REMAINING PNC FUNDED DEVONSHIRE VILLAGE WASTWATER COLLECTION REHABILITATION PROJECTS 2012

PROJECT DESCRIPTION	Per	Unit	Quantity	In-house CPU	Total Cost	Contracted CPU	Total Cost	NOTES
Service Reconnection and Entry Cleanout Install								
Mobilization/Demobilization	1	Q	1.00	$ 1,265.00	$ 1,265.00	$ 1,265.00	$ 1,265.00	
Excavate and install 84 - 6" service entry clean-outs *	6	ft	504.00	$ 105.00	$ 52,920.00	$ 105.00	$ 52,920.00	
Reconnect service lateral to public system and home^^	1	Q	84.00	$ 275.00	$ 23,100.00	$ 275.00	$ 23,100.00	
Estimated labor cost (1 CCTV operator, 1 SW) Inspector for Cont only	8	hr	640.00	$ 27.69	$ 17,721.60	$ 88.00	$ 28,160.00	
Install 84 - 6" vertical rises *	10	ft	840.00	$ 29.00	$ 24,360.00	$ 29.00	$ 24,360.00	
SUB TOTAL EXCAVATION					$ 119,366.60		$ 129,805.00	
			-					
Cure-in-place Lateral lining 84 - 6" Services								
Perma-Lateral lining material/Pull tape/C-tube/Resin A, B	32	ft	2,688.00	$ 22.47	$ 60,399.36	$ 75.00	$ 201,600.00	Charges as high as $250 per ft
Estimated labor cost (in-house 4 man crew 60 days)** avg	8	hr	1,920.00	$ 27.69	$ 53,164.80	$ 88.00	$ 42,240.00	
Perma-Liner Steam Cure System	1	Q	1.00	$ 40,600.00	$ 40,600.00			
Perma-Lateral shipping (7 total)	1	Q	1.00	$ 2,000.00	$ 2,000.00			
Perma-Lateral Inversion Equipment	1	Q	1.00	$ 21,000.00	$ 21,000.00			
Purchase Perma-Lateral Inversion turn-key trailor unit	1	Q	1.00	$ 50,000.00	$ 50,000.00			
SUB TOTAL CURED-IN-PLACE LATERALS					$ 227,164.16		$ 243,840.00	
								SAVINGS
Total entry clean-out and lining cost					$ 346,530.76		$ 373,645.00	$ 27,114.24
Net expense less equipment asset retension					$ 234,930.76		$ 373,645.00	$ 138,714.24
Net expense less in-house labor cost and asset retension					$ 164,044.36		$ 373,645.00	$ 209,600.64
Cure-in-place 8" Main Lining								
Perma-Liner Impregnated tube or Industry standard for CP	1	ft	5,100.00	$ 18.66	$ 95,166.00	$ 50.00	$ 255,000.00	
Perma-Liner DryTube for segment entry	1	ft	300.00	$ 5.74	$ 1,722.00			
Estimated labor cost (in-house 4 man crew 40 days add 1-CL)**	8	hr	1,280.00	$ 27.69	$ 35,443.20	$ 88.00	$ 28,160.00	
Purchase Perma-Liner Top Gun portable Inversion System (+Viper)	1	Q	1.00	$ 49,000.00	$ 49,000.00			
Air-compressor rental++ PO	1.2	Mo	1.20	$ 1,100.00	$ 1,320.00			
Perma-liner refrigerated delievery charge	1	Q	2.00	$ 3,500.00	$ 7,000.00			
Refrigerated truck rental - Local dealer++ PO	1.2	Dy	40.00	$ 200.00	$ 8,000.00			
Ridgid - SeeSnake Plus Lateral Camera Equipment++ PO	1	Q	1.00	$ 8,000.00	$ 8,000.00			
Lateral Reinstatement Equipment (service side)++ PO	1	Q	1.00	$ 5,000.00	$ 5,000.00			
Misellaneous Equipment (LED light, software, equipment)++ PO	1	Q	1.00	$ 1,500.00	$ 1,500.00			
Restore lateral connections - Reinstatement (main final cut)	1	Q	84.00	$ 25,200.00	$ 25,200.00			
SUB TOTAL CURED-IN-PLACE MAINS					$ 237,351.20		$ 283,160.00	
								SAVINGS
Total Cure-in-place 8" mainline					$ 237,351.20		$ 283,160.00	$ 45,808.80
Net expense less equipment asset retension					$ 173,851.20		$ 283,160.00	$ 109,308.80
Net expense less in-house labor cost and asset retension					$ 138,408.00		$ 283,160.00	$ 144,752.00
								TOTAL SAVINGS
TOTAL COST FOR PROJECT COMPLETION					$ 583,881.96		$ 656,805.00	$ 72,923.04
TOTAL EXPENDITURE LESS MUNICIPAL LABOR					$ 477,552.36	<<	$ 656,805.00	$ 179,252.64
TOTAL EXPENDITURE LESS MUNICIPAL LABOR AND ASSET RETENTION					$ 229,529.32		$ 656,805.00	$ 427,275.68
TOTAL EQUIPMENT RETENTION VALUE					$ 175,100.00			
ANTICIPATED BID VALUE - PERMA-LINER					$ 326,887.36			
ANTICIPATED BID VALUE - REINSTATEMENT CONTRACTOR					$ 25,200.00			

