TIMBER POLE
DEEP PILE RETAINING WALLS

New Mitre 10 store, Beachlands, Auckland, NZ

Three large retaining walls were required to stabilise a steep bank on a construction site for a new Mitre 10.

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Project background: New Mitre 10 store, Beachlands, Auckland, NZ

- A brand new commercial building for a Mitre 10 store was to be built and construction necessitated the digout of a steep bank.
- Three large retaining walls were required to stabilise the bank behind the building and support the roadway above.
- The project was completed in 2019.

Project challenge:

- The site was a sloping section with an earth bund at the top of the slope.
- In order to maximise the use of the site the retaining walls were placed right at the toe of the earth bund.
- Retaining walls were required to stabilise the bund and protect the roadway situated above the bank, before the dig out could commence.
- Construction needed to take place from the top down otherwise the bank would have collapsed.
- The roadway was a main road and use of this road needed to remain unaffected.
- The site was restricted for space.
- Construction of the Mitre 10 was to take place at the same time.
- Construction needed to take place during winter so installation needed to be rapidly completed before the weather deteriorated.
- The ground conditions were silty clay and sand stone.
- H5 treated Radiata Pine timber piles were determined as the best solution.

The NZ Ground Control solution:

- TTT SED Poles, H5 treated, 10.0m x 400mm SED, 166 pieces, were used for the retaining walls.
- The poles were TTTested proof tested to prove their strength.
- TTT SED Poles are naturally tapered, machine-peeled poles. Minimal wood is removed during processing so each pole retains its strength.
- TTT Timber, H5 treated, 150x50mm, arrissed-edge SG8, was used for the retaining wall rails. The timber was machined to a constant width of 148mm so when installed the horizontal lines all matched. Jacks were also used to ensure the timber fit tightly against adjacent boards.
- Wall 1 was 60m long up to 3.8m high.
- Wall 2 was 94m long up to 4.8m high.
- Wall 3 was 12.4m long up to 2.8m high.

- Before excavation the TTT SED Poles were drilled into the sand stone and concreted in place.
- The retaining walls were built from the top down, in 1.5m deep sections. After the poles were installed a section of wall was excavated, the poles exposed, and timber rails affixed with s/s washer head screws.
- This method of installation meant the poles retained the bank while the wall was completed safely from the other side. There was no disturbance to the roadway above.
- The retaining walls were completed in 3 weeks – well under the clients expected timeframe.

GROUND CONTROL

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