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Temporary Bridge Provides a Cost-effective Alternative to Phased Construction in Texas

Acrow's modular structure used as a safe, reliable, detour during highway construction

Just east of the small city of Nacogdoches, Texas, an aging bridge on State Highway 21 over the Carrizo Creek was slated for replacement. The route is used by both commercial and non-commercial traffic, including many tourists drawn to the year-round attractions in the area. When planning for the project began, keeping the same horizontal alignment of the existing roadway was considered a priority, and maintaining two lanes of traffic on the Texas DOT-designated Hurricane Evacuation Route was a legal mandate.

Phased construction was not considered a viable option as it could result in intermittent lane closures, and keeping the alignment would require adding a large shoulder to the bridge to handle two lanes of traffic in the subsequent phase. Building the new bridge adjacent to the existing bridge was also discounted, as it would change the alignment and create adverse right-of-way impacts. Based on the success of prior projects within the district that had successfully utilized temporary detour bridges, the Lufkin District of Texas DOT decided to use a temporary detour bridge as it would offer an economical way to address these concerns, while reducing construction time and providing a safe and reliable detour route for travelers and a safer environment for workers.

Project contractor Drewery Construction Co., Inc. selected a single-span Acrow 700XS bridge with an overall length of 130 feet (39.62m) and a two-lane roadway width of 24 feet (7.35m). The modular steel structure was assembled on site beginning in September 2022 and installed in October using a full cantilever launch with an 80-foot launching nose (24.38m). The temporary bridge will be in use until completion of the new bridge.

acrow.com
bridges@acrow.com
+1.973.244.0080

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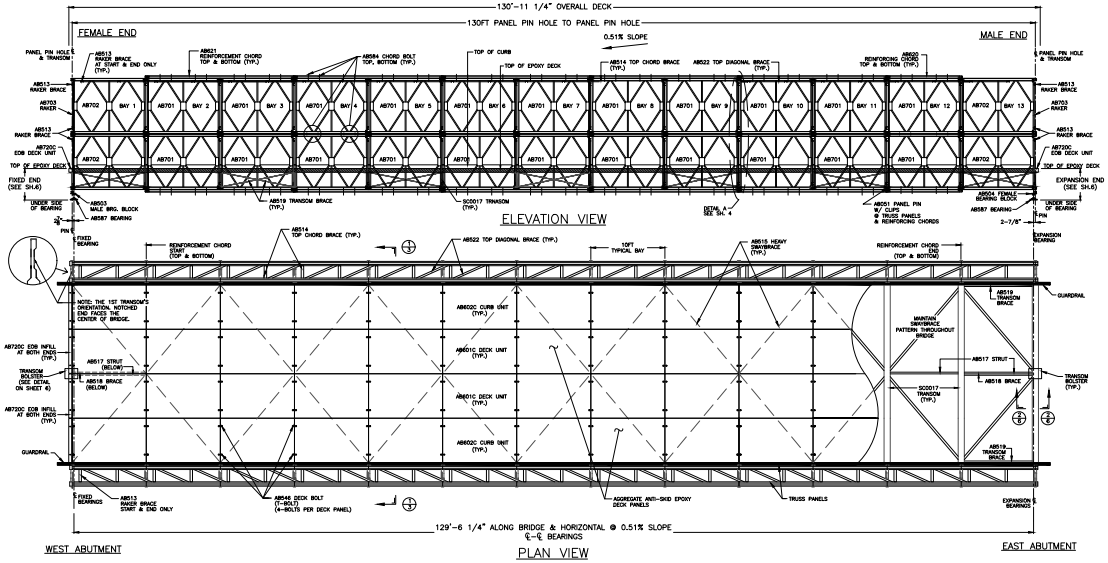

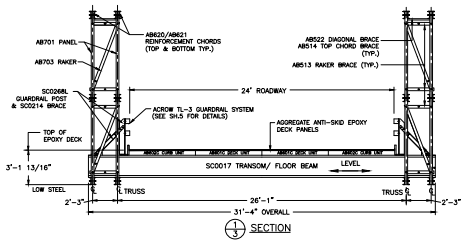

Specifications

Bridge length:

130′ (39.62m)

Roadway width:

24′ (7.35m)

Guide rails:

TL-3

Deck surface:

Epoxy aggregate

Bridge erection method:

Full cantilever launch

Design load:

HS20-44

Standard Acrow bridge finish:

- All major components galvanized to AASHTO M111-ASTM A123
- All bolts are hot-dip galvanized
- All pins are electrogalvanized

Standard Acrow bridge specification:

(A) Panel chords, diagonals, verticals, reinforcing chords, rakers to AASHTO M223 GD 65

(B) Raker braces, transoms, top chord braces, swaybraces, transom braces, diagonal chord braces, decking to AASHTO M223 GD 50

(C) Panel pins to ASTM A 193 GD B7

(D) Bolts to AASHTO M164M – A325

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