



North American Society for Trenchless Technology
2007 No-Dig Conference & Exhibition



San Diego, California
April 15-20, 2007

Paper # C-1-05

WHAT'S "MICRO" ABOUT A 144" MICROTUNNEL?

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ABSTRACT: The City of Indianapolis Department of Public Works needs to connect two sewage treatment plants with a pipeline capable of handling 320 million gallons per day under gravity feed by 2012. The extremely low slopes available (<.04%) require a massive 144" inside diameter pipeline running 6 miles through industrial and residential properties, with at least one major interstate crossing. The invert depth varies from 20 to 40 feet below grade through highly permeable, high ground water soils. Open-cut construction will require dewater pumping up to 5 million gallons per day. The weight of pipe can range up to 90,000 pounds per segment requiring massive lifting and excavation equipment.

Obviously both trenchless technologies and open-cut technologies are being seriously considered for this project; however the shallowness of the pipe creates major issues for any sort of tunneling operations and the depth makes it challenging for open-cut technologies. The state-of-the-art in microtunneling allows microtunneling to be considered along with regular tunnel boring machine (TBM) technology, or even jack and bore technology to construct this project. This paper sets out the decision making process employed to compare the use of open-cut technology against trenchless technologies; compares the characteristics of each technology; and discusses the risk management system employed to make the construction methodology decision.