



Dairy Factory Expansion, Paerata, Auckland, NZ

A Deep Pile Foundation was installed to provide the foundation for a concrete slab and silos for an extensions to an existing dairy factory.



TTT Deep Pile Foundations

Project background: Dairy Factory Expansion, Paerata, Auckland, NZ

- A foundation for an extension to an existing dairy factory was required.
- The site was located between existing buildings, with very tight access and operating area.
- The project was completed in 2017.

Project challenge:

- The foundation needed to be able to support the weight of a concrete slab, and silos, and meet the regulatory requirements.
- H5 treated Radiata Pine timber piles were determined as the best solution to be installed down to the founding layer.
- There were multiple dense intermediate layers that had to be driven through.
- Piles had to be installed between adjacent buildings, but could not affect the integrity of these buildings.
- The site was only 12.0m wide which made handling 14.0m piles extremely difficult.
- Installation needed to be rapid.
- Due to space restrictions on site the delivery of materials needed to be carefully managed.
- Pile Driver Analyzing (PDA) testing to verify pile capacity needed to be carried out.

The TTT MultiPole solution:

- TTT Uglie MultiPoles, 14.0m x 300-350mm SED, were identified as being able to satisfy the stringent design specifications of the Deep Pile Foundation required.
- The unique hollow core of the TTT MultiPole allowed for fast installation via pile driving.
- The TTT MultiPoles actually went deeper than expected - down to 17.0m. This meant additional pile length was required so extra piles were joined onto the top end of the 14.0m piles using TTT MultiPole Connectors in order to meet the new 17.0m requirement.
- The joined TTT MultiPoles were installed through the dense intermediate layers until the founding layer was reached.
- Once the founding layer had been reached the poles were cut off above ground at the level required for placement of the commercial buildings concrete slab.

- The subcontractor, Markovina Pile Driving South Island, installed the TTT MultiPoles in close proximity to the adjacent buildings – some were placed as close as 600mm.
- In order to pick up extra end bearing capacity in one section the TTT MultiPoles were installed large end first.
- Pile Driver Analyzing (PDA) testing for Dynamic Load was carried out to verify pile capacity, and a geotechnical ultimate load capacity of up to 860kN per pile was successfully achieved.



Case Study CDPF03:Jul17 | ©TTT Products Christchurch Ltd. | Page 2 of 2

Postal address

TTT Products Christchurch Ltd
PO Box 99
Tuakau 2342
New Zealand

Details

Freephone: 0800 864 564
Phone: +(64) 9 236 8880
Fax: +(64) 9 236 8663

Talk to us
0800 864 564

Cliff Monk

Mobile: +(64) 27 514 4427
cliff.monk@unilog.co.nz

Marshall Bryce

Mobile: +(64) 27 587 5621
marshall.bryce@unilog.co.nz

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