

## Dey Street Connector

New York, New York, USA

The Fulton Street Transit Center was constructed under the New York MTA's Capital Construction Program to accommodate five subway stations handling nine lines. Keller completed various techniques, including dewatering and remedial grouting.



### The project

The Dey Street Connector is critical to the rehabilitation of Fulton Street Station. The underground pedestrian concourse links the new Fulton Street Transit Center to the World Trade Center Transportation Hub.

## The challenge

The soil profile through which construction was to occur generally consisted of fill overlying Manhattan Bull's Liver silts and silty sands, which have historically been very sensitive to construction-induced stresses. Beneath this, glacial till extended to bedrock. Secant pile walls installed by others provided earth support and groundwater cutoff for most of the excavation for concourse construction. Unexpected ground losses and soil inflow occurred during secant pile construction, and a nearby 16-story building experienced settlement and tilting.

## The solution

Following completion of the perimeter earth support system, which only extended to the till, Keller installed an interior ejector system for dewatering and pressure relief of the underlying till, which is locally very permeable, and drainage of the overlying Bull's Liver silts. The ejector system was installed in phases as excavation proceeded towards the water table in the three main portions of the project. Dewatering wells were installed from the ground surface and within the existing station platforms.

Keller implemented a remediation grouting program consisting of compaction grouting to replace lost volume and mitigate settlement of the adjacent building(s) while completing the secant piles. Compensation grouting was used for ground improvement beneath the impacted building. Permeation grouting was used successfully to halt the inflow of soil and stabilize loosened soils behind a window several inches wide, beginning where a secant pile wall and jet grout wall joined.

## Project facts

### Owner(s)

New York Metropolitan Transit Authority (MTA)

### Keller business unit(s)

Keller

### Main contractor(s)

Skanska Civil USA

### Solutions

Groundwater control and dewatering  
Ground improvement

### Markets

Infrastructure  
Tunnels and shafts  
Transportation

### Techniques

Dewatering  
Low mobility (compaction) grouting  
Compensation (fracture) grouting  
Permeation (chemical) grouting

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