

Water Authority Completes Culvert Rehab

Lake City, Ga., is part of the Atlanta metro area. In recent years, new construction has overgrown existing underground assets, making rehabilitation challenging.

In one case, a 66-in., 20-ft-deep, 220-ft-long corrugated metal pipe (CMP) culvert was failing so dramatically that parking lots and commercial buildings overhead were subsiding noticeably. A three-phase solution was needed to rehabilitate the pipe safely, without significant capacity reduction and without disrupting overhead businesses.

First, 54-in. tunnel liner plates were used to stabilize the culvert structurally. The remaining void between the liner plates and what was left of the existing 66-in. CMP was filled with injected grout. Next, to create a smooth, watertight, structurally sound pipe within the new tunnel liner plates, Utility Asset Management used a trenchless repair technology, developed by AP/M Permaform, called CentriPipe. This is a centrifugally cast concrete pipe technology utilizing a computer-controlled spincaster to spray on thin layers of high-strength cementitious grout as it is pulled through the pipe at precisely calculated speeds.

The process created a new concrete pipe within the new tunnel liner plates. Since both are structurally sound, the

combination is sturdy and will last indefinitely, even while subject to heavy loads overhead.

The failure of the pipe was largely due to extremely unstable soil surrounding the pipe, so to prevent similar problems for the rehabilitated culvert, Clayton County Water Authority (CCWA) stabilized the surrounding soil with cementitious grout, injected until refusal.

After about a year, the completed project is performing well. Terry Moy, CCWA's manager of program management and engineering, said, "Centrifugally cast pipe is proving to be a viable solution. Together with the tunnel plates and grout injection, it was certainly effective for us." **SWS**



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