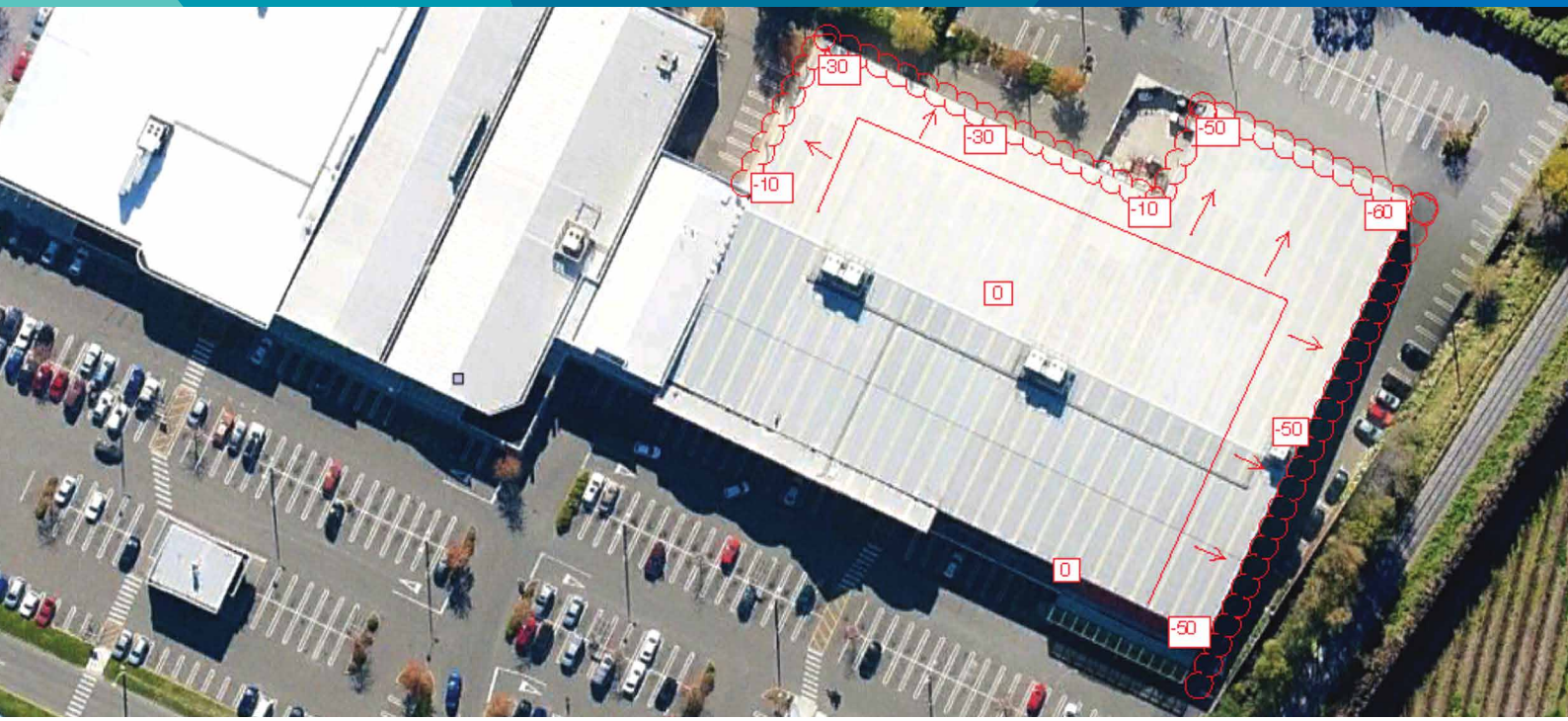
PROJECT PROFILE
Z13 Y212

mainmark

Warehouse Earthquake Damage Remediated



INDUSTRY
Commercial

STRUCTURE
Warehouse

PROBLEM
Earthquake remediation

LOCATION
Christchurch, New Zealand

DURATION / YEAR
29 days / 2013

TECHNOLOGY
JOG Computer-Controlled Grouting, Void Filling & Uretek Slab Lifting

BUSINESS UNIT
Mainmark New Zealand

Above: The red lines circle the JOG Computer-Controlled Grouting injection points along the exterior walls.

Summary

A large retail warehouse building constructed of precast tilt panels supported by pad footings and beam construction had experienced differential settlement of up to 60mm along approximately 250 lineal metres of the perimeter foundations due to the recent seismic events.

Approximately 800m^2 of the internal floor slab-on-grade also required void filling and level correction.

Objectives

Firstly to correct the settlement along the 250m perimeter section and secondly to fill all voids under the 800m^2 of floor and to re-level the area.

It was essential to absolutely minimise interruptions to public, retail operations.

Solution

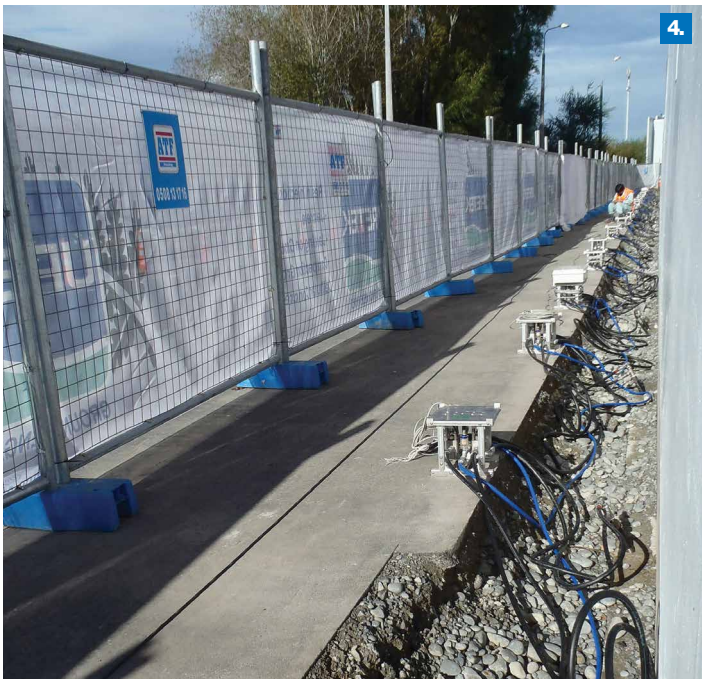
JOG Computer-Controlled Grouting
A continuous circuit of 64 injectors were installed beneath the foundations of the building to facilitate a lift that was uniform, incremental and controlled. Continuity of foundation support was maintained throughout the correction.

JOG operations were carried out during daylight hours from outside the building to minimise any interruption to the tenants' daily operations.

The URETEK Method
Void Filling and Slab Lifting operations were completed at night outside of the tenant's normal trading hours.

Warehouse Earthquake Damage Remediated continued

The perimeter was successfully corrected to target levels utilising the JOG method in 17 working days from initial mobilisation.

Avoiding disruption to the retail operations, a further 12 working night shifts were required to void fill and adjust/correct internal floor levels.

Pictured below: 1. JOG grout batching and pumping centre. 2. Computer-control unit. 3. Angular insertion of JOG injector. 4. Array of injectors.