



PRUNUSKE CHATHAM, INC.

### CARRIGER CREEK FISH PASSAGE ENHANCEMENT, 2002 TO 2004

*Client: Southern Sonoma County RCD  
California Department of Fish & Game*

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The overall goal of this project in a tributary to Sonoma Creek was to enhance anadromous fish passage by replacing an eroded concrete wet crossing with a span bridge and a series of step pools while causing minimal disturbance to existing native riparian vegetation.

PCI first prepared a conceptual design and successful grant proposal to CDFG for project implementation. Additional PCI tasks included preparation of a natural channel design and revegetation plan, CEQA compliance, preparation and submittal of permit applications, including dewatering and fish protection plans, and consultation with NOAA Fisheries. Design scope of work included reference reach analysis for stream simulation, grading plan with detailed profile and sections, revegetation plan, erosion control plan, removal of concrete wet crossing, and bridge placement. Approvals were obtained from the USACE for use of \$404 Regional General Permit #1, which includes \$401 Certification from the San Francisco Bay RWQCB, from CDFG for a \$1602 Streambed Alteration Agreement, and from Sonoma County for a grading permit. Permit applications were submitted in spring of 2004, NOAA Fisheries issued its incidental take statement in June, and PCI completed channel construction in October.



Demolition and start up activities included construction of two cofferdams and sumps for dewatering, fish rescue and relocation, and removal of an existing footbridge, failing gabion wall, and a concrete wet crossing structure. A boulder, cobble-dominated stream was reconstructed for approximately 140 linear feet, maintaining an average stream gradient of 5%. The installation included a cross vane structure built with 3-ton boulders, a 6-foot deep mid-channel plunge pool, two boulder weir structures with pocket pools, and a roughened ramp. Bankfull benches were created with the banks laid back to a 2:1 slope and stabilized with brush mattresses. The entire site was revegetated with native trees, shrubs, and grasses.

Ongoing work includes establishment period maintenance and 5-year monitoring and reporting program. Although this project changed significantly during the 2006 New Year's Eve storm, the storm of record for Sonoma Creek, fish passage and natural stream function remain intact.