall framing in place with wingwall rebar exposed

Upper Right—Tightening bolts during arch assembly

Middle Left—Arch assembled

Lower Left—Overall view with wingwall and headwall concrete cured

Lower Right—Interior view of arch showing rip-rap placement

Crossing #1 and Crossing #2—

Revegetation Efforts and

Road Surfacing

Roadway surfaces and guardrails installed at Crossing #1 (left) and Crossing #2 (right)

Left Photo—Winter Storm 2005

Dutch Creek Road arch (Crossing #2) during the December 2005 winter storm.

In past storm and high flow events, this crossing would have been blocked and flooded (see Pages 3 & 4).

This new arch structure, as well as at Crossing #1, handled the storm flows without problem, allowing the Trinity County Department of Transportation's emergency crews to concentrate on other areas within the County.

Water Quality and Sediment Control Throughout the Project

Top & Left—
Silt fencing on fill material to be re-used as structural backfill on the arches

Right—
Work area water discharge in flat vegetated area

Bottom—
Straw bale concrete wash stations for tools and concrete pump trucks