

Teretek® strengthens foundation and raises Oxford home



INDUSTRY

Residential

STRUCTURE

End-of-terraced house

PROBLEM

Subsidence

LOCATION

Oxford, UK

DURATION / YEAR

One day, May 2019

TECHNOLOGY

Teretek®

BUSINESS UNIT

Mainmark UK

Summary

A 1930s end-of-terrace traditional double brick house in Oxford was being converted into apartments. An extended kitchen area was subsiding and had several visible cracks where it joined the main house. The property developer wanted to avoid removal of the extension and was also seeking peace of mind that the building wouldn't suffer further major structural damage. As part of the planned refurbishment there was a requirement to underpin the foundations to support the additional load that was to be placed on them.

Mainmark applied its proprietary engineered resin injection solution, Teretek, into the foundation ground. The deep-lift resin injection application method aimed to maximise the ground bearing capacity beneath the home and provide a solution that would mitigate the risk of further subsidence.

Objectives

The key objective was to provide ground improvement of the treated soils to achieve support of the extension, and level correction where possible.

Mainmark was required to improve the ground across 8 lineal metres of strip foundation and raise, re-level, and re-support within the tolerance of the extension. In addition, there were a number of considerations that the Mainmark team needed to factor in, including the confined space the team of three people had to operate in and limited access due to a neighbouring fence.

Teretek® strenghtens foundation and raises Oxford home continued

Teretek engineered resin was to be applied to the foundation soil, which constituted of sand and gravel, to help lift the back portion of the property while improving ground bearing capacity to reduce the risk of further subsidence. The use of Teretek would eliminate the need for demolition or invasive excavation, and minimise disruption, noise and mess for the neighbouring properties.

Solution

Mainmark's engineered resin injection solution, Teretek, was applied through a total of seven injection locations at depths ranging from directly below the foundations to two metres below, to strengthen the ground beneath the foundations, and re-level and re-support the home. Teretek is a two-in-one engineered resin injection solution that can increase ground bearing capacity while also re-levelling structures, in a process that is likened to keyhole surgery. On entering the ground, the polymer resin solution mixes together and quickly expands, strengthening the soil and re-levelling buildings quickly and efficiently.

This successful project achieved a maximum lift of 12mm at the lowest corner and was completed in a single day - the fast completion time allowed the property developer to continue with his refurbishment. The solution has also provided the property developer with peace of mind and allowed the property to be let more quickly, therefore realising a return on investment sooner than anticipated.



Visible gap where extension joined main house



Crack on wall before treatment



Crack on wall closed after Teretek treatment