

VYLON® Solves New Hanover County Sewer Problem



Wilmington, NC skyline the largest city in New Hanover County.

As part of an on-going expansion project, the New Hanover County Water and Sewer District in North Carolina planned construction of the second phase of its county-wide sewer system.

Phase II-A included the construction of 8,000 LF of 30" sewer line. A green spiral-ribbed sewer pipe was chosen for the project. However, the pipe soon failed after it was installed in the ground, which confronted the project team with a series of problems. The utility contractor, Mark H. Johnson of Fremont, North Carolina, needed to quickly replace the failed pipe to keep the project on schedule.

Because of its location on a peninsula (between the Cape Fear River and the Atlantic Ocean) with a high water table, the project represented a major dewatering problem. To quickly and efficiently replace the failed pipe, New Hanover County engineers had to select a durable piping system with exceptionally tight joints to guarantee the elimination of infiltration and exfiltration. The deep burial of the pipe, below the water table, also meant New Hanover County needed a piping system with proven longevity to minimize the high cost of maintenance and repairs. Specifically, they needed a piping system designed for durability, structural integrity, resistance to corrosion, excellent flow rates, and

ease of installation and maintenance. The new pipe had to meet or exceed ASTM F-794 standards according to consulting engineer Roe O'Donnell now with the town of Wake Forest, North Carolina.

To solve these problems, Johnson turned to Lamson Vylon Pipe. Already acquainted with the success of PVC pipe in sewer application, Johnson was ready to test Vylon sewer pipe in a very difficult installation. Having visited Lamson's manufacturing and testing plant in Oklahoma City, Johnson was confident in choosing Vylon to replace 2,600 feet of green spiral-ribbed sewer pipe which suffered from leaking joints and structural problems.



Dewatering the corridor was the first step in solving the failed pipeline problem. Johnson used five 12" pumps in series, moving 21 MGD with a well-pointing system.

Vylon was buried to depths approaching 20 feet of cover. With tidal estuaries and wetland crossing over the pipeline, the hydrostatic loading was comparable to 25 feet below sea level. Because of the depth and wet conditions, crushed stone was placed around the pipe in the sub trench. The stone was shovel sliced in the haunches, the most critical embedment zone for flexible pipe. Closed profile Vylon uses a unique multi-finned compression gasket and was able to meet the "zero-leakage" testing criteria.

Meeting the 5% deflection allowance on this tough project was accomplished by (1) the embedment design, (2) the contractor's installation technique and (3) Vylon's patented hollow core I-beam construction. This I-beam construction allows Vylon to exceed 46 PSI stiffness while providing a double barrier against leakage. Because Environmental Protection Agency (EPA) funds were used on this project, the EPA made

periodic inspections of the installation. They noted that even under these severe conditions, Vylon was leak-free.

The success of this project allowed New Hanover County to move to the next stage of the project. Vylon was chosen to complete phase II-C with 1,200 LF of 24" and 1,000 LF of 21" pipe.

"Clearly, our story is one of success," said Wyatt E. Blanchard, New Hanover County Engineer. "The unique Vylon gasketed bell joint remained bottle-tight and easily met our "zero-leakage" standards. It's closed profile, smooth inner and outer walls continue to provide superior hydraulics," he said.

"In tough times, engineers and end users become more aware of project costs vs. performance and select PVC over clay or concrete because of its cost savings and long-term performance characteristics. The high quality and cost-effectiveness of Vylon is derived from Lamson's product consistency, stringent quality controls, and a commitment to be the major sewer pipe system supplier," adds Blanchard. Vylon will be recommended for all future large diameter projects by New Hanover County.



Wyatt E. Blanchard, New Hanover County Engineer

Lamson has been making quality pipes for more than 30 years, and was the first manufacturer of 18" PVC gasketed sewer pipe. Large diameter Vylon is an extension of the company's proven technology. Produced in 13 feet length sections, Vylon derives its strength from a superior profile wall construction that enables Lamson to produce Vylon in 21" through 48" diameters. All sizes meet and exceed ASTM D - 3212 specifications. The long-term ability of Vylon to meet "zero-leakage" criteria, resist corrosion, provide excellent flow rates and reduce operating and maintenance costs, has solved problems like New Hanover County's across North America.

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