Little Browns Creek Migration Barrier Removal Project
Five Counties Salmonid Conservation Program
Roundy Road—Trinity County

Top Left: Outlet of 2 of the 3, 48” x 50’ long culverts at Roundy Road in 2000
Top Right: Outlets in February 2007
*Note cottonwood tree at left with arrows
Bottom: View upstream to constructed bridge—March 2008*

Pre-Project Conditions

Top: Upstream of the 3, 48” Culverts ~1,400 cyds of Aggraded Sediment Resulted in a Flat, Widened Stream Channel Condition for ~200 Feet

Bottom: View of the 3 Perched Outlets & Progressing Outboard Fill Failure

Pre-Project Conditions

Top: Inlet During High Flow with Submergence & Flooding of Upstream Channel
Bottom: Outlet During High Flows

Construction Phase—Culvert Removal & Bridge Construction

Top: Excavating the 3, 48” Culverts from Roundy Road

Left: Upstream Channel Vegetation Clearing for Detour & Roughened Channel Construction

Bottom Left: Detour Road Installed Upstream of Roundy Road

Bottom Right: Straw Bales, Silt Fence & Oil Absorbing Boom Installed below Project

Construction Phase—Culvert Removal & Bridge Construction

<u>Top Left</u>: Pile Driver for 8 Steel Piles that Comprise the Abutment Foundation (4 per Abutment)

<u>Top Right & Middle Left</u>: Forming the Left & Right Abutments

<u>Bottom Left</u>: Placing the Left & Right Abutments (concrete pours)

<u>Bottom Right</u>: Abutments Placed & Forms Removed

Construction Phase—Culvert Removal & Bridge Construction

Top Left & Right: Bridge Deck Falsework Construction & Deck Framing/Placing

Middle Left & Right: On Site with Upstream Landowner & Bridge Deck Placed

Bottom Left & Right: View of Bridge from Upstream with Falsework Removed & Guardrail Installation

Construction Phase—Roughened Channel Construction

Top Left : 300’ of Upstream Channel Excavated to 5% Grade—Banks to be Shaped as Channel is Constructed

Top Right: Installing the 2 Layers of 1.5 Ton Rock Ribbon at Station 13+00 (Top of Project—See Plans)

Left : 13+00 Ribbon Constructed with Inserted Arrow Pointing Downstream

Bottom Left & Right: Looking Downstream at Constriction Rocks Installed at 12+90 & Looking Upstream to 13+00 Ribbon

Construction Phase—Roughened Channel Construction

Top: Installing Engineered Streambed

Left : View upstream from Station 11+20 of Completed & Shaped Roughened Channel

Right: February 2008 Flows to Compare Constriction Rocks at 12+90 . The Top Right Photo is the View Downstream with the Constriction Rock Installed (arrow on rock). The Bottom Photo is the View Upstream of the Same Constriction Rock (arrow on rock).

Construction Phase—Streambank Stabilization

9-27-07: Upstream Bank Bioengineering Installed at Section 11+80 to 12+40
Photos Show Toe Trench Excavation, Willow Fascine & Brushmattress Installation, Backfilling of Brushmattress, Watering & View Downstream After Work Completed by Trinity County RCD & 5C staff

Construction Phase—Large Wood Placement

<u>10-12-07</u>:
Three sections of Incense cedar, Measuring ~ 36” diameter & 12-feet long were Installed Upstream of the Bridge between Section 10+60 & 11+50 in place of 3 Constriction Rocks—See Arrows

Construction Phase—Streambank Stabilization

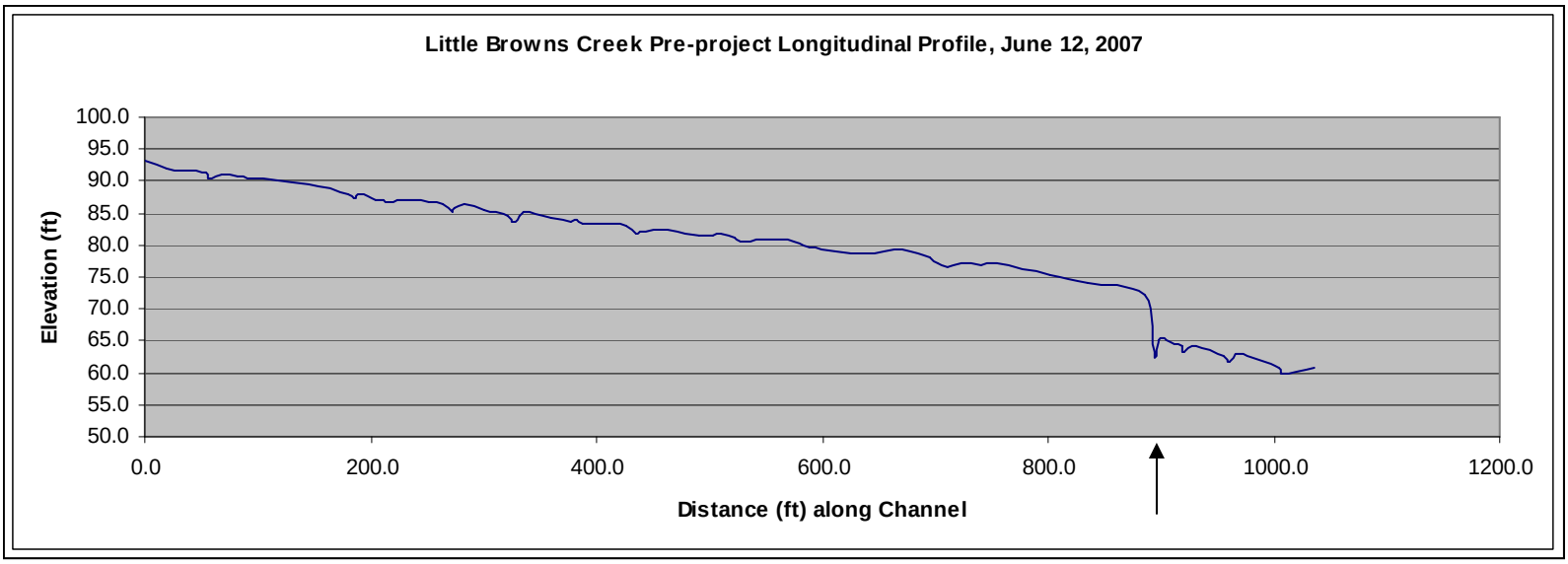
10-15-07: Upstream Bank Bioengineering Installed at Section 11+00 to 11+50

