

## Oceana Bal Harbour

Miami, Florida

Keller provided the client with an on-time turnkey solution for a deep, large area excavation adjacent to the ocean with design-build excavation support, groundwater control and deep foundations.



### The project

A 28-story residential high-rise planned for construction on Miami Beach included a 3-story below-grade parking garage. The area of the excavation footprint was 107,000 square feet and the excavation depth reached 40 feet below grade.

## The challenge

The 40-foot deep basement excavation was 34 feet below sea level, posing the significant challenge of controlling groundwater inflow, especially due to the native porous oolitic limestone.

## The solution

Keller solved the groundwater control challenge by using deep soil mixing to create a seepage barrier along the perimeter and base of the excavation. The perimeter soil mix columns also provided excavation support as they were reinforced with steel H-piles and laterally restrained with tieback anchors or internal bracing. Keller also designed and installed large-diameter auger cast piles as deep as 85 feet below the excavation to support the structural loads and act as tiedown anchors for resisting the hydrostatic uplift on the soilcrete bottom slab.

“ Your team creates very dry holes; extremely dry holes. This is based on my experiences at the Oceana Bal Harbour and Armani projects.

**John Mills**  
VP of Operations, Coastal Construction

## Project facts

### Owner(s)

Consultatio Real Estate

### Keller business unit(s)

Keller

### Main contractor(s)

Coastal Construction

### Engineer(s)

NV5

### Solutions

Heavy foundations  
Seepage control  
Excavation support

### Markets

Residential

### Techniques

Anchors  
CFA (auger cast) piles  
Wet soil mixing

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