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PIPELINE REHABILITATION IN RESIDENTIAL NEIGHBORHOOD SLIP-LINING 42-INCH WATER TRANSMISSION MAIN

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ABSTRACT: Presents a case study about the challenges and lessons learned during the slip-line rehabilitation of a 42-inch steel water transmission main in the City of Huntington Beach.

Project included slip-lining 3,650-feet of 42-inch steel water transmission main with a 30-inch ductile iron pipe via four launching / receiving pits. The existing water line has had several leaks that caused costly emergency repairs.

The feasibility of several pipe materials besides DIP were investigated, including PVC pipe (both bell & spigot and field welded) and field welded HDPE pipe. However, it was determined that the restraint harness for a 30-inch bell & spigot PVC pipe would not fit in the existing 42-inch line and field welded PVC pipe was not currently available in 30-inch ID. Also, field welded HDPE pipe required larger launching / receiving pits, special expertise that could limit the number of bidders, was less compatible with the existing waterlines from a thermal expansion / contraction standpoint, was less preferred from a future maintenance perspective and was more permeable (less resistant) to hydrocarbon contaminants known to be in the soil.

Minimizing impacts to the quiet residential neighborhood presented unique challenges and the DIP slip-line installation allowed smaller launching / receiving pits, shorter construction duration, and reduced impacts to driveways, traffic and mail delivery.