

Antlers Bridge Replacement, California

In September of 2009, The **California Department of Transportation (Caltrans)** awarded Tutor-Saliba Corporation a \$125 million contract to replace the Antlers Bridge on Interstate 5 in Shasta County. The bridge was designed by Caltrans, with the construction and erection engineering performed by **Finley Engineering Group, Inc. (FINLEY)** (Figs. 9, 10 and 11).

The new 5-span, cast-in-place prestressed segmental box girder superstructure will be 1,942' (592m) long and 104' (31.8m) wide. The superstructure depth will vary from 29'-6" (9m) deep to 12' (3.7m) deep. This challenging structure will be constructed on a new parallel alignment just east of the existing bridge, which spans over the Sacramento River arm of Shasta Lake, California's largest reservoir and third largest lake.

The project presents several challenges including seasonal water level fluctuations of approximately 50'-70' and difficult access - piers that extend over 30' above the water and 100' to the bottom of the lake. To overcome these obstacles, a waterline trestle was constructed at each pier allowing the use of cranes. **FINLEY** designed a falsework system, supported by the piers, which will allow the construction of the 550 cubic yard pier

Owner: **California Department of Transportation (Caltrans)**
Designer: **Caltrans**
Contractor: *Tutor-Saliba Corporation*
Construction Engineer: **Finley Engineering Group, Inc.**
Construction Engineering Inspection: **Parsons / Caltrans**
Falsework Designer: **Finley Engineering Group, Inc.**
Form Traveler and Post-Tensioning Supplier: **Schwager Davis, Inc.**
Bearings and Expansion Joints: *Lubron Bearing Systems*
Formwork for Cast-In-Place Segments: **EFCO Corp.**

Figure 9 –
Prefabricated pier brackets will support the falsework to construct the pier table.
(Photo Courtesy of Tutor-Saliba)



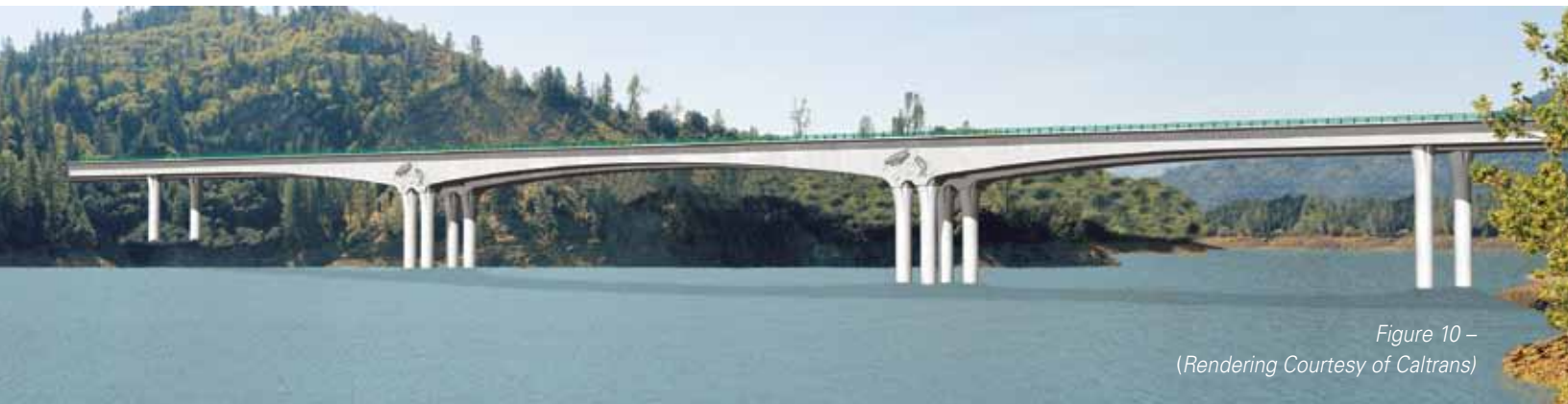


Figure 10 –
(Rendering Courtesy of Caltrans)

tables. The remaining segments will then be cast using two pairs of form travelers. A complex earthquake resistant design and monitoring devices were incorporated into the design details.

Located in the Shasta-Trinity National Forest, the bridge incorporates several aesthetic and environmental details. The structure includes 16 bat houses under the pier table diaphragms, along with two large-mouth bass motifs on the webs of the pier tables.

Construction began in November 2009. As the first pier table begins to take shape above the falsework, the Contractor is continuing to drill the foundations on the adjacent piers. In addition to the bridge construction, a 0.4 mile long section of highway south of the bridge will be realigned to improve roadway safety. The existing 1,330' long concrete decked steel truss structure, originally built in 1941, is near the end of its service life, and will be demolished and removed. The project is expected to be completed in 2014.



Figure 11 –
Pier column reinforcing cage is being set in place as workers prepare to pour the first pier column.
(Photo Courtesy of Tutor-Saliba)