

# Teretek® Re-levels Heritage Café in Melbourne



## INDUSTRY

Heritage

## STRUCTURE

Café

## PROBLEM

Soil Subsidence

## LOCATION

Berwick, VIC, Australia

## DURATION / YEAR

2 days / May 2018

## TECHNOLOGY

Teretek®

## BUSINESS UNIT

Mainmark Australia

## Summary

Pioneer Park Café is located within one of the oldest buildings in the Melbourne suburb of Berwick, with parts of the existing structure dating back to 1876. The site was originally a primary school, however the school closed in 2003 and the building commenced operating as a café and gift shop in 2006.

The single storey, double brick building with stone strip footings features a timber floor, a steeply pitched corrugated iron roof and a courtyard with a retaining wall. The soil beneath the building was identified as highly reactive clay which swells excessively when wet and shrinks when dry.

A well-established row of heritage listed elm trees was growing in close proximity to the western end of the building. Due to the heritage listing of the trees, tree root barriers and branch trimming were not permitted. During prolonged dry periods, the tree roots removed moisture from the reactive clay soil causing localised subsidence.

As a result, Pioneer Park Café had suffered differential settlement which had caused a double brick wall at the western end of the building to rotate by 30mm, resulting in the appearance of stress cracks on the wall and separation at the wall openings on the two transverse walls. These transverse walls had subsequently pulled away from a door and window causing cracking to appear in both internal and external walls at the western end of the building. The courtyard retaining wall had also settled adjacent to the western wall.

As the property owner, the City of Casey engaged Mainmark to assess the 142-year-old site and recommend a remediation solution.

## Teretek® Re-levels Heritage Café in Melbourne continued

### Objectives

The project objective was to stabilise the foundation soil, correct the rotated end wall and re-level the building, including the raised courtyard.

The works needed to be delivered with minimal disruption to the café, which is open for breakfast and lunch 7 days a week, including the alfresco dining on the large outdoor deck.

The Pioneer Park Café is positioned at a busy intersection, with a children's playground and customer parking onsite. Therefore, it was important that the Mainmark equipment was positioned as close as possible to the building without impacting customers, staff and visitors, or disrupting traffic on the street adjacent to the site.

Due to the heritage status of the building and elm trees, the City of Casey needed to feel confident that the solution would not impact the structural integrity of the building or damage the protected trees.



Mainmark's non invasive set up, allowing minimal disruption to the café

### Solution

Mainmark recommended its Teretek® resin injection solution, utilising their deep-lift application method. This process involves the injection of engineered structural resins beneath sunken sections of the affected structure, filling any voids encountered to

maximise ground support. From deeper in the ground, the structure is lifted by the controlled force of the expanding resin.

Investigations by the local council and a geotechnical footing probe revealed the building had a variation of foundation depth between 600mm and 1450mm, which indicated that prior underpinning work may have been undertaken.

Mainmark applied Teretek resin through very precise injection points along the length of the building foundation and footings on both the building and the courtyard retaining wall - a total distance of approximately 14 lineal metres - and to a depth of between 1.5m and 2m below ground level. This successfully raised the lowest corner of the building by 30mm from a measured settlement of 45mm. The courtyard retaining wall was also lifted 2-3mm, re-aligning it with the pavement slab.

The Teretek is applied in a process similar to keyhole surgery, through small penetrations typically 16mm in diameter. Once injected, the resin rapidly expands and cures in the ground, both compacting and strengthening the soil, plus it can help limit the reaction of clay soil to seasonal moisture changes.

As the Pioneer Park project needed to be completed without impacting daily café operations, Teretek was the ideal solution as it is non-invasive, quick and cost-effective and is applied without the need for lengthy and messy excavation works.