

## Brooklyn Marine Terminal 8 Bulkhead Rehabilitation

Brooklyn, New York

Keller installed jet grout columns to provide structural support to the failing Brooklyn Marine Terminal 8 bulkhead.



### The project

Keller constructed a system of reinforced jet grout columns to provide soil stabilization and structural support of a failing sheet pile bulkhead system.

## The challenge

Existing holes were present in the bulkhead system. Keller patched these with steel plates and all joints were sealed with epoxy joint compound prior to jet grouting.

## The solution

Jet grouting was the method of choice for soil improvement and structural support, due to the small drill string, which caused little or no impact to existing bulkhead tie rods spaced every 9 feet. A total of 142, 4 foot-diameter double-fluid reinforced jet grout columns were installed in a "T" wall pattern.

The average drill depth of 55 feet, achieved a jetting length of 47 feet, through loose to medium dense sand to 40 feet, and dense sand and gravel with frequent cobbles to 55 feet. Unconfined compressive strength tests were performed on core samples resulting in jet grout elements greater than 1,500 psi.

## Project facts

### Owner(s)

Port Authority of New York & New Jersey

### Keller business unit(s)

Keller

### Main contractor(s)

N/A

### Solutions

Support of excavation

### Markets

Infrastructure  
Ports and harbors

### Techniques

Jet grouting

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