# POLYMER COMPACTION GROUTING

Metal Culvert Overview Flowchart
Structural Defects Flowchart (Metal)
Bedding Deficiencies Flowchart (Metal)
Hydraulic Capacity Flowchart (Metal)

## 1. DESCRIPTION

In this method of soil stabilization, high-density hydro-insensitive polymer is injected into the soil where it expands from its original liquid volume reaching its strength within a short time to densify and stabilize low-density compressible soils, and fill any voids. To make injections, multiple holes (0.5 in. to 0.75 in. in diameter) are drilled to the various effected strata levels using specific injection grid patterns engineered to maximize the support. The method can be applied from the culvert structure (Figure 1) or from the surface to a depth up to 30 ft (Uretek USA, 2005; Uretek USA, 2008b).

Figure 1. Injecting polymer material through holes drilled in the base of the culvert (Uretek USA, 2008a)

Alabama DOT addressed a soil settlement problem with a 3-barrel culvert underneath a busy divided highway in Alabama in August 2002. The polymer material was injected using a multi-point pattern spread evenly across each of the culvert barrels. The two barrels directly above the deepest section of the soil void accepted the largest amount of grout (Uretek USA, 2008a).

## 2. REFERENCES

Uretek USA, 2005. "The Uretek Method for Roadways and Transportation Assets," white paper on web, http://www.uretekusa.com/resources/index.php, accessed on 06/10/09, Uretek USA Inc, Tomball, TX, 12p.

Uretek USA, 2008a. Case Study #2 The URETEK Deep Injection Process on a Public Culvert, case histories on web, www.uretekusa.com/pdfs/URETEK-USA-ALCulvert.pdf, accessed on 04/15/08, URETEK U.S.A. Inc, Tomball, TX

Uretek USA, 2008b. *URETEK Deep Injection Process*, product information on web, http://www.uretekusa.com/methods/di.php, accessed on 04/15/08, URETEK U.S.A. Inc, Tomball, TX.

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