



## Re-piling of an existing residential building, Burnside, Christchurch, NZ

Under House Piling using TTT MultiPoles was installed under an existing dwelling, without the building being removed from site in earthquake affected Christchurch, NZ.



DEEP  
PILE



GROUND  
IMPROVEMENT



SUSPENDED  
FLOOR



RAFT



UNDER  
HOUSE



BRIDGES

# TTT Under House Piling

## Project background: re-piling of an existing residential building, Burnside, Christchurch, NZ

- An existing residential building required new Under House Piling to be carried out without the house being removed.
- The site was in an urban area that had been affected by the devastating Christchurch earthquakes.
- The project was completed in 2014.

## Project challenge:

- The building needed to be re-piled in order to be able to withstand future earthquakes.
- The house had to be lifted 2.4m to remove the old foundation and install the new foundation piles.
- The new foundation piles had to line up with the existing subfloor components of the building.
- Foundation piles had to be installed down to the founding layer, approximately 7.5m deep.
- The site was in a residential location with multiple neighbouring properties.
- Installation was not allowed to have any impact on these neighbouring properties.
- Installation needed to be rapid.
- Equipment needed to operate within 2.4m clearance to the underside of the house so product supply and handling needed to take this into account.
- Certified house lifting equipment needed to be used.
- H5 treated Radiata Pine timber piles were identified as the best solution.

## The TTT MultiPole solution:

- TTT MultiPole UniLogs, 1.8m x 200mm DIA, were identified as being able to satisfy the design specifications needed for re-piling the residential building.
- Due to the restricted height of the working area only 1.8m pile lengths could be used. However the unique hollow core of TTT MultiPoles meant that these piles could be joined during installation using TTT MultiPole Connectors. Installation continued this way until the founding layer, approximately 7.5m deep, was reached.

- The unique hollow core of the TTT MultiPole also allowed for fast installation via high-frequency vibration.
- TTT MultiPole UniLogs have a uniform finish which decreased soil friction during installation, further speeding up installation time.
- Installation was successfully carried out without disturbing the neighbouring properties.
- The subcontractor, Markovina Pile Driving South Island, was able to install the TTT MultiPoles using equipment with an operating footprint small enough to work under a house, but still be accurate and rapid.



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