



# Pipeline



## HOBAS CCFRPM in Cleveland

### CONTENTS

- 3 | Product Profile  
Longest Life in Sanitary Sewers**
- 4 | Quick Response in  
Baton Rouge**
- 6 | HOBAS Pipe at Suffolk  
Downs**

**CONTACT** HOBAS PIPE USA  
[www.hobaspipe.com](http://www.hobaspipe.com)  
[info@hobaspipe.com](mailto:info@hobaspipe.com)  
 tel.: (281) 821-2200

➤ Since it was created in 1972, the Northeast Ohio Regional Sewer District (NEORS) has planned, designed, constructed, operated and maintained over \$1.8 billion of facilities to solve regional problems associated with sanitary and combined sewers in the greater Cleveland Metropolitan Area. Like most municipalities, they face the continuing challenge of expanding and maintaining their infrastructures. They selected fiberglass pipe and utilized tunneling for two recent projects.

Triad Engineering and Contracting of Walton Hills, a Cleveland suburb, installed HOBAS centrifugally cast, fiberglass reinforced, polymer mortar (CCFRPM) pipe on two separate projects for NEORS. The two contracts have an estimated construction cost of approximately \$10 million. To finance the projects, NEORS received a low interest

construction loan from the Ohio EPA Water Pollution Control Fund.

Named for the streets where it is located, the Bryden-Farnsleigh Intercommunity Relief Sewer (BFRS) is one of 14 such sewer projects constructed by NEORS. Its capacity is necessary to eliminate sewer backups and basement flooding in the area. The BFRS system includes 10,680 feet of 8-inch to 36-inch diameter pipe. Of this, about 2,300 feet was constructed by tunneling methods and the remainder by open cut.

Mill Creek is a scenic attraction in Cleveland and the E. 90th Street Relief Sewer project (MCSO-4) is designed to reduce the number of combined sewer overflows to its tributaries. To do this, the project intercepts a portion of the flow at

Continued on page 2



# HOBAS

## HOBAS CCFRPM IN CLEVELAND

Continued from page 1

the regulator manhole on E. 88th Street and carries it to the Mill Creek Storage Tunnel on E. 90th Street.

This project consists of approximately 3,150 feet of 36-inch diameter sewer. Depths are mainly 35 to 70 feet for most of the project but are as shallow as 10 feet at the north end. The underground installation was by tunneling. Surface work included only access shafts for the launching and receiving pits and a new regulator manhole.

Clifford J. Kassouf, president of Triad, offered the following comments on the BFRS project, "This project had three different challenges. The initial parts were open cut through a tight, older residential street, which then led onto a major roadway.

"Part of this stage involved the installation of a triple sewer, which included the new relief sewer and the replacement of the local storm and sanitary sewer. The final phase was the tunnel installation. This was done with our Akkerman tunnel and pipe jacking equipment. The tunnel was excavated in silty clay. Pipe jacking lengths ranged from 460 to 700 feet."

The original project specifications called for a 36-inch diameter pipe for the tunneling portions of the projects, but allowed the opportunity to upsize to a maximum diameter of 48-inches. Triad chose the upsize option and used their Akkerman machines, a 48-inch TBM with

49.5-inch bore and an SP400 Jacking System.

Two pipe materials alternates were allowed for the tunnel portion: RCP and CCFRPM. Triad chose HOBAS CCFRPM because it fit the tunneling machine. Their confidence in the product confirmed the choice.

The ground conditions on the two installations were varied. "BFRS was in a geologic area that was predominantly stiff silty clay," said Tom Shively, construction supervisor with NEORS D for the BFRS.

MCSO-4 construction supervisor, Russ Wahalya, noted, "Our geology was quite different from BFRS. This project was designed to be mined in predominantly soft shale, but Triad encountered sandstone strata that dipped into the tunnel zone."

In spite of the mixed geologic conditions, all the drives were successful and the pipe performed well. All drives were completed without a single failure or joint leak.

