

Environmental and Water Resources Engineering, and Center for Water and the Environment Seminar Series Presents:



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Delivering a Critical Wastewater Conveyance Connection Under Conditions of Uncertainty

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Presentation Abstract

The project goal was deceptively simple: to connect a new 60-inch diameter wastewater pipeline to an existing interceptor crossing beneath the Colorado River. Achieving it required navigating numerous constraints, including multiple stakeholders and regulatory reviewers, TxDOT infrastructure, erosion hazard zones, wetlands and springs, and a complex tunnel operation. These challenges were compounded by the downstream connection point being an actively surcharged wastewater tunnel whose true horizontal and vertical location was unclear. Ultimately, successful delivery of the project depended on a construction method rarely anticipated in wastewater conveyance projects—wastewater divers. Yes, wastewater divers.

To resolve uncertainty surrounding the existing interceptor alignment, multiple investigative approaches were employed prior to construction, including interpretation of historical record drawings, survey-based reconstruction of pipe geometry, geophysical investigation, and contractor-led subsurface exploration. Together, these methods reconciled conflicting data and informed the final alignment and connection design.

Microtunneling was selected as the preferred construction method based on geotechnical conditions and risk mitigation considerations. Design development focused on scour potential at the river crossing, shaft placement, and manhole configuration. Numerous bypass and connection alternatives were evaluated and eliminated due to feasibility, safety, and operational impacts, as existing system flows could not be temporarily reduced.

The final construction approach required close coordination with wastewater treatment plant operators and real-time operational monitoring to manage diurnal and seasonal flow variations. This project underscores the importance of adaptive design, interdisciplinary coordination, and construction-informed engineering when delivering critical conveyance infrastructure under constrained and uncertain conditions.

Presenter Background

Hollie Campbell, P.E., is a project manager and a Storage and Conveyance Group lead within Jacobs' West Central Water group. She graduated from University of Florida in 2010 with a biological engineering bachelor's degree then graduated Georgia Institute of Technology in 2013 with a master's degree in water resources engineering. From there, she moved to Austin and worked on public works projects at a company named Bury. In 2014, she moved to Jacobs and has been working there since. She lives in the Great Hills area of Austin with her husband and two kiddos.

