

CITY OF PHOENIX SEWER LINE RELIEF & REPLACEMENT – USING PIPE BURSTING IN A PROJECT TO INCREASE CAPACITY

- 919 LF Pipe Burst 10" Sewer Main with 18" HDPE
- 2,320 LF Pipe Burst 10" Sewer Main with 14" HDPE



Ten inch existing clay pipe upsized to 18 inch HDPE 17.

IN 2006, THE City of Phoenix began the Sanitary Sewer Relief and Replacement Program to increase the capacity of city sewer lines to combat sanitary sewer overflows and provide for future development. The areas requiring increased capacity were determined by the city's Water Services Department and arranged into a series of projects by priority. Sundt/AUI, A Joint Venture was awarded Priority Project No. 13 titled "Basin K01 Maryland Avenue - N. 33rd Avenue to N. 27th Avenue". The scope of work for this project included installation of approximately 4,000 LF of 10" through 15" VCP sewer lines using open-cut-and-replace construction, installation of 3,200 LF of 14" and 18" HDPE sewer lines using pipe bursting, sewer dewatering and by-pass pumping, rehabilitation of existing sewer manholes, construction of new sewer manholes, removal and replacement of existing asphalt, curb and gutter, sidewalk and landscaping, and abandonment of existing sewer lines. As part of the joint venture team, AUI Inc. (AUI) provided the services of their Trenchless Technology Division to complete the pipe bursting portion of the scope of work.

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Background - In 1998, AUI completed a pipe bursting pilot project for the City of Phoenix. This pilot project included replacement of 521 LF of failing sanitary sewer line with new 24" VCP using pipe bursting. The City of Phoenix was tempted by advantages of trenchless pipe replacement to reduce

replacement duration, minimize the duration by-pass pumping, minimize or eliminate roadway closures and traffic control issues, minimize the potential for damage to existing utilities through excavation, and reduce the costs associated with surface restoration. Through this pilot project, AUI effectively demonstrated to the city representatives that pipe bursting offered a solution to the problem of replacing underground utility lines in highly developed urban settings with minimal inconvenience to the inhabitants and without increasing construction costs. Since that pilot project, the AUI pipe bursting team has completed 110,000 feet of pipe bursting over 42 separate projects.

The Phoenix Project - The 3,200 LF of pipe bursting included in this project was divided into three segments along Bethany Home Road, Maryland Avenue and 27th Avenue. In July of 2007, the AUI pipe bursting team, including Project Manager Gary Huffman and Project Superintendent Archie Lucero, mobilized to Phoenix to begin the first segment on Bethany Home Road. This first segment would require three separate pulls to burst the 919 feet of 10" VCP with 18" HDPE. AUI's pipe bursting team subdivided this segment into three pulls to minimize the risk of binding (specifically



At left: AUI Sewer saddle fused to 14 inch HDPE. Above right: 14 inch Bursting Head Assembly with 14 Inch HDPE dr 17 pipe attached

when passing through the existing sewer manholes) due to the substantial increase in pipe size, almost double the pipe size from 10 to 18 inches. The pipe bursting team completed all three pulls in 26.5 hours and completely replaced this segment of the sewer main in under ten days (including sewer lateral reconnections and surface restoration). This segment included a burst directly across an arterial, signaled intersection with no lane drops; completely undetectable to the traveling public.

The second pipe bursting segment of this project ran east along Maryland Avenue for approximately 1,345 feet. Although the pipe size increase on this portion of the project was less than the previous pipe burst segment, from 10 to 14 inches or about 1.5 times, the team decided that it would still be a good idea to divide the segment into four separate pulls to (again) minimize the risk of binding. The third segment of the project was 975 feet of 10 inch to 14 inch along 27th Avenue.

Michael Rocco, AUI's Trenchless Technology Division Manager and former Chairperson of the International Pipe Bursting Association (IPBA), counts this project among the success-

es of the division and as a victory for pipe bursting technology in general. "Not only did we get to prove the pipe bursting process is a solution to some of the common issues that cities have

with the open-cut-and-replace method, but we also made inroads for alternative pipe materials in what has historically been considered a clay pipe market." ○

AUI INC.
CONTRACTORS
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HYDROBURST

12" WATERLINE PIPE BURSTING PROJECT

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