

Stair Tower Foundations

Alberta, Canada

Keller installs low-headroom micropiles to provide shoring and deep foundations at live upgrader plant.



The project

The client replaced eight coke drums and updated their ancillary systems, foundations, and steel repair as part of a facility upgrade. The upgrades also included the construction of new north and south stair towers, requiring deep foundations and a shoring solution

The challenge

Work was completed within a live plant with sensitive structures and piping. The work area was also limited, with only 750 SF for the south stair tower and 140 SF for the north stair tower.

The solution

Due to the tight working conditions, micropiles were the optimum solution for both the tower foundations and the shoring wall, allowing the equipment to be safely fitted within the working space. Keller provided guidance during the design of the shoring wall and recommended a hybrid tangent/secant micropile shoring wall for the final design.

Keller installed 64 micropiles for shoring walls, ranging from 11 ft to 40 ft (m). Following shoring installation, a 12- to 15-ft excavation was performed to the final grade of the stair tower locations. Keller then installed 47 micropiles ranging from 53 ft to 60 ft to support the stair towers.

Project facts

Owner(s)

Confidential client

Keller business unit(s)

Keller

Main contractor(s)

Confidential client

Engineer(s)

Keller
Confidential

Solutions

Support of excavation
Deep foundations

Markets

Power

Techniques

Micropiles

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