



January 2024

Written by:
JEAN WEHBE
PROJECT MANAGER

DESIGN/BUILD
SPECIALTY CONTRACTOR

SCHNABEL
PRINCIPLED. PROVEN.

GENERAL
CONTRACTOR



PROJECT
OWNER



BACKGROUND INFORMATION

In 2023, Alliance Water, a regional water authority dedicated to providing long-term, sustainable water solutions for their partners in Texas announced a new long-term project to meet the water needs of growing areas. This initiative revolves around the installation of a new 42-inch water delivery pipeline in the counties of Caldwell and Guadalupe. The execution of this project required the construction of two secant shafts to allow the pipeline to cross beneath the San Marcos River.



Aerial view of both secant pile shafts

SCHNABEL'S ROLE

In July 2023, S.J. Louis Construction of Texas, the general contractor for the project, contracted with Schnabel for the design and construction of the launching and receiving secant shafts required by the drilling equipment to drill the pipeline. The S.J. Louis Construction Design Team opted for circular secant pile walls to provide excavation support for the shafts and control groundwater in the excavation.



SCHNABEL'S ROLE (cont.)



Schnabel's specialized Bauer drill rig equipment

A secant pile wall is constructed by drilling continuous and overlapping concrete piers to create a solid and watertight barrier. The secant piles on this project were drilled in a circular pattern using unreinforced concrete to form a self-supporting ring. One circular wall, or shaft, was constructed for the tunneling equipment launch shaft and one was drilled for the receiving shaft. The launching shaft included the installation of 42 drilled secant piles, descending to depths of up to 69 feet and the receiving shaft included featured 24 drilled secant piles, reaching a depth of 58 feet. The launching shaft had a diameter of 32.5 feet while the receiving shaft had a diameter of 16.5 feet. The secant piles on both shafts had a diameter of 1180 millimeters (46.5 inches). Schnabel used their specialized Bauer drill rig equipment with sectional 1180 mm casing and a casing drive adapter to ensure proper alignment and verticality of the piles.

CHALLENGES

Navigating the logistics posed a significant hurdle in this project due to its remote location. Transporting essential materials, including the drill rig, equipment, and concrete, proved to be a challenge, given that the site was up to 3 miles from the nearest road. In addition, the ground conditions presented yet another obstacle. The site featured a predominantly soft and wet granular material that caved into the hole, resulting in concrete bulges that required the use of a jackhammer during excavation.



Schnabel team members excavating inside the launching shaft

CONCLUSION

In October 2023, Schnabel accomplished the successful installation of two secant pile shafts, an important step in enabling the construction of a crucial water supply line for Alliance Water's water delivery project. Despite facing various logistical and operational challenges, Schnabel completed the shafts in a safe and timely manner while staying within the allocated budget. In addition, the secant piles performed as designed as was observed inside both shafts. A big thank you extends to everyone who contributed to the success of this project.



Aerial view of the launching secant pile shaft



Aerial view of the receiving secant pile shaft

