Pipeline Utilities, of Riviera Beach, Florida, is installing 96-inch diameter reinforced concrete pipe (RCP) culvert at the interchange of I-95 and State Road (SR) 68. Pipeline Utilities is a subcontractor to Ranger Construction Industries (Vecellio Group, Inc.) on the $78.3M project to widen I-95 for an 8.7-mile section from SR 70 to SR 614. Ranger is the prime contractor for the design-build project, which includes team members Wantman Group, Atkins Global, and Cone & Graham.

RCP is being supplied by Rinker Materials Concrete Pipe Division. Project plans specified a 374-foot dual run of 96-inch diameter pipe with an ASTM C 76 Class IV strength classification. Rinker conducted an in-plant hydrostatic test to demonstrate the joint performance to the Florida Department of Transportation (FDOT)4. The in-plant joint test involved externally pressurizing the joint to 13 psi for 10 minutes to ensure no infiltration through the joint per ASTM C 443.

Pipeline Utilities is using four Komatsu hydraulic excavators to install the pipe, which weighs 13.5 tons per joint. A Komatsu PC400LC excavates the trench, a PC600LC installs the pipe, and a PC220LC and a PC200LC backfill along both sides of the trench. A pipe tugger winches the pipe joints together. Superintendent Matthew Craddock manages an efficient crew of six men in the trench and two excavator operators.

Pipeline Utilities developed a handheld compaction device to tamp soil into the haunches of the 96-inch diameter pipe. Soil compaction is the most laborious part of the installation, especially since FDOT specifications require 100 percent standard proctor density up to the roadway subgrade, and 6-inch lifts until one foot above the pipe crown. From one foot above the crown, 12-inch lifts are allowed, but the approximate 30 feet of fill will be 100 percent SPD compacted.

In addition to the 96-inch diameter ASTM C 76 Class IV pipe, Rinker Materials is supplying 15, 18, 24, 36, 48, 60, and 72-inch diameter round ASTM C 76 Class III pipe and 12-inch x 18-inch and 38-inch x 60-inch elliptical ASTM C 507 Class III pipe.

The I-95 interstate freeway from SR 70 to SR 614 widening project started in June 2011 and is expected to be completed in early 2015.

REFERENCES
2. Rinker Materials Concrete Pipe Division website www.rinkerpipe.com/default.shtml
5. Matthew Craddock, of Pipeline Utilities, Inc., contributed to this article.

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- Keyword Search on American Concrete Pipe Association Website (reinforced concrete pipe, joints, culvert, hydrostatic, haunch) www.concrete-pipe.org
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