

Northamptonshire Warehouse Receives Bespoke Foundation Lift to Save Main Office

PROJECT PROFILE

2018-22UK

mainmark



INDUSTRY

Industrial

STRUCTURE

Warehouse and office

PROBLEM

Subsidence

LOCATION

Northamptonshire, UK

DURATION / YEAR

2018 / 27 days

TECHNOLOGY

JOG and Teretek®

BUSINESS UNIT

Mainmark UK

Summary

A 205m x 80m commercial warehouse and 20m x 15m office building complex in Northamptonshire, currently occupied by a well-known international courier provider was suffering from subsidence. This facility is a significant part of its European supply chain and was causing significant operational issues, so they contacted their landlord to address the problem. As the landlords are based overseas, they were keen to employ a company that was able to complete the work in an effective and timely manner as well taking on the works on a 'turnkey' basis.

The office building attached to the distribution warehouse had sunk by approximately 70mm due to the poor underlying strata of made ground that had failed at certain depths. As well as hosting the main general office, used by approximately 20 employees each day, the smaller building attached to the distribution warehouse also contains the staff canteen, shower rooms and toilets, as well as punch-in clocks; areas regularly facilitated by both office and warehouse workers.

Mainmark was chosen as project lead because of their market leading ground improvement solutions and its extensive experience working with large commercial warehouses.

Using JOG Computer-Controlled Grouting (JOG) and its proprietary Teretek® resin injection solution, Mainmark was able to strengthen the underlying ground and re-level the office building without causing any disruption to business operations. The project was completed quickly and effectively, within 27 days.

Above: 1. Teretek injection points were carefully planned within the structure's interior
2. JOG Computer-Controlled Grout was used in both the interior and exterior to gradually bring structures back to level
3. The poor strata under the office building caused it to sink.

Northamptonshire Warehouse Receives Bespoke Foundation Lift to Save Main Office continued

Objectives

The office building attached to the distribution warehouse had sunk and so had to be raised and re-levelled, while also improving the ground beneath it.

Additional enabling works were required before the ground improvement process and lift of the building could begin. For this reason, to meet the brief and expectations set by the landlords, a 'turnkey' style project was required. The solution needed to provide control and management over third party elements such as locating, removing and reinstalling services, as well as the other ancillaries necessary to deliver the project.

In addition the client also set an extremely tight deadline for the work to be completed, due to the urgency originally stipulated by the tenant. Also, access to all staff amenity areas had to be maintained throughout the entire re-levelling and ground improvement works.

Mainmark was enlisted as the principal contractor for the works, giving full responsibility for all health and safety considerations, such as maintaining regular and emergency access/egress routes.

Solution

As Mainmark was the project lead, the team prepared for additional challenges that were likely to emerge from the various aspects of the project. While finalising checks and preparing the ground for its advanced solutions, Mainmark was faced with its first challenge, the location of the main gas pipe.

It became apparent that the pipe was running in front of the building and too close to where the ground injection was going to take place, therefore heightening the health and safety risk. In order to overcome this unexpected obstacle, Mainmark arranged for the diversion of the service allowing the subsidence rectification work to continue as planned.

In order to provide the necessary ground improvement and lift without causing any business disruption, Mainmark proposed its JOG Computer-Controlled

Grouting technology to lift the building and its proprietary Teretek resin injection solution to provide the necessary ground improvement, as well as raise and void fill the internal floor slab.

Mainmark's advanced technologies offer non-invasive, cost-effective and time-efficient solutions, and the JOG technology specifically offers a higher level of precision and control required when lifting such a substantial structure.

Once level data was acquired, a methodology was devised. Multiple injection ports were installed through the concrete pads along the subsided sections of the building, through which the JOG high mobility cementitious grout was introduced under computer control. This enabled Mainmark to gradually and precisely lift the office building in a controlled manner, moving the building back to its neutral position, without causing business interruption. The spacing and placement of the injection ports were tailored to accommodate the structural elements of the building and its continual use as a workspace.

Mainmark's solutions also enabled the team to keep the area clean and easily accessible by employees using the facilities and amenities. Works could be tailored around busy periods meaning the noise could be successfully managed, resulting in minimal disruption to the day-to-day business.

The office was raised by 57mm, with the ground improved to the required specification and, due to the work completed, Mainmark has provided a long-term solution to the ground issues.

Due to the 'turnkey' style project required by the landlord and the unexpected challenges such as the gas pipe relocation and worker access, both tenant and landlord were extremely pleased that Mainmark completed the extensive project in just 27 days.

The tenant said, *"This was a difficult project with a strict time limit. We were extremely pleased that Mainmark managed to complete the project so efficiently and professionally, with absolutely no disruption to our day-to-day business operations. The team were helpful, knowledgeable and kept us informed every step of the way. We would absolutely recommend Mainmark's services to other clients."*