

# **RICHMOND/SAN RAFAEL BRIDGE RETROFIT**

## **RICHMOND, CALIFORNIA**

---

Consolidated Engineering Laboratories provided materials testing and special inspection services for the Caltrans Seismic Retrofit for this extremely complicated project consisting of 4 miles of the bridge's structural steel, and foundations.

The extensive structural steel retrofit adds over 31 million pounds of steel to the existing structure, including the strengthening of the bridge's truss components and tower legs, the installation of special moment resisting pier frames, seismic isolation bearings, viscous dampers, and seismic restrainers. The bridge foundation retrofit entails extremely complicated underwater operations including the installation of pre-cast concrete jackets around the existing piers, new precast pile cap foundations, cast-in-place piles at the bridge towers, and the installation of steel casing at the existing bell foundations. CEL's scopes of service included: Reinforced concrete, masonry, structural steel shop and field welding, ultrasonic testing, X-Ray, and magnetic particle.

Client: Port of Oakland  
Hope Samaras & Santana Jimenez – (510) 577-4163

Structural Engineer: Port of Oakland

General Contractor: Paragon Project Resources, Inc.  
Manuel Rosas – (214) 634-7060

Duration: May 2001 – Ongoing

Construction Costs: \$2.5 Million

CEL Fees: \$227 Thousand

