

## Battery Park Trunk Sewer Tunnel Richmond, VA



### PROJECT OVERVIEW AND CHALLENGES

Bradshaw responded to the City of Richmond, Virginia's emergency flooding caused by Tropical Storm Ernesto by installing 3,400' of 110" fiberglass pipe in tunnel to permanently by-pass a collapsed combined sewer. Bradshaw used an Akkerman BS-120 digger shield and ribs and boards to construct the tunnel. Bradshaw pipe jacked 1,000' of 48" RCP in one run and 260' of 60" RCP in another run using Akkerman TBMs. Finally, Bradshaw hand tunneled 200' of 96" liner plate for a 72" fiberglass storm sewer pipe. Multiple shafts for TBM launch and recovery were installed with NATM and soldier pile and wood lag shoring. The major challenges were the extremely accelerated schedule, solid waste from the City dump that crossed the tunnel, and constant risk of flooding during operations until the new pipeline was put into service. Bradshaw's value engineering saved the owner \$1.8 million.



### PROJECT INFORMATION - 457

#### OWNER:

City of Richmond  
Department of Public Utilities  
Robert Stone, Project Manager  
804.646.8557  
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#### ENGINEER:

Greeley and Hansen Engineers  
Kurt Stykemain  
804.355.9993  
kstykemain@greeley-hansen.com

#### CONTRACTOR:

Bradshaw Construction Corporation

#### CONTRACT VALUE:

\$23,698,300

#### COMPLETION DATE:

4/16/2008

#### GEOLOGY:

Miocene Clay, Solid Waste

#### EXCAVATION METHOD:

Akkerman Excavator Shield and  
Wheeled TBMs  
Liner Plate by Hand Mining

#### MINING DIMENSIONS:

3,400' x 144" Ø

#### FINAL LINING:

110" FRP

#### FOR MORE INFORMATION:

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Refer to Project 457