

Edward Howard & Co.

Publications Division
Department of Water & Power
City of Seattle
1000 Cascade Plaza, 4th Floor
Seattle, WA 98101 FAX: 206-462-9429

*King Institute
Pipe Track For Co.*

to PRO Members

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from Dan Stanowick *Day*

copies to Roy Gottesman
Nora Jacobs
Stan Ulchaker

subject Publicity

In one of my recent publicity reports, I referenced the fact that Public Works was planning to publish one of the PVC case histories in our information package. Here's a copy of the article, from the May issue.

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St. Lawrence

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Batavia Breaks Ground with PVC Pressure Pipe

BATAVIA, New York has come a long way since its first municipal sewers were installed in 1903. They were, of course, clay tiled. Unfortunately, the material suffered breakage and leaky joints after installation.

Dennis Larson, Batavia's director of public works and city engineer, explained, "This city is built on a flat bog with an unusually high water table. That, plus the fact that we have numerous hot soil areas (corrosive or aggressive soils), contributed to reduced life spans for some of our force mains. In addition, maintenance costs escalated due to leakage problems on the gravity clay tile lines."

More recently, Batavia included polyvinyl chloride (PVC) pipe in its tendering specifications. PVC is unaffected by corrosion and it is smooth-walled. As such, it offers less resistance to waste buildup, which can dramatically reduce flow capacities. In and around Batavia there are miles of PVC gravity sewer pipes ranging in size from 6 in. to the large 24- and 30-in. diameter mains.

Batavia turned to PVC to provide large diameter pressure pipe for a new 4,900-ft sewer force main capable of moving all effluent in the city from a new central pumping station to an also-new treatment plant. Because Batavia has no way to bypass the line, a breakdown would mean a complete system shutdown. Consequently, performance was a crucial consideration.

For the new line, Scepter Manufacturing Company Limited, Scarborough, Ontario, Canada, a Uni-Bell member company, recommended its 30-in. SDR 25. The pipe meets all industry standards and with 32-in. OD, is the largest diameter PVC pressure water transmission pipe made in North America. Pressure rated at 165 psi, SDR 25 weighs 86.58 lb/ft, has a wall thickness of 1.280 in., a design flow rate of 10,608 gpm, and a friction loss rating of 0.200 ft per 100 ft.

Installation Specifics

Installation of the new Batavia force main began in mid-May 1988 and was completed on schedule that September. Now tested and ready for use, the force main awaits completion of the treatment plant sometime in 1990. The current 14-in. ductile iron main together with the present treatment plant will be phased out of service.

Although normal use pressures in the line will be 30 to 40 psi, it was tested at 100 psi for four successive

days without leaks. The system is designed for an average flow rate of 6 mgd and has a peak design capacity of 22 mgd.

The lower coefficient of friction in the pipe means reduced calcification and less buildup. In hot spots, such as corrosive or aggressive soils with both internal and external corrosion, PVC performs well.

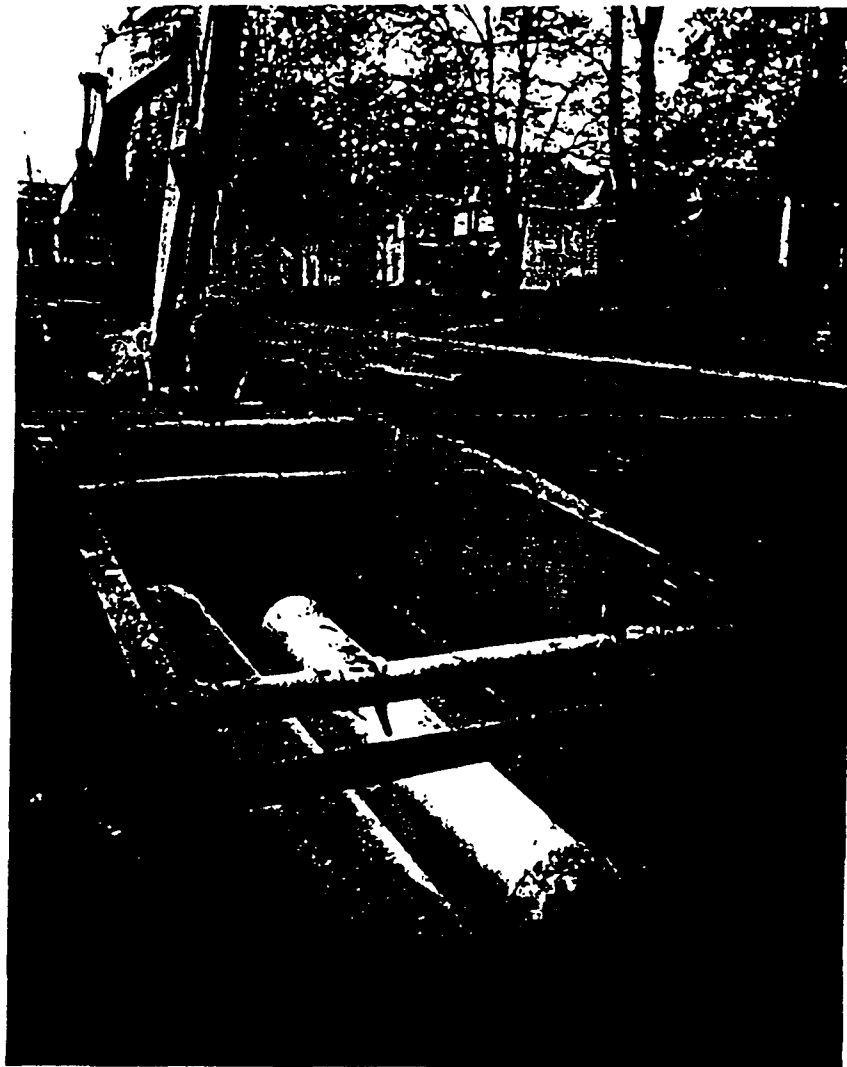
Batavia's high water table was also a potential problem. Average depth below the surface grade is 8 ft; the force main was installed at 10-ft depths. However, since the PVC pipe is pressure-rated (including the gaskets), it can withstand higher internal and external pressures, even when it sits continuously below the water table.

Pipe installation averaged 150 ft per 8-hour day, double the estimated projection despite the many cuts and

numerous tight working areas. The PVC gasket system handled at least 20 directional changes, some as much as 90°, both vertical and horizontal. The pipe was installed under railroad tracks and bridges, and even under the Tonawanda Creek, without one leak.

The saving in material and installation costs was estimated to be 20 to 25 percent. Installers reported that the PVC pipe was easy to work with, even the large diameter pipe. Lengths came together nicely, cutting was fast, and the lightweight pipe required lighter equipment and less labor.

Larson adds, "There wasn't one delivery problem or delay. We evaluated the pipe carefully to start out with, and now that the job is completed, we are confident we made the right choice." □□□



■ INSTALLING the large diameter PVC pressure pipe for the 4,900-ft force main.