

TIMBER POLE GROUND IMPROVEMENT



Causeway Upgrade project, SH 16 Motorway, Auckland, NZ

Ground Improvement to prevent the banks of the Causeway slipping into the estuary was achieved through rapid installation of thousands of MultiPole Uglie poles, up to 18.0m deep, using vibration installation techniques.

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REVOLUTIONARY
FOUNDATION
SYSTEMS



DEEP
PILE



GROUND
IMPROVEMENT



RAFT

TIMBER POLE GROUND IMPROVEMENT

Project background: Causeway Upgrade project, SH 16 Motorway, Auckland, NZ

- The SH16 Causeway Upgrade project involved widening 4.8km of motorway to achieve increased capacity.
- The Causeway was also raised by 1.5m to reduce flooding.
- The Causeway is part of the Western Ring Route, a strategic route providing access to New Zealand's largest city.
- The total project had a value of NZD\$220 million, and involved some of New Zealand's largest construction companies.
- It was completed in 2017.

Project challenge:

- The subcontractor, Markovina Pile Driving Limited, needed to provide a solution to prevent the newly constructed banks at the edge of the Causeway from sliding into the estuary.
- Piles were required, and had to be installed to depths of up to 18.0m.
- Piles had to be suitable for a marine environment, and provide resistance against marine insect attack.
- Durability of 100 years was required.
- Installation needed to be rapid.
- Unloading and handling needed to be easy.
- H6 treated Radiata Pine timber piles were identified as a practical solution.

The NZ Ground Control solution:

- MultiPole Uglie poles, 300mm, were identified as being able to satisfy the stringent requirements of the Causeway project.
- The ground conditions meant that installation depths varied, but this problem was easily surmounted with the ability to join MultiPoles, with the MultiPole Connector, until the required depth was reached.
- Lengths from 4.8m to 12.0m were supplied, and any offcut lengths longer than 1.0m could also be re-used using the MultiPole Connector, making the best use of poles available on site.
- MultiPole Uglie poles were installed in closely-spaced rows of 2–7 deep, with approximately 100 x 18.0m depths being installed per day.
- The MultiPole Uglie poles were treated to H6 hazard class, suitable for marine environments.
- The unique hollow core of the MultiPole allowed for fast installation via high frequency vibration.
- The rougher finish of the MultiPole Uglie poles allowed for greater skin friction when installing.
- Thousands of MultiPoles were easily manufactured, transported, and handled on site to meet the project timeframes.