Note:
**Excavation and install 84 - 6" services will be completed in accordance with BTMA lateral contract 12-1*
items #1 6" horizontal pipe install, and item #7 6" vertical pipe install
^^ Service connection item #10 $1,100.00 each/4 = $275.00

***Contractor install will require Inspector on-site (240 hr)*
***Labor Cost is using Municipal Staff - est 1 HEO, 1 LEO, 2 SW*
++ Direct Cost to BTMA - Part of the project out-of-pocket

Reprinted with permission from Municipal Sewer & Water™ / August 2012 / © 2012, COLE Publishing Inc., P.O. Box 220, Three Lakes, WI 54562 / 800-257-7222 / www.mswmag.com

MUNICIPAL SEWER & WATER™
FOR SANITARY, STORM AND WATER SYSTEM MAIN... PROFESSIONALS
August 2012
...w.mswmag.com

The Bethlehem Township certified Perma-Liner installers include, from left, field technician Martin Comer, CCTV/CIPP head operator John Bartholomew, director Steve Hunsberger, crew leader Jim Beahm, and field technician Will Reichard. (Photography by John Bartholomew)

FOCUS: SEWER

RIGHT FROM THE START

Establishing an in-house CIPP program solves township's sewer system problems and saves ratepayers money

By Peter Kenter

Bethlehem Township is fortunate to have a relatively young sewer collection system, with most of the lines built during a federally funded construction boom during the 1970s. The one sore spot in the township's system is a root-infested subdivision with vitrified clay collection lines. By building an in-house capacity for cured-in-place pipe (CIPP) lining, Bethlehem Township Municipal Authority (BTMA) will not only add valuable personnel skills and equipment to its inventory, it will save the township a lot of money.

The township is located about a 90-minute drive north of Philadelphia. The system serves Bethlehem Township and some additional areas, including adjoining sections of Palmer, Hanover and Lower Nazarene townships. Steve Hunsberger is director of the Physical Plant and Information Services Division with BTMA, and director of the authority, a non-compensated position. He has worked with BTMA for 36 years and been in charge of the wastewater collection system since 1988.

"The oldest sewer line in the system was built in 1978 and in the world of sewers, that's a relatively young system," says Hunsberger. "The majority of this system is made of transite cement-asbestos pipe and when we need to replace any section, we do it with SDR-35 PVC."

The exception is Devonshire Village, a subdivision built by developers between 1978 and 1980. While development homes were built with on-lot disposal systems, an agreement with the township required the developers to build a capped sewer system that could eventually be tied into future conveyance lines. The small collection system was designed to serve 84 homes with 5,300 feet of 8-inch mainline and 2,300 feet of 6-inch laterals.

Sewer system unused

"The collection system was built of vitrified clay, probably an example of the last wave of construction of that material," says Hunsberger. "The sewer system just sat there unused for six years and in 1986 we finally reached it with our conveyance system and connected the development. Right from the start, we had problems with heavy root penetration and broken pipe. Street trees were planted along the curbs and their roots just had a field day with the pipe. In some cases, other utilities had been cut right through the

PROFILE:
Bethlehem Township Municipal Authority,
Bethlehem Township, Pa.

ESTABLISHED:
1746

POPULATION SERVED:
22,000

AREA SERVED:
14 square miles

DEPARTMENT STAFF:
9

INFRASTRUCTURE:
123 miles of sewer mains, more than 2,000 manholes, 10 pump stations

ANNUAL DEPARTMENT BUDGET:
$4.5 million

ASSOCIATIONS:
Pennsylvania Municipal Authorities Association

WEBSITE:
www.bethlehemtwp.com/btweb

(continued)