

## Hillen/Ashburton Plant Bypass Pipeline Baltimore, MD



### PROJECT OVERVIEW AND CHALLENGES

Bradshaw constructed a 48 foot ID x 40 feet deep shaft over an existing 96" sanitary sewer. Bradshaw used the New Austrian Tunneling Method (NATM) to install and support the shaft. The ground conditions were silt, sand (micaceous residual) soils with gneiss boulders. A cast in place concrete junction chamber was built in the shaft to tie in the existing sewer with a new 66" PCCP sewer. The principal challenges on the project were the extremely limited work area, close proximity to existing structures and the no blast requirement for removing car size boulders.



### PROJECT INFORMATION - 412

**OWNER:**

Baltimore City Department of Public Works  
(410) 396-3310

**ENGINEER:**

Whitman, Requardt & Associates  
Chris Thompson  
(443) 224-1735

**CONTRACTOR:**

Metra Industries

**COMPLETION DATE:**

2/23/2004

**GEOLOGY:**

Residual Soils - micaceous silt, sand and boulders

**EXCAVATION METHOD:**

New Austrian Tunneling Method (NATM)

**MINING DIMENSIONS:**

48'Ø x 40' Deep

**FINAL LINING:**

NATM (reinforced shotcrete)

**FOR MORE INFORMATION:**

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Refer to Project 412