

Snap-Tite Provides Solution for Sloped Culvert

Coulee City, Washington

The Problem

Many culverts in the United States were installed 40 to 50 years ago and now have exceeded their design life and need repair. In this case, a 60-inch reinforced concrete culvert had started to fail. The Washington State DOT (WSDOT) feared that the road might collapse if the culvert was not repaired in a timely manner. Shutting down and digging up the road, thus causing traffic delays, to fix the problem was not an option. Also, the surrounding environment was not to be disturbed.

The Solution

Snap-Tite representatives Grey Langemo and Bob Boyes worked with WSDOT to help them find the best and most cost effective solution to their problem of a deteriorated culvert located under Highway 2 at the Grant County line near Coulee City, Washington. Snap-Tite proved to be the solution that answered all of their troubles.



Just prior to the securing of the grout tubes.



A nose cone coming through the pipe.

In addition to ensuring no disruption to the surrounding environment, the culvert to be rehabbed had elevation differences. The culvert starts off at a three percent grade and transitions to a 13 percent grade. There was approximately 18 feet of elevation difference between the inlet and the outlet and about 80 feet of ground cover over the culvert. The inlet was not accessible at all and the outlet accessibility was limited with a steep drop off.

The Snap-Tite team worked with Jay Christianson in Hydraulics and Dave Toften, Region Hydraulics Engineer, to complete this project. Bob Romine was the Region Project Engineer and Mike Roy was the Primary Inspector for WSDOT on this project. The team decided to line the culvert with 54-inch Snap-Tite.

Selland Construction was the general contractor on the project, with Brian Munson as the project



The Snap-Tite pipe during installation.

manager and Paul Armstrong as the site superintendent. It was a true team effort to complete this complicated project.

“I was impressed with how easily the pipe snapped together,” said Roy. “This project was much more difficult than anticipated but working with Paul Armstrong (Selland Construction) and Grey Langemo (Snap-Tite Representative) we were able to put our heads together to overcome the obstacles we encountered and complete the job successfully.”

The high-density polyethylene (HDPE) Snap-Tite® pipe has a patented male/female machining at each end of the pipe sections. The machined sections are ‘snapped’ together, piece-by-piece, and pushed into the full length of an existing pipe. Any annular space and voids between the old culvert and new liner are filled in with grout. The pipe liner is available in lengths from two feet to 132 feet. Snap-Tite® also meets American Association of State Highway and Transportation Officials (AASHTO) Standard M326 for rehabilitating culverts.

The Installation

The 276 feet of 54-inch Snap-Tite lining system was installed using 24-foot lay lengths. It incorporated a bull nose end as the first piece

in order to get through a portion of the pipe that was at an angle at approx. 165 feet from the inlet and 100 feet from the outlet. Each lining section weighed 2,880 pounds with a total weight of 33,000 pounds. Because of the very limited access, the liner was installed from the outlet end and pushed back uphill. As a result of the difference in elevation from the inlet end to the outlet end of 18 feet, it was necessary to install the grout into four individual and separate lifts.

About Snap-Tite®

- Meets AASHTO Standard M326 for rehabilitating culverts.
- Offers flexibility for insertion into misaligned concrete or rusted deteriorated corrugated metal pipe.
- Offers a safe method for installers and doesn't require traffic control.
- Tough but lightweight, the Snap-Tite joint makes a solid water-tight mechanical connection that can be pushed or pulled. Due to the Snap-Tite® system's installation flexibility and cost-effectiveness, it continues to provide successful results for many projects throughout the U.S. and internationally.

For more information on Snap-Tite® please visit www.culvert-rehab.com.



SnapTite®

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