

Biomedical Research Center

Chicago, Illinois

Keller offered a value-engineered alternative to the original earth support design, which saved the client time and money on the tight construction schedule.



The project

The multi-story Louis A. Simpson and Kimberly K. Querrey Biomedical Research Center at Northwestern University Feinberg School of Medicine covers a footprint of nearly 44,000 ft². Excavation extended to a maximum depth of 60 ft below sidewalk grade, making it one of the largest and deepest excavations in the history of the City of Chicago. Site soils consisted of approximately 30 to 35 ft of fill and saturated sands over soft Chicago clay. Groundwater was present at 19 ft below street grade.

The challenge

The site was between a medical research center with a basement approximately 38 ft below grade and a rehabilitation facility with a basement approximately 18 ft below grade. The primary challenge to the owner was the constructability of the new building's deep basement between these two sensitive facilities. The general contractor also had strict schedule requirements at each construction stage.

The solution

The new design utilized a 70-ft-deep steel sheet pile wall supported by three main levels of bracing and fourth and fifth levels of bracing in localized areas for deeper cuts. Bracing consisted of both grouted tieback anchors and corner bracing with struts. Within the saturated sands, Keller designed and installed internal corner bracing to avoid penetrating the sheeting. Automated total monitoring was handled by Keller company, [Geo-Instruments](#), and was instrumental in eliminating additional stabilization methods in the marginal soils.

“ Keller did an outstanding job both in the technical analysis of the design and sequencing the construction to meet the demanding schedule.

Sean Bowker
Project Executive, Power Construction Company

Project facts

Owner(s)

Northwestern University

Keller business unit(s)

Keller
Geo-Instruments

Main contractor(s)

Power Construction Company, LLC

Engineer(s)

Thornton Tomasetti

Solutions

Support of excavation
Instrumentation and monitoring

Markets

Institutional
Education

Techniques

Anchors
Sheet piles

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