

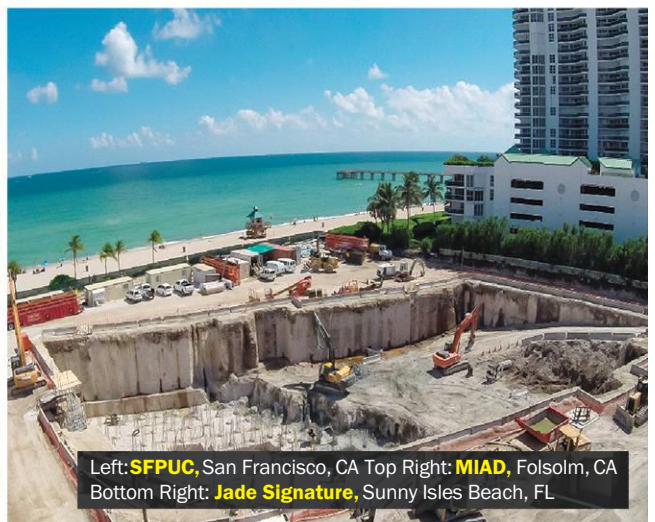
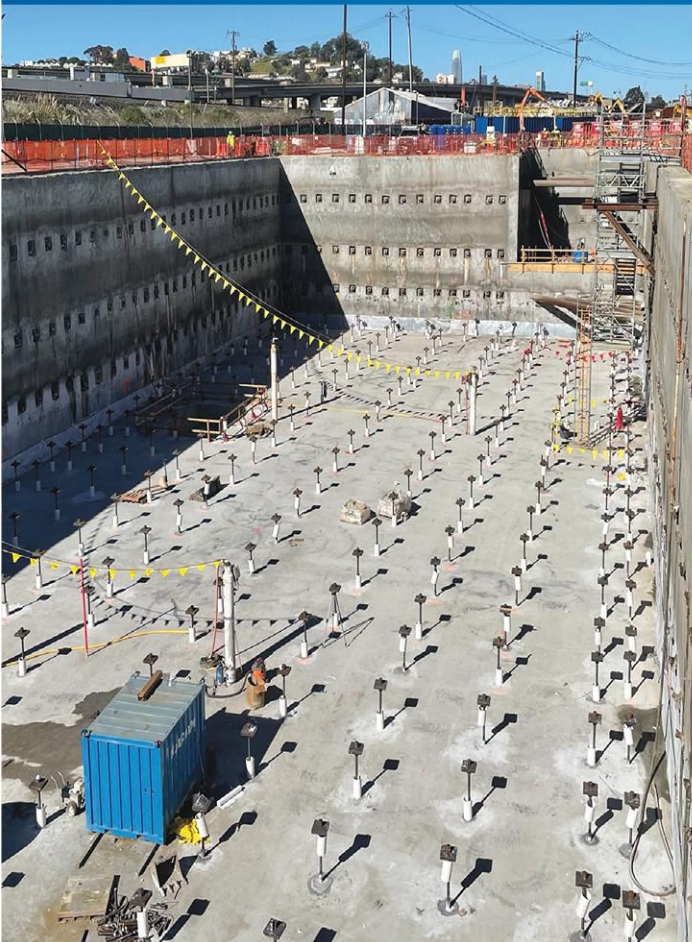


MALCOLM

Design Build | Design Assist

Malcolm's expertise in the development and implementation of innovative and cost-effective design build/design assist solutions is invaluable to clients. This method provides owners with time and money savings while also fostering innovation. Efficiencies are immediately realized as all members of a project team come together early in the process to identify and address issues of cost, constructability, and schedule. Due to our decades of engineering expertise, our superior management staff, and state-of-the-art equipment, we provide the full spectrum of design build/design assist benefits for most of our offered services. When you need a solution that requires Malcolm's expertise, contact us at Malcolmdrilling.com

Deep Foundations
Retention Systems
Ground Improvement
Dewatering



Left: **SFPUC**, San Francisco, CA Top Right: **MIAD**, Folsom, CA
Bottom Right: **Jade Signature**, Sunny Isles Beach, FL

The Skipping Stone of Totem Lake

The Totem Lake Connector Bridge is a pedestrian and bicycle path that connects the bustling city of Kirkland, Wash., with the Cross Kirkland Corridor Trail. The bridge, which is built on 15 drilled shafts, runs over the top of two major intersections, under 230kV transmission power lines and through a sensitive wetland. This

project at first seemed unbuildable until COWI, the designer, responded with a detailed design based on a concept which uses undulating arches below and above the deck to represent the motion of a skipping stone.

One of the unique challenges on the Totem Lake project was figuring out how to safely install multiple drilled shafts directly beneath the existing 230kV transmission power lines. Seattle City Light, the utility owner, determined that the criticality of the lines meant they could never be de-energized, regardless of the 100-ft clearance. Kraemer and Malcolm developed a plan with Washington L&I Crane Division that all parties approved.

Malcolm used a BG24 top-drive drill rig configured with a low headroom mast, oscillator and 75-ton crane with boom limiter to accomplish the 72-ft-deep drilled shafts within the

confines of a 42-ft-wide go/no-go zone. The head room issues controlled every aspect of the work. Each shaft had full-length permanent steel casing with welded splices to tip. Due to these restraints, the permanent casing was delivered to the site with shorter than normal sections (ranging from 5-20 ft), and the reinforcing cages had to be coupled during installation.

Multiple on-site mobilizations were completed during night road closures to access the remaining shafts. One of these mobilizations was in an area with an active subterranean gas line that remained in service during shaft construction. Another on-site mobilization landed the team in a sensitive wetland area. Each of these challenges were met successfully and safely, thanks to excellent planning, teamwork and ongoing communication throughout the project. ♦



Drilling the 72-ft-deep drilled shafts was done with a BG24 top-drive drill rig equipped with a low-headroom mast, oscillator and 75-ton crane with boom limiter.

PHOTO: COURTESY OF KRAEMER

“ We see a direct correlation between **real-time field data and profitability.** ”

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