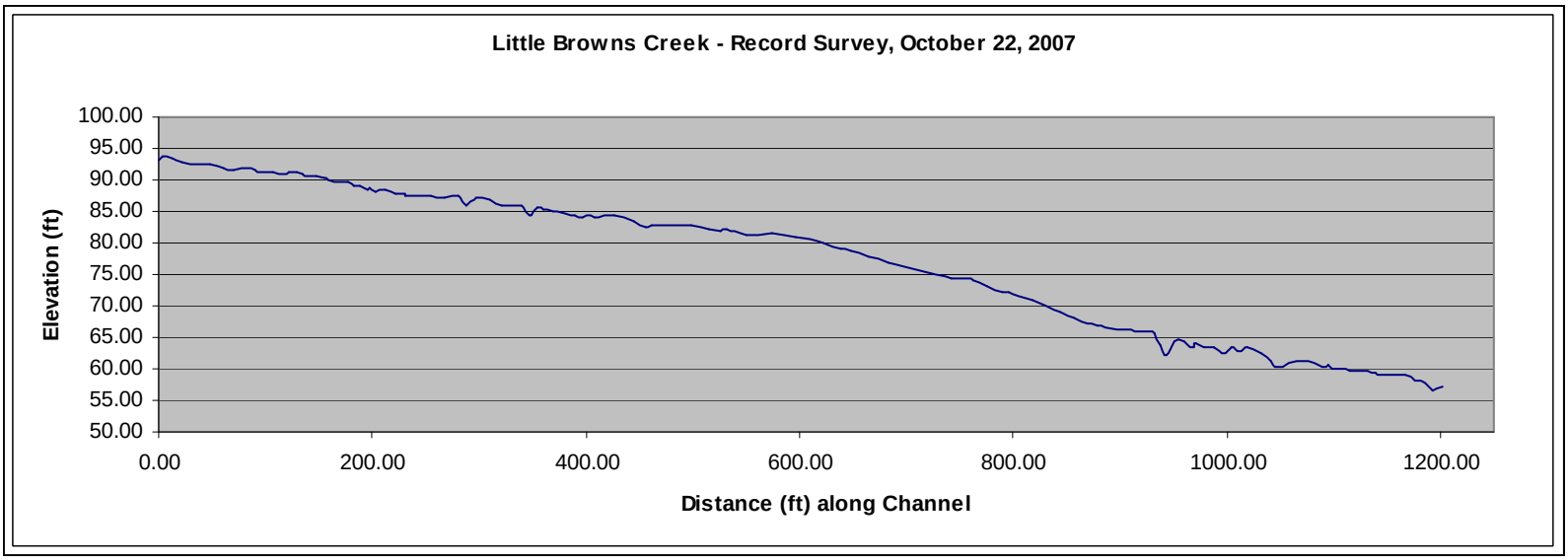
Willow Brushmattress & Fascine Installation
Work Completed by Trinity County RCD

Construction Phase—Adaptive Management

North Roundy Road: Through-Cut Road with no Drainage Structures that would Deliver Sediment to Little Browns Creek upstream of the Crossing (top photos). The Road was Outsloped with the Surplus Excavated Channel Material & Rocked (bottom photo). Road accesses USFS & Pvt Lands

