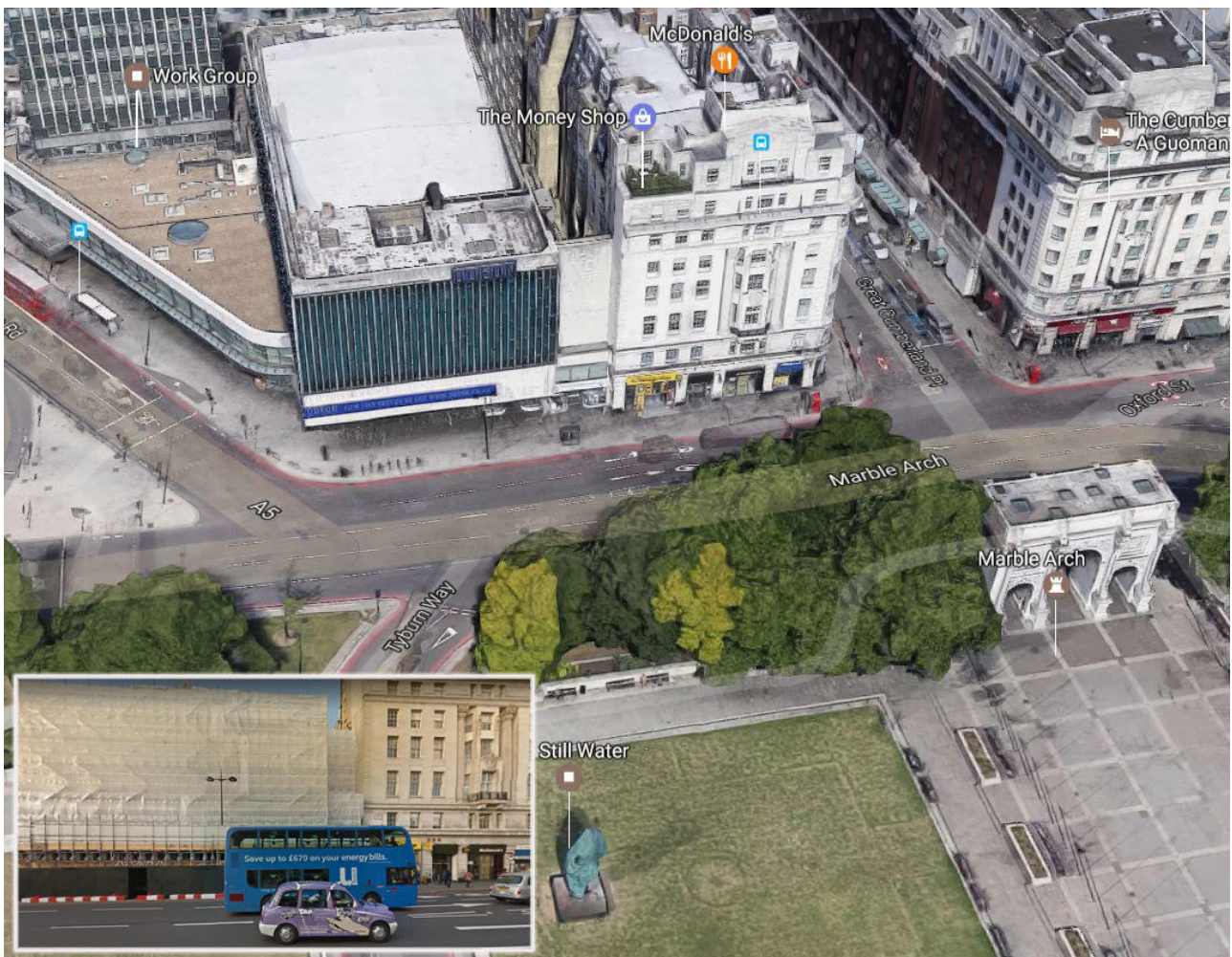


Marble Arch Place

London

To the north of Park Lane overlooking Hyde Park, the £400million Marble Arch Place development is one of the most prestigious recent construction projects in London. Two Keller UK divisions worked together on this job to carry out underpinning and monitor the work to check for any possible impact on an adjacent building.



The project

Marble Arch Place is a leading mixed-use development providing a new landmark building for London but with the site surrounded by existing buildings there were several technical and logistical issues to overcome.

The challenge

To facilitate the construction of the deep basement, a diaphragm wall was required. This posed a risk in destabilising the adjacent Great Cumberland Place building, a seven-storey office block. Keller provided an innovative solution to this problem – a jet grouted underpin.

The solution

The underpin was formed by grouting the sands and gravels between the underside of the footing and the London Clay below a retained height of approximately 3m. Columns were inclined below the building to achieve the required treatment below the footing, at times drilling less than 0.5m from the public arena.

Keller undertook a detailed design based on the line loads provided to determine the extents of the jet grouting required. A 3D BIM model was used for the detailed design, to risk assess each column ensuring that the drill string of each column avoided the basement.

During all drilling and grouting operations, Keller's sister company GEO-Instruments monitored for movement on both the party wall and Cumberland Place basement slab using Hydrostatic Levelling cells and Tilt meters respectively. These recorded in real time but were supplemented with continuous visual inspections for grout / water ingress.

A total of 71 columns were installed to underpin a 30m section of the wall.

Project facts

Owner(s)

Almacantar

Keller business unit(s)

Keller UK
GEO-Instruments

Main contractor(s)

Erith Contractors

Solutions

Underpinning
Instrumentation & monitoring

Markets

Commercial
Residential

Techniques

Jet grouting

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