

# Lake Brazos Dam

Located about two and a half miles outside downtown Waco, Texas, the Lake Brazos Dam was completed in 1970 and substantially modified in 1988. The dam is owned and operated by the City of Waco and serves primarily as a recreational reservoir. Due to corrosion and operational issues with the gates, maintenance costs had risen to \$300,000 per year.

## PROJECT RESULTS

*Kleinfelder's thorough analysis demonstrated that the existing foundation was stable and could be used in the new structure, resulting in construction cost savings estimated at \$5 million.*



## REPLACING THE OLD WITH THE NEW

The City of Waco wanted to replace the existing dam with a “labyrinth weir” type of concrete structure. This necessitated geotechnical analysis of the existing foundation and earth materials to determine the stability of the foundation. Sliding failure based on water flow was a prime concern, as well.

## MODELING FACTORS OF SAFETY

As the geotechnical discipline leader for the project, Kleinfelder conducted geotechnical investigations of the dam foundation and installed a piezometer to measure hydrostatic pressures. Kleinfelder prepared a spreadsheet calculator to model factors of safety (sliding failure) under various flow scenarios, assuming different values of internal friction angle and cohesion.

### Location:

Waco, Texas

### Owner:

City of Waco

