

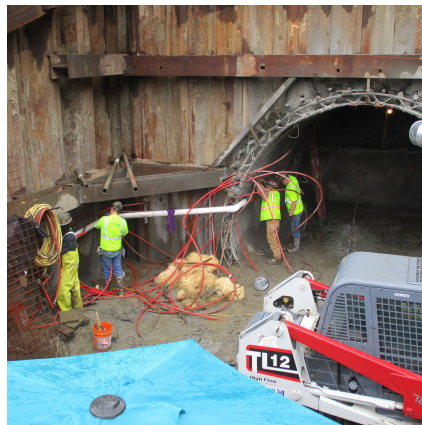
I-89 Culvert Improvements

Georgia, VT



PROJECT OVERVIEW AND CHALLENGES

Bradshaw completed construction of two storm drain tunnels under Interstate 89 to replace the failing 72 inch CMP stream culverts. The total excavation was 20.5' wide x 13.5' high horseshoe tunnel. The lengths were 136 and 100 feet. The finished inner diameter of the precast culverts were 15' wide x 8.5' high. The tunnels were constructed using the sequential excavation method (SEM) consisting of reinforced shotcrete initial tunnel support. The project is a design-build collaboration for Vermont Department of Transportation. Bradshaw submitted the SEM as an alternative technical concept and it was accepted by VTRANS in-lieu of a jacked concrete box (base technical concept). Subsurface conditions consisted of marine silts, sands, clays and buried trees. Vacuum dewatering was used to control groundwater inflows during tunneling. The D/B team consisted of J.A. McDonald, Bradshaw, & Stantec.



PROJECT INFORMATION - 557

OWNER:

Vermont Agency of Transportation
Resident Engineer
Greg Wilcox
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ENGINEER:

Stantec
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CONTRACTOR:

J.A. McDonald, Inc.

COMPLETION DATE:

9/9/2017

GEOLOGY:

Marine Silts, Sands, Clays & buried trees

EXCAVATION METHOD:

Hand Mine w/ Reinforced Shotcrete
Support
NATM/SEM

MINING DIMENSIONS:

100' & 136' x 20.5' W x 13.5' H Ø

FINAL LINING:

Cast-place-concrete & precast concrete

FOR MORE INFORMATION:

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Refer to Project 557