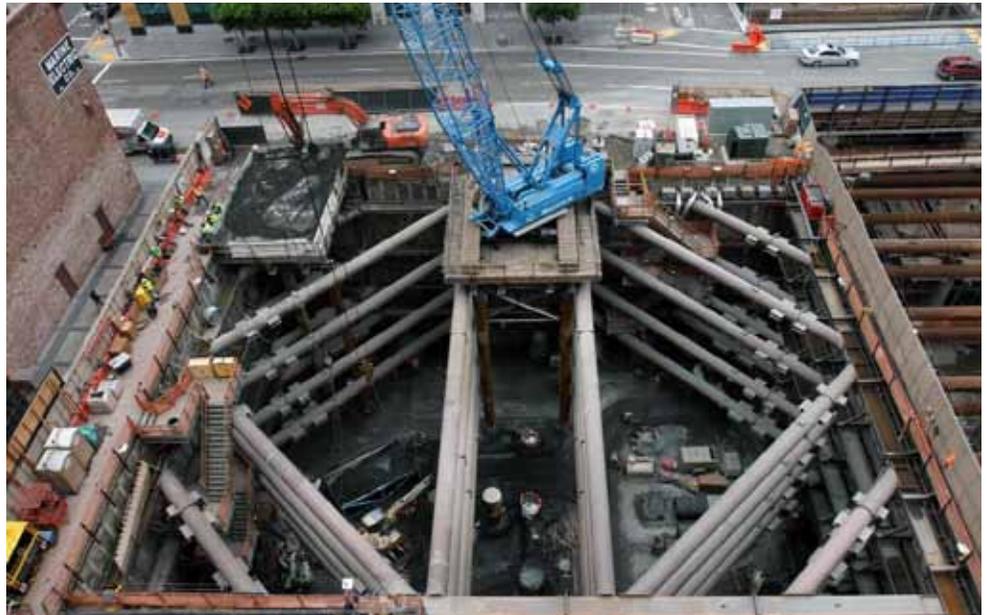


181 Fremont – San Francisco, CA Eric Lindquist

The 181 Fremont Tower is a new mixed-use tower, currently under construction in the dense urban core of San Francisco. This high-rise will consist of 54 floors above ground and will top out at a height of over 800 feet, which will make it the second tallest building in San Francisco. Brierley Associates was retained by Jay Paul Company, the project's developer, to work closely with the general contractor, Level 10 Construction to design the temporary support of excavation system for the 5-story, 60-foot deep basement.



Excavation at full depth of 60 feet (Transbay Transit Center to the right)

A watertight, stiff temporary support of excavation system consisting of cutter soil mix shoring walls with four levels of preloaded internal bracing was required to allow the basement excavation to be performed without adversely affecting adjacent improvements, including an existing 27 story high-rise tower to the east and a three-story masonry building to the south. The design faced additional challenges due to the presence of the ongoing construction for the Transbay Transit Center (TTC) train box to the north. Complex pressure diagrams and load transfer mechanisms between the internal bracing at the TTC and 181 Fremont excavations demanded careful consideration. Brierley's design successfully navigated the aforementioned site conditions in order to ensure the efficient installation of the shoring system and excavation of the basement.

Brierley also designed two temporary work trestles that were necessary for equipment access at this extremely tight site. Additionally, Brierley designed a one-off tower crane foundation consisting of a heavy steel grillage supported on four drilled piers, which required a much smaller footprint than is typical. The

trestles accommodated a large hydraulic excavator and a 200 ton crawler crane. The tower crane foundation allowed the crane to go into service when the excavation was at full depth.

The excavation shoring system, temporary work trestles and drilled piers for the tower crane foundation were constructed by Malcolm Drilling Company, and Herrick Steel fabricated the tower crane grillage. The excavation was completed in late 2014 and basement construction will be completed in the near future. The support of excavation system demonstrated excellent performance with maximum lateral movement not exceeding approximately one-inch.



Subgrade preparation for mat pour beneath level 4 bracing

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