The HOBAS CCFRPM pipe was specified with PVC bushings to be used for bentonite lubrication when necessary. These bushings were not always needed due to the soil conditions and degree of over cut. The same PVC bushings could be utilized when grouting the residual annular space with either bentonite or grout. "On the BFRS project, the annulus was grouted but it wasn't necessary on the MCSO-4 project. The pipe performed great and we were pleased with the performance," said Wahalya.

"In spite of the challenges on BFRS, this project was completed ahead of schedule," said Kassouf. Testing for infiltration was done after the pipe was installed and none was found in either the pipe wall or at the joints.

Shively had experience with HOBAS on a previous tunnel project in the Cleveland area. His experience with the CCFRPM pipe was also positive on BFRS. "The project went very well. The only problems we had during mining were related to the geology. This didn't affect the pipe's



JACKING RUNS RANGED FROM 460 TO 700 FEET FOR THE 36-INCH PIPE.

ability to perform though and all of the jacking runs were completed successfully. The quality of the pipe I observed was excellent," said Shively.

"The job is now substantially complete with only a small amount of surface restoration to be performed. On December 7, 2006, the system became fully functional, accepting flow," confirmed Wahlay.



A 10-FOOT SECTION OF HOBAS PIPE AWAITS INSTALLATION.



ANOTHER SECTION OF HOBAS PIPE IS INSTALLED AT THE BOTTOM OF A 70-FOOT PIT, ONE OF THE DEEPEST USED DURING THE CLEVELAND PROJECT.

## PRODUCT PROFILE

# HOBAS Pipes – Longest Life in Sanitary Sewers

### Introduction

Many sanitary sewer flows become septic and develop hydrogen sulfide gas which may eventually be converted to sulfuric acid. The acid accumulates in the crown of the pipes, many times generating pH values of less than one. This highly corrosive condition attacks many pipe materials including Portland cement concrete, steel, ductile iron and its mortar coatings.

Fortunately, there are pipe materials that are essentially inert to this environment including HOBAS CCFRPM pipes. These are a glass fiber reinforced thermosetting resin product manufactured by centrifugal casting. They are so resistant to septic sewer service that their life is nearly infinite.

### Product

HOBAS pipes are constructed with high quality raw materials and are precisely combined during the centrifugal casting manufacturing process to create a dense, void-free, polymer mortar wall composite structure. This combination of superior materials and sophisticated manufacturing results in a product that possesses superior inherent corrosion resistance. HOBAS pipes have been in service around the world since 1960 (approaching 50 years) and have exhibited an outstanding corrosion record in sanitary sewer applications.

### Capabilities Determination

To evaluate the projected life of these pipes, a test was developed over 40 years ago to simulate the in-service conditions of bending stress with sulfuric acid exposure known as strain corrosion. The



HOBAS PIPE USA PIPES ARE ACID TESTED PER ASTM REQUIREMENTS FOR SANITARY SEWERS.

accelerated aging test, ASTM D3681, requires testing of at least 18 specimens with various, very high deflections, some for durations of over 10,000 hours. The test medium is 1 N sulfuric acid (pH  $\leq$  0.7) per ASTM D3262. The results are analyzed by log-log linear least squares regression and extrapolated to 50 years to determine the pipes' long-term performance.

### Performance

Based on results of acid strain corrosion tests, HOBAS Pipe USA standard polymer mortar pipes' performance exceeds the ASTM D3262 requirements for chemical resistance by over 35%! In fact, the corrosion resistance is so superior that the ASTM analysis of the strain corrosion test data predicts a life in the billions of years for the average pipe installed with

5% deflection in continuous service of 1 N sulfuric acid.

The additional factor of safety provides a level of comfort not found with many other products. HOBAS provides superior performance in many areas aside from corrosive environments including abrasion resistance and joint sealing capability. This high level of performance equates to years of successful installations and a field-proven track record.

### Conclusion

With past performance being the best indicator for the likelihood of future success, to reap the many cost saving benefits of superior, inherent corrosion resistance, specify and install centrifugal cast fiberglass reinforced polymer mortar pipes from HOBAS Pipe USA.

