BRIERLEY ASSOCIATES
Creating Space Underground

IN DEPTH
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Reclaimed Water System Improvements - Main to Junction 420 - Austin, TX

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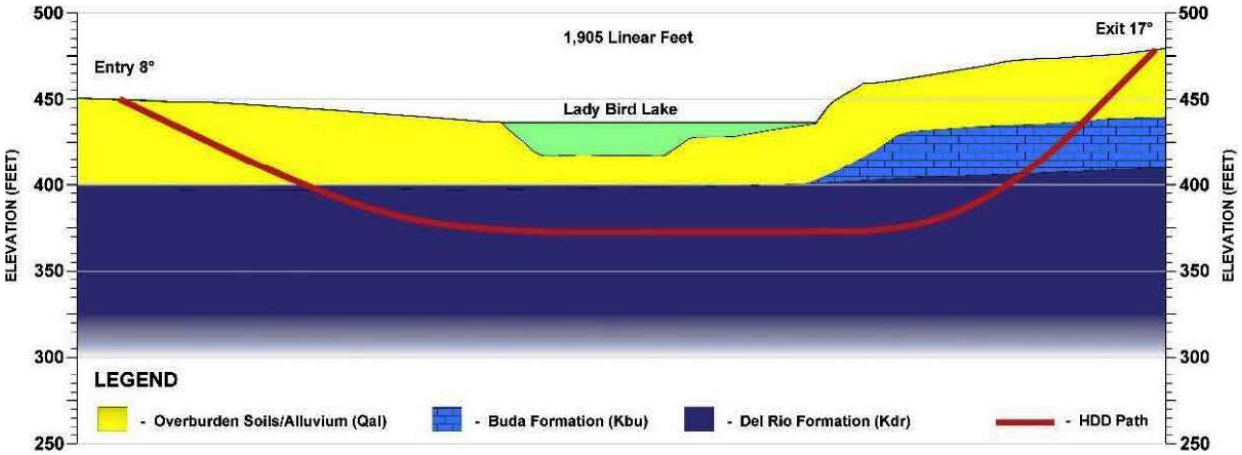
Maintaining sustainability and management of water resources are objectives of an ordinance passed by the Austin, TX City Council to reduce water usage by approximately 140 gallons per capita on average per day by 2020. The ordinance requires new commercial development located within 250-ft of reclaimed water main be connected to that main. This reclaimed water would be used for irrigation, filling cooling towers, flushing toilets and manufacturing.

As Austin grows, so does the need to expand the reclaimed water system. Brierley Associates was retained by RPS Group to provide a variety of trenchless design services for an 8,000-ft conveyance extension. Brierley provided: recommendations during the geotechnical investigation; design of the horizontal directional drilling (HDD) path and pipe calculations; a geotechnical baseline report (GBR); and construction management assistance. Components of this project included: 8-, 12-, 24- and 32-in diameter pipelines constructed by conventional open cut methods and trenchless technology.

Approximately 1,905-ft of new 32-in diameter high density polyethylene (HDPE) pipe was installed underneath Lady Bird Lake utilizing HDD techniques. The HDD component of the project begins just south of W. Riverside Drive extending north beneath Lady Bird Lake and continuing along San Antonio Street, terminating north of West 2nd Street. In addition to the HDD component of the project, there were three tunnel sections that went under busy downtown intersections with congested utilities associated with each crossing.

Limited space in a downtown urban environment, existing underground utilities, drilling a 4-foot diameter borehole under Riverside Drive with low cover, going under Ladybird Lake, and coming up through a highly traveled downtown street were all challenges that our design team had to negotiate. Due to the limited pipe layout space, the HDD rig was relocated to the northern exit location along San Antonio Street for the pull of the HDPE pipe. The limited space required a mid-pull pipe fuse complicating the project even further. Additionally, the strict entry/exit locations required a compound curve in the path design to avoid utilities and while staying within city easements.

The success of the project is attributed to careful planning by the team considering the numerous utilities located in the downtown area, and particularly beneath San Antonio Street. Not only did we have to navigate the chaotic tangle of underground utilities along San Antonio Street, we also had to avoid retention tiebacks for the new commercial developments spanning two city blocks within close proximity of the designed bore path.



Creating Space Underground - Coast to Coast

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