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Bridges

Esplanade Riel Bridge, Canada

Penobscot Stay Cable Bridge, Maine, USA

Woodrow Wilson Bridge, USA

La Plata River Bridge, Naranjito, Puerto Rico

Golden Gate Bridge, USA

Santan Freeway, Phoenix, AZ, USA

17th Street Causeway Bridge, USA

Transcanada Highway, Canada

Victory Bridge replacement, USA

Suspension Bridge, McKenzie River, USA

Pacific Avenue Overcrossing, Everett, Washington, USA

... more DSI References

Tanks

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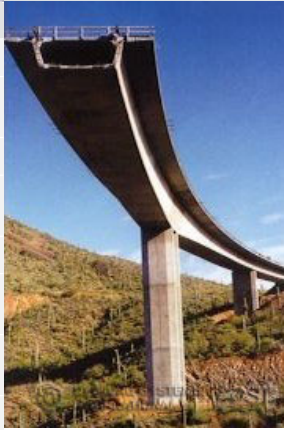
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Arizona's first cast-in-place segmental bridge saves endangered wildlife

Lower Screwtail Bridge, Beeline Highway, Arizona, USA

Lower Screwtail Bridge with a total length of 329 m is the first cantilevered cast-in-place concrete segmental bridge built in Arizona. It is part of a \$ 30 million ADOT contract (Arizona Department of Transportation), budgeted for the construction of the Mesa Payson Highway (SR-87), 95 km northeast of Phoenix.

The four-span bridge was built above a 38 m deep, rugged canyon in a very environmentally sensitive area, home to endangered wildlife and at the crossing of two historic paths.

The bridge was constructed using the free-cantilever method. Cantilevers on both sides of the pier consisted of 11 bridge segments, each 4.9 m long, 13.7 m wide, and 3 to 5 m deep.

Segmental construction started after the piers were ready to support loading. A single cell box DYWIDAG form traveller was placed on each side of the pier table. The dead load was supported by installing reinforcing bars and short post-tensioning tendons in the transverse and longitudinal directions. Once the concrete was poured and had reached the required strength, the post-tensioning tendons were stressed over the pier and the form travellers advanced forward to the next segment. Symmetrical positioning of the travellers is essential to maintain balance.

The project was unique due to the severe 4.5 % super elevation and the horizontal radius of only 366 m. Especially challenging for DSI and ADOT were contract special provisions that required meeting AASHTO recommendations for special anchorage (American Association of State Highway and Transportation Officials). Approved anchorage assembly required more local zone reinforcing and complicated concrete placement.

DYWIDAG bond head anchorages were placed as dead ends for the transverse post-tensioning. To expedite the construction cycle, stressing was conducted at 25 N/mm² (3500 psi) without any reported problems.

The spectacular cantilever segmental bridge opened for traffic in 1998.

i Owner Arizona Department of Transportation (ADOT) +++ Bridge designer TY. Lin International +++ Bridge segmental designer Janssen & Spaans Engineering, Inc. +++ General Contractor Ames Construction +++ Bridge Contractor and Form Traveller Installer Edward Kraemer & Sons +++ Post-Tensioning Installer Paradise Rebar

DSI Services Supply of 160 tons post-tensioning materials; Supply of 2 DYWIDAG form travellers; Technical consulting.