

## ARIZONA DEPARTMENT OF TRANSPORTATION USES SNAP-TITE FOR CULVERT REHABILITATION

Snap-Tite strives to help engineers, contractors and other customers choose the best solution for their project. All information in this field report is made available to assist the customer in reducing cost and minimizing future maintenance costs.

In addition, this field report will help the task of communicating that these are solutions in use today with a proven track record of installation and performance.



*The outside of the culvert to be rehabilitated.*

### **Abstract**

The Yuma District of the Arizona Department of Transportation (ADOT) encompasses a large area of Arizona. It is bordered by California on the west and Mexico to the south. The district maintains over 3,000 total miles of highway and interstate. State plans to widen several highways led ADOT to consider the Snap-Tite joining system as a pilot project to rehabilitate three culverts in evaluation of the procedure.



*With 8" – 10" of sediment inside the 30" CMP, the culvert had to be cleaned prior to installation of 24" Snap-Tite pipe.*

### **Introduction**

The Yuma District of the Arizona Department of Transportation's vision statement says it is committed to developing its employees while empowering them to provide the best solutions for their customers. A recent culvert rehabilitation utilizing the patented Snap-Tite joining process provided the district with the perfect opportunity to do just that.

Michael Jones, P.E. Maintenance Engineer with the Yuma District was so intrigued by the simplicity and cost savings associated with Snap-Tite that he arranged for a total of 12 people from each of the three maintenance organizations within the district to work on the project and be trained in the procedure. What they discovered during the process was so appealing that they filmed the operation for use in educating the seven other districts of the state.

### **Project**

The Yuma District had previously slip lined a deteriorating culvert with HDPE and were confident

with the material and procedure. It allowed for a process that eliminated excavation, caused no disturbance to the roadway and prevented any damage to the environment. And by replacing the host pipe with HDPE an unlimited life expectancy could be achieved, thus saving them a lot of money in the future.

The Snap-Tite lining system is joined together with a machined joint on the ends of the pipe with the inclusion of a gasket. It is simply snapped together. The resulting joint is water-tight with an inside and outside diameter the same as that of the pipe. This means there will be no flow restrictions or coupling hang-ups during the installation process.

With the promise of full technical support during the planning and execution of the project the Yuma District purchased the pipe and successfully completed rehabilitation of the three corrugated metal pipe (CMP) culverts. Two 30-inch CMPs and one 24-inch CMP, for a total of 221 feet.

Due to limited right-of-way space alongside the road, Snap-Tite provided 10-foot lengths of the pipe. This allowed for easy installation of the pipe with minimal disturbance to adjacent property. Mike Wedel with Hydro-Watt, Snap-Tite's manufacturer's representative for Arizona, provided 171



*The Snap-Tite pieces mechanically connect with chains & come-a-longs.*

feet of 24-inch and 90 feet of 20-inch Snap-Tite pipe. Wedel also provided the grout used to fill the annular space between the two pipes as well as fill the space left by the soil that has eroded away. Since ADOT owns their own backhoe, chains and cables needed during this process the cost for their project was \$20,000.

Snap-Tite provided culvert site evaluations, full technical support and training for the Yuma District employees. They also worked with a local ready-mix company and the admixture supplier to design the grout mix used for the project.

"The Yuma District saved a substantial amount of money by completing the work themselves," said Tim Hessler, Sales Representative for Snap-Tite. "The Snap-Tite system is simple to learn and now the Yuma District can take the knowledge they've gained from this pilot project and show the entire state of Arizona a better way to fix culverts across the state."



*Equipment used to align pipe.*



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