



PRUNUSKE CHATHAM, INC.

**SANTA ROSA CREEK PRINCE MEMORIAL GREENWAY:
PIERSON REACH RESTORATION PROJECT DESIGN, 2006 TO 2007**

Client: City of Santa Rosa

Contact: Dave Montague, 707-543-3860

PCI provided design recommendations to the City of Santa Rosa for **restoration of natural fisheries and riparian habitat** in Santa Rosa Creek between Olive and Pierson Streets (Pierson reach). The project objectives included **sustaining acceptable flood conveyance capacity**.

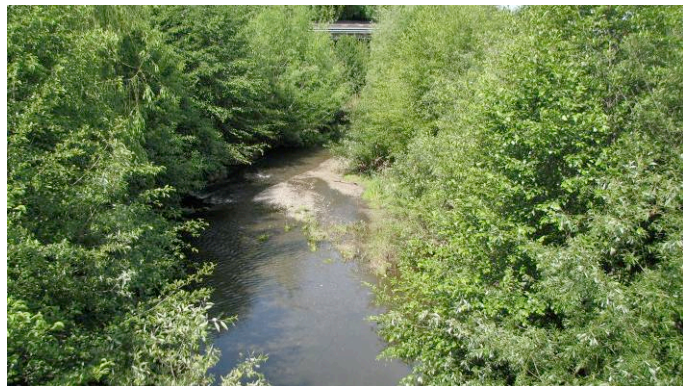
Santa Rosa Creek was historically straightened and narrowed through the Pierson reach. Pre-project channel conditions maximized the hydraulic conveyance of sediment and storm flows with grouted rock-lined bed and banks. The urban environment with its generally inflexible project boundaries and flood conveyance requirements were **recognized constraints** and presented serious challenges for restoration design.



Pre-project Conditions Pierson Reach, 2006

PCI's approach to the design was to employ hydraulic modeling to optimize the habitat enhancements. A HEC-RAS hydraulic model was used to reiteratively evaluate the impact of restorative bed and bank features on the 100-year water surface elevation and to evaluate the hydraulic conditions of the bankfull (channel-forming) and fish passage flows created by the design. PCI adjusted the design to achieve a **100-year water surface elevation** that was acceptable to the Sonoma County Water Agency.

Restoration design concepts included construction of **four pool and riffle sequences, increased riparian vegetation, roughness boulders, and large woody debris**; bank stabilization features included **biotechnical treatments** to enhance aquatic and riparian habitat. The **bases for design** included observed geometries in **nearby reference reaches and hydraulic geometry for the bankfull flow**.



Post-project Conditions, 2009

PCI also compiled **as-built information for existing surface and subsurface conditions**, including walls and wall footings, bridge footings, bike paths, storm drains, and other utilities. These elements were shown in cross section and plan view to optimize restoration design elements. PCI developed a **detailed hydraulic analysis report** and conducted **meetings to negotiate acceptance of project-specific hydraulic criteria** to achieve an approved 100-year floodwater surface elevation.