

Labette County Bridge 183 Replacement

Edna, Kansas

Bridge Replacement

Owner:

Labette County

Engineer:

Cook, Flatt, & Strobel

Contractor:

B&B Bridge Company, LLC

Installation:

December 2016



In Labette County, Kansas, a concrete bridge structure was in need of replacement. Originally built in the early 1900s, the structural condition of the bridge was very poor, and the neighboring landowner was experiencing damaging flooding events due to back up from the bridge.

In order to respond quickly to the situation, Labette County was in need of a structural solution that was both quick and cost-efficient. They reached out to Cook, Flatt, & Storbel engineers who determined that utilizing a three-barrel culvert manufactured by Contech Engineered Solutions would provide an economical solution that was quick to implement. Ultimately, HEL-COR[®] corrugated steel pipe with an Aluminized Type 2 (ALT2) finish was selected as it provided the best value option based on materials, expected service life and time required for installation. The 5x1 HEL-COR is a helically corrugated metal pipe that provides the power to withstand severe environmental conditions associated with culverts. Both ends of the new triple-barrel structure were finished with a 1.5:1 beveled end with a close 12" spacing. The slope protection on the inlet end was specifically designed to prevent scour, and the pipe was also rotated at a 10 degree skew to help with channel alignment.

Due to the quick replacement needs, the original structure was demolished in one month, during the winter. The only equipment required for the installation was a track hoe and crane. In addition, the County buried the bottom of the culvert at an adequate depth below the streambed, which allowed a stream channel to form within the pipe. This alternative method created a natural bottom along the length of the pipe to encourage a natural, fish friendly habitat. The County was extremely satisfied with the how quickly and easily the installation was, deeming the entire project a complete success.

Technical Description:

- Product: HEL-COR[®] 10 GA ALT2 CSP, 5x1
- Diameter: 144-in. (3 barrel with 1.5:1 beveled ends)
- Length 72 LF ea. (216 total)



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The Engineer of Record, Kenny Blair of Cook, Flatt & Strobel, stated, "I thought the project went well. Construction finished ahead of schedule, and I appreciated Contech's expertise and assistance during construction. This particular site worked well for a three pipe solution which ended up saving the county quite a bit of money (in excess of \$100,000)."