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MICROTUNNELING 36 INCH DIAMETER SEWERS IN CHALLENGING CONDITIONS IN NORTHEAST OHIO

Jordan C. McCormack, P.E.¹, Bob Ericsson, P.E., P.S.², Mike Piepenburg³

¹Wade Trim Ohio, Inc., Cleveland, OH

²Northeast Ohio Regional Sewer District, Cleveland, OH

³Hatch Mott MacDonald, Cleveland, OH

ABSTRACT: Contract SEA-2A of the Southerly Early CSO Action Program for the Northeast Ohio Regional Sewer District (NEORSD), consisted of constructing 3,000 feet of 36-inch diameter dry weather flow (DWF) sewer in soft ground conditions under a heavily traveled local road and two multi-lane State Highway Bridges and adjacent to a historical canal. Based on the subsurface investigation, the soil conditions along the alignment were predominantly stiff clays with lenses and layers of gravel and non-cohesive flowing silts and sands to stiff clays. Naturally occurring high groundwater levels, potential groundwater interconnectivity of the non-cohesive soils with the canal, and flooding were also a concern. In addition, natural valleys with historic man-made channels, industrial disposal pits, and older excavations backfilled with a range of materials were present at three locations along the alignment. The presence of this fill drove the sewer elevation to depths that made open cut methods unfeasible. Based on the combined constraints of soil, fill, high groundwater, and surface features, the NEORSD and their consultant, Wade Trim, designed a microtunnel solution to install the DWF sewer. Wade Trim used Hatch Mott MacDonald for Geotechnical and microtunneling design.

On the project, six shafts and five reaches of tunnel were constructed between March 2005 and June 2006 by the contractor team of Nerone & Sons, Inc of Cleveland Ohio. The longest reach was 625 feet. This presentation provides a summary of the project constraints that drove the alignment selection and construction work decisions.