# Quick Response in Baton Rouge

In the capital of Louisiana, disaster seemed imminent. A hurricane? No, but a major supermarket parking lot was collapsing and several utility lines were in jeopardy. On the weekend of January 5, 2007, a sinkhole formed in Baton Rouge along the shoulder of Essen Lane, washing out the area beneath the Albertson's parking lot. A nearby Entergy power pole was in danger. On Sunday evening, observers said that the hole was getting bigger and soon became an emergency repair operation for the Parish of East Baton Rouge Department of Public Works (DPW).

To complicate the repairs, overhead electrical, phone and cable lines had to be rerouted so construction equipment could

be brought in and maneuvered safely on and around the site. Buried utilities including water, fiber optic, telephone and cable lines also created a tight working space.

But fast response by the contractors, government agencies and HOBAS prevented catastrophe. Contractor Allen & LeBlanc Inc was contacted on Monday, January 8, to excavate the shoulder between the Essen Lane roadway and the edge of the Albertson's asphalt parking lot. They found that the failure was apparently caused by the collapse of the top of a 54-inch RCP gravity sewer main located approximately 25 feet below the surface. The Entergy crews also arrived on Monday to remove the pole and reroute the electric lines.

DPW has an on-going project with engineering and construction firm CH2M HILL for a parish-wide sanitary sewer overflow program, so they asked for a representative from the firm to visit the project site in order to establish subsurface information because the affected line is scheduled for upgrading during the program. Jeff Duplantis, senior project manager with CH2M HILL, met with David Ratcliff from DPW at the project site on that same Monday. Ratcliff quickly contacted several local pipe suppliers in an attempt to locate enough pipe joints to repair the collapsed line adequately.

Continued on page 5



A SINKHOLE FORMED IN BATON ROUGE ALONG THE SHOULDER OF ESSEN LANE.



A SLING ATTACHED TO AN EXCAVATOR EASILY HANDLED A LIGHT-WEIGHT 20-FOOT JOINT OF HOBAS 48-INCH CCFRPM SLIPLINING PIPE.

## QUICK RESPONSE IN BATON ROUGE

Continued from page 4

Responding to the emergency quickly, by Tuesday, representatives from DPW, CH2M HILL, HOBAS Pipe, Allen & LeBlanc and the local utility companies were all at the project site to develop a plan of action. Up to that point, only limited work had been done including the closing the 15-inch potable water main, which had been exposed during the excavation of the sewer main. The water company had installed valves in the water line upstream and downstream of the gravity sewer break and removed two joints within the excavation.

They broke the operation down into five phases: 1. Excavate the Sinkhole, 2. Relocate the Utilities, 3. Locate Repair Equipment and Materials, 4. Complete Sliplining Operations and 5. Cleanup.

The existing sewer line was a 54-inch RCP gravity sewer main. DPW's intent was to repair the failed section with fiberglass sliplining pipe installed between the upstream and downstream manholes. The lead times were too long for the several local fiberglass manufacturers and suppliers they had contacted. They had to find one that could provide the required pipe at a good price in a short time.

Denny Kennard, area manager for HOBAS Pipe USA, Houston, Texas, was able to promise delivery of the necessary pipe and couplings within a week after the order was placed. Duplantis of CH2M Hill was familiar with HOBAS so DPW gave them the order. HOBAS pipe is centrifugally cast, fiberglass-reinforced, polymer mortar pipe (CCFRPM). The proposed 48-inch HOBAS pipe has an O.D. of 51.9 inches at the bell and 50.8 inches at the pipe wall.

Rob Epstein, HOBAS customer service representative, explained the quick delivery, "We have a flexible manufacturing process that allowed us to shift production from a job that was ahead of schedule to accommodate this emergency situation. We have the ability to manufacture many pipe sizes for many different projects at the same time, giving us tremendous flexibility. We do not have any pipe in the yard for stock. Everything is custom-made for an order."

The plan was to use the HOBAS CCFRPM pipe to slipline the failed sewer from the failure point, which was located just outside of the upstream manhole, to the downstream manhole where quality connections could be made to the existing system.

