

COMPOSITES TECHNOLOGY

Composites in...

infrastructure

LARGEST NONCIRCULAR CIPP PIPELINE REHABILITATION COMPLETE

Lanzo Lining Services (Deerfield Beach, Fla.) has completed the largest noncircular composite cured-in-place pipe (CIPP) project to date, with the rehab of a triple-barrel sewer overflow outfall pipeline, in Detroit, Mich., using methods described in ASTM F 1216 standard. "Triple-barrel" refers to the fact that three separate rectangular pipelines exist in the same right-of-way. Each pipeline had to be lined separately so that service was not disrupted in the remaining two. "With a total rehabilitation length of 3,600 lineal ft, we are not aware of any larger rehabilitation of this type in the world," reports Fred Tingberg, Lanzo Lining's VP and QA/QC officer.

In the CIPP method, a thermoset resin-saturated, nonwoven felt tube is inserted inside an existing pipe, either by pulling it through or "inverting" it by pushing it through with high-pressure water. The resin then is cured with hot water.

The needle-punched polyester felt tubes (see photo) for this project were supplied by Applied Felts Inc. (Martinsville, Va.). Although tubes are typically pre-impregnated with resin and catalyst offsite and trucked to job sites, the massive scale of this



Source: Lanzo Lining

project made truck transportation impossible due to weight restrictions. Work was done "over the hole," that is, resin was catalyzed and pumped into the tube during installation. To ensure a tight fit within the rectangular host pipe, concrete grout "haunches" (photo at right) had to be installed in pipeline corners to form a more nearly circular inner profile.

Crews worked four weeks of 24-hour shifts in sub-freezing weather, using heated tarp enclosures to keep the felt tubes warm and maintain the polyester resin, supplied by CCP (Cook Composites & Polymers, Kansas City, Mo.), as close as possible to 50°F/10°C, as temperatures dipped to 8°F/-13°C.

Approximately 1 million lb (453.6 metric tonnes) of isophthalic polyester resin were consumed in the effort, according to Robert C. Canon, account manager and logistics coordinator for material distributor Composites One (Arlington Heights, Ill.).

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Our success is due to:

- An emphasis on safety
- Consideration of the community
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- Third party testing of all methods
- A commitment to the environment that is reflected in the eco-friendly materials and technologies we use



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