

PROJECT DESCRIPTION

Underpinning an Overhead Crane Footing



Location:
Buffalo, New York

Client:
Ciminelli
Construction, Inc.

Client Contact:
Mr. John Walker

(716) 855-1200

Steel Struts Brace a Concrete Wale above the Secant Pile Wall

The owner of a large manufacturing facility hired Ciminelli Construction Co. (Ciminelli) to construct a new pit inside of its plant to improve its manufacturing processes. The pit measures 30 feet by 27 feet and extends 17 feet below the plant floor. The outside of the pit wall fell within 24 inches of a footing that supports the plant roof, an exterior wall and a 40-ton overhead crane. The plant needed to maintain operation of the crane throughout construction of the pit.

Ciminelli hired MMCE to design a retaining wall that would support the pit excavation walls and the crane footing. The retaining wall needed to be designed such that it would not move when the pit excavation was advanced because wall movement would allow the crane footing to settle, which was unacceptable. The plant is located in a former glacial lakebed and soils underlying the footing consist of medium to soft silty clay. The low overhead clearance in the plant limited the options available to build a wall.

MMCE designed a reinforced concrete secant pile wall, which was installed with a low headroom caisson rig. The wall extended through the soft clay and was braced near the top with struts and a reinforced concrete wale to restrict movements. Ciminelli monitored the crane footing for settlement throughout construction and the footing did not move.