Equipment was brought in to excavate the sinkhole between the street and parking lot. DPW realized that the depth of the repair made it necessary to install some form of trench support. Within the first few days of working on the project, contractor Allen & LeBlanc installed temporary sheeting to stabilize the excavation. However, before the sliplining activities were started, they located the necessary repair equipment and materials and installed a trench box system. Then, a working pit was excavated in order to restore flow in the gravity main.

The project presented many challenges. The sewer main was extremely close to

the adjacent street and the utility lines within the repair zone were very highly congested, so progress was slow. Allen & LeBlanc worked closely with DPW and the local utility companies to insure that their utilities would be relocated appropriately with minimal service disruptions.

All utilities were relocated and all repair materials and equipment were on site by February 2, 2007. At that time, Allen & LeBlanc set up the necessary equipment to maneuver the 20-foot joints of CCFRPM pipe into the working pit and install them. Once sliplining operations began, Allen & LeBlanc worked into the evening hours to ensure that the project was completed.

Following the sliplining operations, they grouted the liner pipe to the existing sewer system at both ends to insure a tight seal. Backfill of the system was performed to DPW standards and the site was dressed to pre-construction conditions.



ALLEN & LEBLANC CREW MEMBERS SLIP THE 48-INCH HOBAS CCFRPM PIPE INTO POSITION WHILE MAINTAINING FLOW.

## HOBAS Pipe at Suffolk Downs – Fighting Corrosion to Preserve Historic Racetrack

➤ The thoroughbreds race at Suffolk Downs in East Boston, Mass., just a mile from Logan Airport. The live horseracing and simulcasting make it a popular area destination. When management discovered that site drainage work was required, they were certain that the construction would have to be completed quickly. The track has been in operation since 1935, and would have to be ready for opening day of the live racing season and simulcast of the Kentucky Derby on May 5, 2007.

The Department of Conservation and Recreation’s Planning and Engineering Division funded and oversaw the contract for the \$7 million project, Sales Creek Culvert Replacement, Drainage Restoration and Dredging. The general contractor, Revoli Construction Co., Inc., of North Reading, Mass. and its subcontractors, completed the work. Hatch Mott MacDonald is the engineering consultant.

The scope of the work included installation of approximately 2,000 feet of 96-inch diameter centrifugally cast, fiberglass reinforced, polymer mortar (CCFRPM) pipe supplied by HOBAS Pipe USA of Houston, Texas. The pipe was placed as twin culverts at three different locations around the Suffolk Downs facility in Revere and East Boston. Two of the lines traveled directly under the racetrack surface with the third running under the main entrance road.

Steve Pini, a 36-year employee of Suffolk Downs and superintendent for the racetrack, was pleased with the project outcome. He said, “The pipe went together well, and was embedded with flowable fill and backfilled with select compacted materials to grade. The surface work and track restoration began after Revoli reached grade.”

Phase one included restoring the



AT SUFFOLK DOWNS THE HOBAS CCFRPM PIPE IS INSTALLED BY DIRECT BURY IN A TRICKY TWIN BARREL CONFIGURATION.

hydraulic capacity of the drainage system at the two upper-most locations to restore hydraulic capacity and remove blockages. Phase two included replacing the downstream twin 60-inch diameter HDPE pipes with 96-inch CCFRPM pipes, as well as channel and lagoon dredging. Pini said, “The 60-inch HDPE pipes were a temporary emergency repair done a few years ago after the collapse of the existing 108-inch corrugated line. The corrosion from the soils and tidal location cut through the corrugated pipe like a razor blade. We knew we would come back with a permanent fix.”

CCFRPM was the only material specified for the storm drainage improvement piping because of its resistance to corrosion, hydraulic capacity and the abrasion resistance. Detailed material specification also included specifics on the interior surface

of the CCFRPM pipe requiring a 50 percent elongation on the resin used. This was required to achieve the necessary abrasion resistance. Proof of prior performance of the pipe product was required. A five-year history and a list of 500,000 feet of installed pipe were required with the submittal package. Since, timing was critical the project specifications included a guaranteed pipe delivery time frame.

