

# Water main rupture puts Florida community at risk of flooding

Smith-Blair tapped to design and produce custom-fabricated fitting for pipe repair

Water erupting from under the parking lot adjacent to the Sawgrass Water Treatment Plant brought workers running from the utilities department in Sunrise, Florida. Excavation of the site revealed an assembly of 30-inch pipe, bends and couplings clinging together by a failed 30-inch mechanical joint restraint.

## Challenge

Adding to the rapidly growing list of problems, mechanical issues with the control valve prevented crews from shutting the line down. With thrust restraint failing, constant water pressure created unbalanced forces at the pipe bends and fittings, putting the line at risk of catastrophic failure. What's more, the region was experiencing one of the worst hurricane seasons in recent history, further adding to the threat of significant damage and flooding.

## Solution

With the need for immediate action, the utility quickly determined it needed a fitting specifically engineered for a "live line repair." This custom-designed fitting is installed while the line remained under pressure to completely and permanently seal the leak without interrupting service. The high-profile project carried high expectations, fueled by considerable public attention and scrutiny, requiring the highest construction standards and designs.

As a result, the Sunrise Utilities Department chose Xylem's Smith-Blair, Inc. to design and fabricate a solution based on their performance history and unparalleled production capabilities. Understanding the gravity of the situation, Smith-Blair immediately deployed engineers and product managers from its Florida and Texas offices. Following on-site meetings with city personnel, a Smith-Blair engineer and product manager developed rough sketches and took critical measurements of the failed assembly.



Due to the aggressive native soil conditions combined with other prevailing sub-surface elements, corrosion resistance emerged as yet another concern. Typically, steel and cast fittings, either poured from ductile or cast iron, are shop coated black. The Sunrise project, however, required a distinctive blue Flexi-Coat system – a series of special fusion bonded powder coatings that meet unique corrosion protection tests, including salt spray corrosion, impact resistance, chemical resistance, cross hatch adhesion, bend tests and cathodic disbondment.

With rough sketches in hand, Smith-Blair's internal design team wasted no time jumping into action, creating a series of complex shop drawings from the detailed submittal information. From there, an intricate bell-pack fitting began to take shape on computer screens in Smith-Blair's engineering offices. Once the submitted drawings were approved, the factory immediately commenced production of the custom-designed fitting.

### Results

Since the fitting is one-of-a kind, Smith-Blair assisted with the installation and field testing. A team of professionals joined the utilities crew at the job site to ensure the fitting was properly installed and the project completed in a timely manner. Ultimately, crews completed permanent repairs in less than 10 hours with no interruption of water service for residents.



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SB-CS-10004

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