

## Myrtle / Morehead Storm Drainage Improvements, Phase 1 Charlotte, NC



### PROJECT OVERVIEW AND CHALLENGES

Bradshaw constructed a 13' horseshoe shaped tunnel 20' under Morehead Street in downtown Charlotte, NC. The 150' long was tunnel part of a storm drainage improvement project. The tunnel was designed & constructed using the sequential excavation method (SEM), a hand mine technique using reinforced shotcrete for initial tunnel support. Portions of the tunnel were in mixed face conditions, soil materials deposited over rock. These reaches were advanced by excavating and extending the initial shotcrete lining over the top of the rock and then blasting the rock under the safe canopy of the shotcrete arch. The tunnel crossed safely under 20 buried utilities including a 54" PCCP water main only 2 feet above the initial lining. The maximum surface settlement was 0.5". Bradshaw finished the tunnel by installing a 90" diameter RCP pipe in the tunnel and grouting it in place.



### PROJECT INFORMATION - 546

#### OWNER:

City of Charlotte  
Tim Canup  
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#### ENGINEER:

Woolpert  
Chip Smith  
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#### CONTRACTOR:

Sanders Utility

#### COMPLETION DATE:

5/19/2015

#### GEOLOGY:

Residual Soils, PWR, & Granite  
Rock

#### EXCAVATION METHOD:

Hand Mine

#### MINING DIMENSIONS:

150' x 13" Ø

#### FINAL LINING:

90" Reinforced Concrete Pipe

#### FOR MORE INFORMATION:

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Refer to Project 546