



## SR-76 Temporary Bridge

San Diego County, California

**APPLICATION:** To improve traffic flow, the California Department of Transportation (Caltrans) funded projects to expand SR-76 from two lanes to four. One segment of this route required excavating 1.5 million cubic yards of material from cuts to fills. Temporary bridge abutments were required during the expansion in order to keep the project on schedule.

**THE CHALLENGE:** Most of the fill movement involved crossing SR-76 with large, off-road hauling equipment. The traffic volume on SR-76 and time restrictions made this approach impractical.



A CAT 777 weighing approximately 360,000 lbs is supported by a Tensar Temporary Wall as it drives to the embankment site.

**ALTERNATIVE SOLUTIONS:** Although other solutions were considered, the contractor selected Tensar Temporary Walls based on its economy and ease of construction. Flatiron's schedule for

commencing the cut/fill operation was very tight and the approval process for a bridge structure would normally be very time consuming. However, Tensar's experience and ability to respond in a timely manner closed the deal.

**THE SOLUTION:** In early 2010, Justin Allington, project manager with contractor Flatiron West, Inc., met with Tensar MSE Specialist Bob Miller and Tensar design engineer Jong Lee to discuss using the Tensar® Temporary Wall System for the bridge abutments.

Although the abutments would be temporary structures, they had to meet the latest American Association of State Highway and Transportation Officials (AASHTO) bridge design specifications. They also had to be capable of supporting half the design dead load of the bridge and half the live load of a fully loaded CAT 777 off-road truck with a gross weight of some 360,000 pounds.

"The Tensar Temporary Wall System was the best option," says Miller. "It enabled us to create true abutments with the ability to handle very large surcharge loads. That was a big advantage."

Flatiron submitted Tensar's superstructure and substructure designs to Caltrans' home office engineers as part of an expedited review request. Lee and Miller remained available throughout the review to respond to questions about the submittal.

"Caltrans was aware that the proposed temporary bridge would be required to support some very large and heavy haul vehicles," says Quanyan Liao, Ph.D.,

### PROJECT HIGHLIGHTS

**Project:**

SR-76 Temporary Bridge

**Location:**

Bonsall, San Diego County, California

**Installation:**

May - June 2010

**Product/System:**

Tensar® BX and UX Geogrid  
Tensar® Temporary Wall System

**Quantity:**

2,000 square yards

**Owner/Developer:**

Caltrans

**Design Engineer:**

Tensar International Corp.

**General Contractor:**

Flatiron West, Inc.

P.E., of Caltrans. "We were therefore very much involved in the review, approval and construction inspection of the contractor's design of both the superstructure and substructure systems.

"Jong Lee, Tensar's design engineer, worked very closely with us to address the design requirements for the Tensar wire-form wall system substructure. Following our approval of the design, Tensar was onsite to instruct the contractor's crew on the proper installation of the wall. They were present at the start of construction, during the trial runs with the earthmoving vehicles, and on occasion throughout the lifespan of the bridge.

The haul bridge performed very well during its lifespan. We were pleased with both the contractor's work and the support we received from Tensar."

Flatiron's wall crew was soon able to construct the temporary bridge and their subcontractor began the essential work of moving the soil from the cuts located along the new alignment. During this phase of work, several fully loaded CAT 777 trucks made hundreds of trips over the bridge on their way to the embankment site.

"Tensar was very responsive to our request to produce the design for our temporary bridge abutments," says Allington. "Jong Lee worked closely with our structures engineer, Caltrans, and me to fast track the submittal and approval of the wall. After approval Tensar's field technicians were onsite to school our folks and the Caltrans inspectors on the proper installation of the system. The wall performed exactly as planned. We appreciated Tensar's service before, during and after the sale."



*Tensar was able to create true abutments with the ability to handle very large surcharge loads.*

### **ADDITIONAL INFORMATION AND SERVICES:**

Tensar International Corporation specializes in solutions for site development problems such as grade changes requiring retaining walls and poor soil conditions affecting the cost of roadways, parking lots and building structures. Our solutions use proprietary engineered systems and our own unique products, services and application technologies. Our products and technologies, backed by the most thorough quality assurance practices, are at the forefront of the industry. Highly adaptable, cost-effective and installation-friendly, they provide exceptional, long-term performance under the most demanding conditions. Our support services include site evaluation, design consulting and site construction assistance.

For innovative solutions to your engineering challenges, rely on the experience, resources and expertise that have set the industry standard for nearly three decades.

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**For more information on the Tensar Temporary Wall System or other Tensar Systems, call 800-TENSAR-1, email [info@tensarcorp.com](mailto:info@tensarcorp.com) or visit [www.tensarcorp.com](http://www.tensarcorp.com)**

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