

# Dearborn Reservoir Repair

Kleinfelder provided innovative and cost-saving design and construction services for the seismic retrofit and rehabilitation of the 10.6 million-gallon Dearborn Reservoir in Redlands, California.

## PROJECT RESULTS

*Kleinfelder's decision to repair the reservoir, instead of demolishing and reconstructing it from scratch, helped our client bypass enormous demolition costs. This re-evaluation and proposed alternate engineering solution—made possible by Kleinfelder's long-standing expertise in reservoir design and retrofit—resulted in a net savings of approximately \$5 million.*



## AGING INFRASTRUCTURE

At 50 years of age, the reservoir had begun to display severe cracking in the roof slab over its columns and roof beam, as well as minor wall cracks on the reservoir interior. Beyond investigating and determining the direct causes of these cracks, our team also needed to evaluate the structure's overall seismic compliance with respect to current building codes. If left untreated, the roof slab's cracked columns would result in leakage and premature failure.

## REPAIR AND REINFORCEMENT

During site observation, our team found many more exterior cracks around the column areas and near the bond beams around the perimeter. After investigations, our team developed a series of innovative repair methods, including injecting epoxy into all visible cracks, strengthening the roof center beam with carbon fiber, and introducing column capitals to counteract the high-punching shear around each column. A layer of concrete around the reservoir helps further extend the reservoir's lifespan.

### Location:

Redlands, California

### Owner:

City of Redlands