“Work can be performed only in the off-season for the track between December 1, and March 1,” said Shawqi Alsarabi, president of Revoli Construction Company. “March 1, 2006 was the completion date for phase one, and March 1, 2007 was the completion date for phase two.” The tight schedule was caused by the fact that work involves removing and

Continued on page 7

## HOBAS AT SUFFOLK DOWNS

Continued from page 6



THE 21-FOOT TRENCH WIDTH AT SUFFOLK DOWNS ALLOWED FOR ONLY A TWO-FOOT CLEAR SPACE BETWEEN THE HOBAS PIPES AND A ONE-FOOT CLEAR SPACE TO THE TRENCH WALL.

replacing a building and two sections of Suffolk Downs track.

HOBAS worked with the contractor and designer to provide installation recommendations for the tricky twin barrel installation submerged in flowable fill by direct bury. The 21-foot trench width allowed for only a two-foot clear space between pipes and a 1½-foot clear space to the trench wall. The native soil material at the 12-foot cover depth had a constrained modulus of only 700 psi (SPT N=2 blows per foot minimum). To combat the properties of the poor native materials and to minimize settlement, a flowable fill was specified for the embedment material. The fill was installed with strength allowed to develop before the cover material was placed. “We worked in a tight trench to minimize the amount of soil removed and to save on flowable fill,” said Alsarabi. “The 72-psi pipe stiffness provided by HOBAS performed well even in difficult conditions.”

Much of the work on the project was performed in a storm water drainage channel

and is subject to storm conditions and fluctuations in water levels. The contractor was required to provide a means to work in the presence of water in the channel, storm events and tidal impacts.

Given the geography of the area, installers constantly battled the storm surge. “We had (an obstacle with) the tide gates during heavy rain and the high tide which made our bypass ineffective during those events especially during the second phase,” said Alsarabi. Even given the difficult conditions and quick timing, he added, “The pipe performed well.” This was his testament to the ease of installation, engineering and customer support produced by HOBAS. “This was the first time Revoli installed HOBAS pipe and the first time we installed this size pipe.”

Speaking for Suffolk Downs Pini said, “With the project completed, we are looking forward to opening day for the 2007 live racing season on May 5.”



THE HOBAS PIPE WAS EMBEDDED IN FLOWABLE FILL AND BACK-FILLED TO GRADE WITH SELECT COMPACTED MATERIALS.



SNOW ON THE GROUND LETS US KNOW THAT IT'S OFF-SEASON AT SUFFOLK DOWNS.



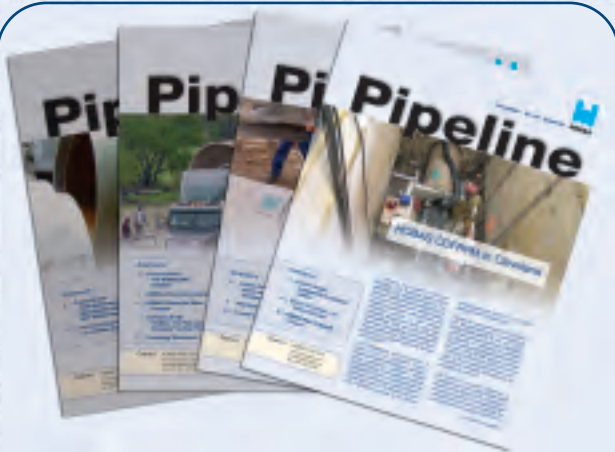
**HOBAS PIPE USA**

1413 E. Richey Road  
Houston, Texas 77073

Tel: (281) 821-2200

PRESORTED  
STANDARD  
U.S. POSTAGE  
**PAID**  
G3 DIRECT

**ADDRESS SERVICE REQUESTED**



## Want to receive our Newsletter?

Did you receive this newsletter from a friend or colleague and want to be added to our newsletter list? Simply email your name, company and address to [kpaggioli@hobaspipe.com](mailto:kpaggioli@hobaspipe.com) and we will add you to future mailings.

## Visit HOBAS at These Upcoming Trade Shows

**APWA**

San Antonio, TX                      September                      9 - 12

**WEFTEC 2007**

San Diego, CA                      October                      15 - 17

**UCT 2008**

Atlanta, GA                      January                      15 - 17

