

Mainlander

'As is' property market on course for major lift

The market for earthquake-damaged properties could be set for a multimillion-dollar lift as a local firm throws a lifeline to owners of buildings previously considered uninsurable.

Through a new technology that brings large-scale capabilities to hard-to-reach places, Core Civil Solutions (CCS) is able to re-level, improve the surrounding ground and save buildings that would otherwise be write-offs.

The Christchurch company, using German drilling technology supplied by Morath GmbH, recently showcased what could be achieved for even heavy, multi-storey structures when it re-levelled a three-storey apartment complex on Salisbury St.

In doing so, it delivered a wake-up call to the market with regards to the possibilities for "as is" buildings, including large tilt-slab concrete structures.

CCS chief executive Mark Tutty says the dual-wing complex at 226 Salisbury St had for years been considered fit only for demolition – its sister building in what was known as Salisbury Park is already gone – until the company applied its unique close-quarters technology.

He now expects it to be the first of many large buildings languishing in insurance limbo that will be able to be saved.

"A lot of buildings were originally deemed irreparable because they couldn't be lifted due to the poor quality of the ground or because there wasn't sufficient



Core Civil Solutions director Wayne Tobeck and Colliers International managing director Hamish Doig outside the Salisbury St apartment complex many thought was a write-off but which was saved by new technology applied by CCS.

access," he says. "We've now shown it can be done."

Not only that, it was done while tenants continued to occupy the top two floors of the 34-unit complex.

This provided an ongoing stream of revenue for the owner, Colliers International managing director Hamish Doig, as well as resulting in a much-increased New Building Standard (NBS) rating –

to 100 per cent – and a fully insurable property worth significantly more.

"We kept all of the services connected and took care of all the necessary paperwork so the tenants could stay in the building," Tutty says.

"There are a heck of a lot of other situations where we could do that."

Had the technology been

available sooner, the company could likely have saved many buildings now demolished, he adds.

New technology

Central to the new system is a sliding base plate, jet-column approach that produces composite steel reinforced injected-grout columns with tremendous side-

Back from the brink

226 Salisbury St:

- Three-storey, dual-wing apartment block with 34 units
- Tilt-slab concrete construction
- 850sqm
- Soil: gravel, silt and peat, with a high water table
- Task: re-level by up to 350mm to return to insurable status
- Start: February 22 2016
- Finish: June 24 2016
- Collaborated with structural engineer and geotechnical engineer
- Complete package prepared for client, including consent, certificate of public use, engineer's PS1, PS3 and PS4
- Significant increase of NBS rating to 100 per cent for the building

bearing as well as end-bearing and lateral strength. This allows buildings to not only be re-levelled but also future-proofed.

Alone, however, this technology would not have been able to save buildings like 226 Salisbury St where internal load-bearing walls and proximity to other structures can pose problems for access.

Until now, work in such cases would have required large open-ground drilling operations. These are often unsuitable for built-up areas, leaving demolition as the only option.

By using small, highly manoeuvrable drilling units with remote power packs made by

German firm Morath, Core Civil Solutions can overcome this barrier and drill beside key load-bearing walls, even when those walls are inside buildings.

Because they can drill in locations separate from their power supply, vibrations, noise and fumes are much reduced. This makes the units ideal for heritage sites and residential areas.

The secret to the columns' exceptional side grip, meanwhile, is the injection into drilled holes of a specially formulated grout. Pumped in at up to 150 bar, it fills all available space and produces a rough-edged column that reduces the support required from the ground directly below.

This approach allowed CCS to drill only three metres into the spongy, peat-rich soil at Salisbury St, until it reached a thin layer of gravel. This was despite a high water table.

An offset cap was then concreted onto more than 100 such columns located in key positions.

"Suddenly you have a jacking pad that's directly underneath the wall," Tutty says.

A single day of jacking for each wing corrected a 350-millimetre drop on one side and a 250mm drop on the other, while retaining the building's original concrete pad. CCS was then able to void-fill under the slab using high-pressure mobility grout to a minimum of 10MPa.

Following the successful lift of each wing, CCS raised the free-standing lift shaft by "walking it up" using Ischebeck anchors – the

same method used to earthquake-strengthen the Clyde dam – and jet-pile technology.

Looking ahead

The Salisbury St job was one of the more challenging projects to date for Core Civil Solutions, which over the past five years has grown its capabilities through new-build work and hundreds of earthquake repairs.

Now the company is eyeing larger structures, with a seven-storey building on Peterborough St possibly in line for salvation.

The implications are also turning heads in the industry.

Banks that have been unwilling to provide loans for "as is" homes, where insurance was rejected due to the likelihood of decline, are now reconsidering.

At 226 Salisbury St, Westpac joined a bevy of structural engineers having a close look at the work of CCS and concluded the project was one worth financing.

"There's now a building there that has shot up in value, when previously it was a write-off," Tutty says.

Core Civil Solutions will happily work with any structural engineer, he says, and will take care of all geotechnical and other details on behalf of owners, including in many cases the paperwork necessary to keep tenants in place.

■ For more information, contact Core Civil Solutions on 03 365 6135 or visit corecivil.co.nz.



Core Civil Solutions NZ LTD



SPECIALISTS IN

- ◆ FOUNDATION RE-LEVELLING
- ◆ "JET PILING" OF NEW FOUNDATIONS AND RECLAIMED LAND
- ◆ BASEMENT ACCESS AND CONFINED SPACES—NO ISSUE
- ◆ SEISMIC STRENGTHENING OF EXISTING FOUNDATIONS AND BUILDING UPGRADES

- ◆ ROCK ANCHORING
- ◆ DEEP SOIL MIXING
- ◆ SLOPE STABILISATION
- ◆ KING POST RETAINING WALL SYSTEM UP TO 6M HEIGHT
- ◆ VOID FILLING

Phone - Roger Hay 027 468 8859 Or Office - (03) 365 6135 / Email info@corecivil.co.nz / www.corecivil.co.nz