

# Major Infrastructure Project Includes Pipe Jacking

Relocating over 5,000 feet of 6-inch interceptor.

**I**-40, the heart of Oklahoma City's transportation corridor, has needed work for some time, and work was finally launched with the groundbreaking of the I-40 Crosstown Relocation Project. The new expressway and tree-lined boulevard will provide transportation that is more convenient and efficient for visitors and commuters alike. Planning is also underway in downtown Oklahoma City for the future Bricktown Canal Expansion Project. The revitalization efforts in the historic commercial center will tie the existing waterway to the new festive canal and river walk with their restaurants, entertainment venues, and other attractions.

But before the canal expansion or I-40 construction could begin, utilities had to be relocated. The Sanitary Sewer Project through Bricktown Canal Zones F and G and along portions of SW 5th Street and S Phillips Avenue involves relocating over 5,000 ft of 60-in. interceptor. The low bidder was Urban Contractors, Inc., Okalahoma City.

With project dollars critical, the engineer, owner, and installer cooperated to find the most economical installation methods with the longest life cycle benefit. The pipe supplied by HOBAS Pipe USA ([www.hobas.com](http://www.hobas.com)), has a design life of over 100 years. "Oklahoma City opted to allow fiberglass pipe due to its durability in hazardous environments. In sanitary sewers of this size, the corrosive environment is extremely harmful to most other materials," said Keith B. Angier, P.E., vice president, MacArthur Associated Consultants, Ltd., Oklahoma City, who helped plan the project.

The installation methods specified for the 5,000 ft of pipe, ranging in size

from 18- to 60-in. diameter, included traditional cut and cover as well as trenchless methods. A portion of the 60-in. sanitary sewer pipe was specified for installation with steel encasement either in a trench or by boring.

Urban Contractors proposed an alternate construction method to help reduce costs. Their proposal eliminated the casing, instead installing the cen-



*A 20-ft length of 60-in. diameter HOBAS pipe is lowered into the jacking pit during the Oklahoma City sewer construction.*

trifugally cast, fiberglass reinforced, polymer mortar (CCFRPM) pipes by direct bury and jacking.

Urban Contractors had evaluated the performance of CCFRPM pipes in rights-of-way and under live load conditions. Many previous projects utilized CCFRPM under roadways, railways,

and even directly under live runways. Oklahoma City, ODOT, Union Pacific Railroad, and the Burlington Northern Santa Fe Railroad accepted the installation proposal.

The manufacturer provided the 540-ton CCFRPM jacking pipes. Although most of the project was traditional cut and cover, several canal and railroad crossings required jacking. The short jacking runs ranged in length from 140 to 470 ft. "This was the first jacking project we undertook. We bought the machine from Akkerman Inc. [[www.akkerman.com](http://www.akkerman.com)] and visited a site where the equipment was being used, and we tried it ourselves" explained Doug Mowdy, project superintendent with Urban Contractors. "Most of the jacking loads were low, in the 200-ton range, but on one, steering caused the loads to get up to 400 tons. This was still within the capacity of the pipe.

"Selection of the pipe was based on its strength as a jacking pipe as well as the tight-sealing joints. Jacking under the canal, we were in wet conditions and the pipe and joints performed great." With the project now complete, all parties involved are pleased with the outcome.

"We feel that we have a very successful project. We were very pleased with the technical support provided by the engineers and staff at HOBAS," said Angier.

The utility relocation project was completed early in August. The project has been virtually "flawless," according to Crystal Kowalik, P.E., civil engineer with Oklahoma City.

The experience was so positive that since this project was completed, Urban has bought HOBAS for two new projects in Oklahoma using approximately 15,000 ft of 18- to 48-in. CCFRPM pipe. **GE**