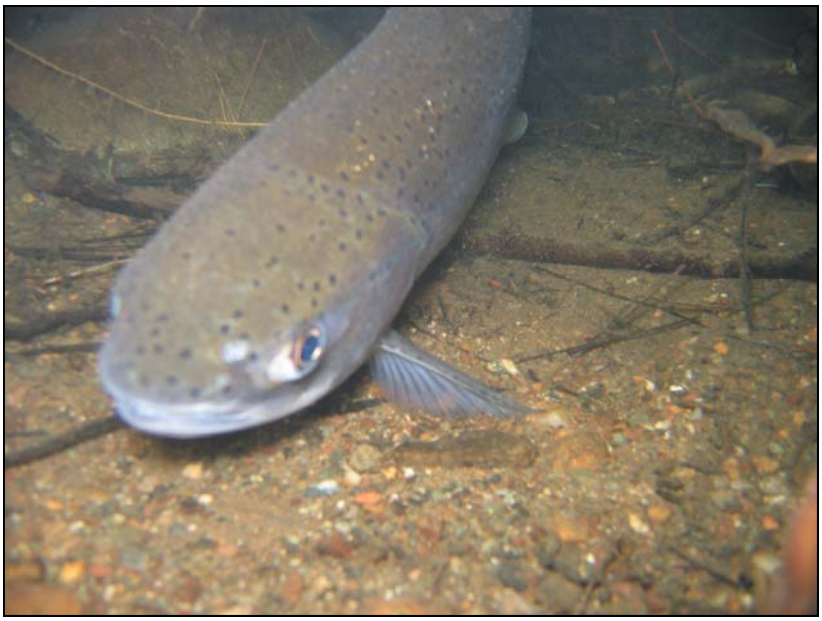
Monitoring Phase—Longitudinal Profile Monitoring





The Pre-Project Longitudinal Profile was Taken on June 12, 2007. The Black Arrow is on the Plunge Pool of the 48" Culverts. Channel Grade was ~ 5.5%. The Post Project Profile was Taken on October 22, 2007 with a Channel Grade of ~ 4.83%. The Photos Below are from the October 22 Profile Survey.

Monitoring Phase—Biological Monitoring



The USFS Weaverville Ranger District, Shasta-Trinity National Forest photographed this steelhead downstream of the Highway 3 culvert in early July 2007. The Highway 3 crossing is located ~1 mile below the Project & is not a barrier to juveniles or adults.

The initial spawning survey for the Project was conducted on March 19, 2008. Five redds were located below the Project site, one with a wild female steelhead (photos below). In addition to spawning surveys, an out-migrant trapping program will be implemented to monitor the biological response to the Project.

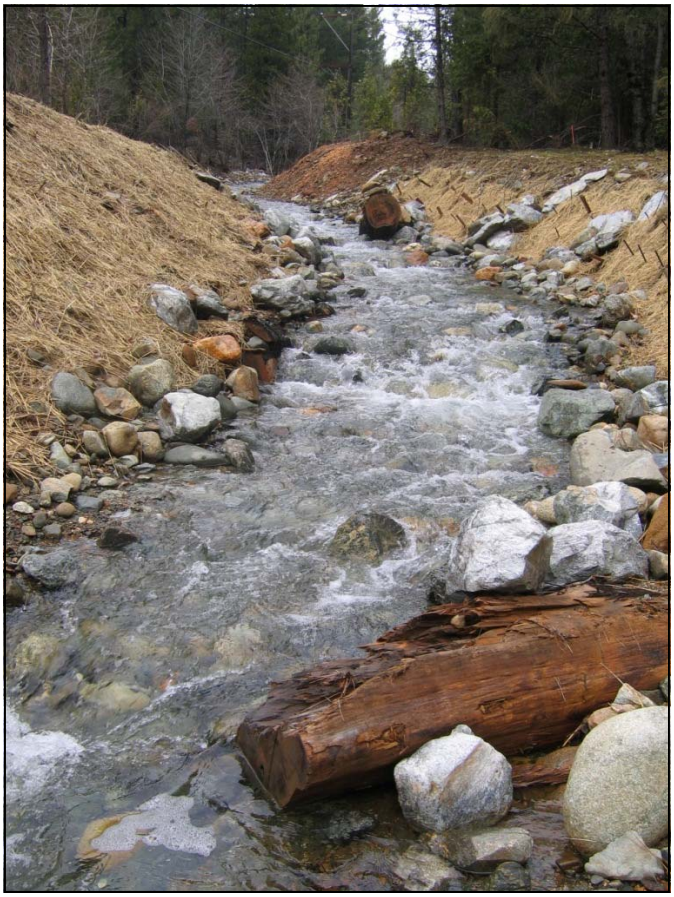
3-19-08: Good quality spawning habitat upstream of the Project & a wild female steelhead on a redd just below the Highway 3 crossing
Ross Taylor & Associates

Monitoring Phase—Photo Monitoring

Top: View of Upstream Widened Channel in February 2007*
Bottom: View of Upstream Constructed Roughened Channel & Streambank Bioengineering in November 2007
- Note Cottonwood Tree with Arrow

Monitoring Phase—Photo Monitoring

Top: Looking Downstream from approximately 150 feet Upstream of Bridge, note Large Wood Installation at Left
Bottom: Looking Upstream at Constructed Roughened Channel & Streambank Bioengineering—December 2007 (first flows post construction)



Sign constructed at the Project Site with Partners—March 2008 Site Photos of Upstream Channel & Bridge