



**Heldenfels Enterprises Inc. opened a new prestressed concrete plant in El Paso, Tex., to help supply beams for the Loop 375 Border Highway West extension project, which includes 21 bridges. Courtesy of Heldenfels. PCI Journal | May-June 2017**

## Heldenfels opens third Texas plant to supply beams for 21-bridge highway project

In early 2015, Heldenfels Enterprises Inc. of San Marcos, Tex., built a new prestressed concrete plant in El Paso, its third in Texas (the other two being in San Marcos and Corpus Christi). All three plants are PCI certified.

The main reason for building the plant was to be able to begin production on about 1300 precast concrete beams for the 21 bridges that are part of the state's design-build 9 mi (14 km) Loop 375 Border Highway West extension project in El Paso that is being built by the Abrams-Kiewit Joint Venture.

The plant is planned to be permanent and has worked on more than the highway extension project. "We have also sought out and won bids on other projects since," says Fred Heldenfels IV, president and CEO of Heldenfels Enterprises.

The Loop 375 project begins at US Route 54 and is designed to provide an alternative east-west route to Interstate 10 in order to accommodate the projected growth in traffic, and, at the same time, complete the east-west travel corridor through the El Paso metropolitan district. The project also includes an option to develop an anti-icing system that would automatically treat the Loop 375 bridges and Loop 375 direct connector bridges.

The project design called for prestressed concrete beams of varying depths, not spaced greater than 9 ft (8 m) apart. The beams that Heldenfels is manufacturing for the bridges are the Texas Department of Transportation's TX girder cross sections. "These were mostly TX-70 beams, about 90%, but there were some TX-54s," Heldenfels says.

The bridges also use steel girder beams with concrete barriers down the middles of the structures and F-shaped barriers along the slab edges. The substructure uses a rectangular bent-cap shape, and the rectangular columns incorporate a pedestal and capital, improving the aesthetics of the bridges.

The mixture for the self-consolidating concrete used in the construction of the precast concrete beams includes 560 lb (2500 N) of cement, 140 lb (620 N) of fly ash, 1500 lb (6700 N) of sand, 1557 lb (6926 N) of a  $\frac{3}{4}$  to  $\frac{3}{8}$  in. (19 to 9.5 mm) blend coarse aggregate, and 227 gal. (859 L) of water, plus 52 oz. (1500 mL) of admixtures.

Heldenfels began production of the precast concrete beams in August 2015 and delivered the first beams to a bridge on the project in December 2015.

The project initially called for more than 172,000 ft (52,400 m) of prestressed concrete beams. However, significant delays in the completion of, and subsequent changes to, the bridge designs by the design-build joint venture's consulting engineers reduced the total quantity required to 146,000 ft (44,500 m).

As of the end of March, Heldenfels's production and delivery of beams for the projects were about 62% complete. Production should be complete by Thanksgiving, with the final six to seven spans being delivered in the first quarter of 2018. —William Atkinson 