

## Piling Ground Collapse

CAMs # 386574

### 1. Incident

A series of piles were being drilled on one of our civil projects.

Ground investigation had been completed prior to drilling and identified rock at about 3m depth.

The first four piles had been completed as expected. The fifth pile was in progress when a ground collapse occurred that nearly resulted in tragedy.

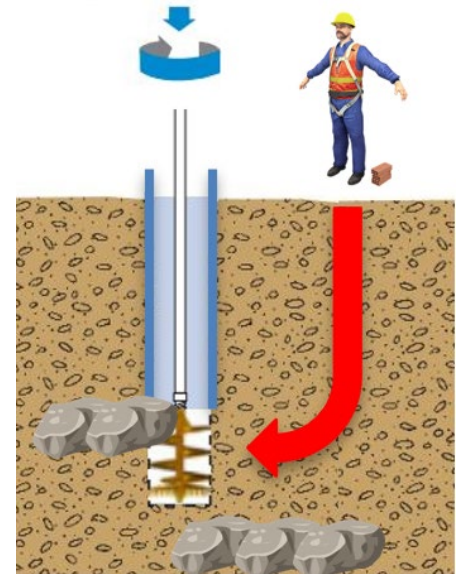
The casing had been drilled until the piling rig operator felt refusal indicating solid rock. The rock was at the depth expected.

Following the plan, the team now continue drilling into the rock and stopped extending the casing.

Whilst drilling beyond the toe of casing the operator has felt (through the controls of the rig) a change in ground conditions and has exited the piling rig to investigate. Unknown to the operator, the side wall below the casing has collapsed into the void created by the drill.

While walking over to the protruding casing the ground underneath the operator has sunk into the void and dragged the operator with it. The operator was trapped up to his waist as the ground continued to sink.

The Operator was assisted by his teammates and emergency services who managed to free him without harm.



### 2. Contributing Factors / Background

- There was an anomaly in the rock so it was not able to sustain the vertical walls of the shaft below the casing.
- Post incident the area was fully excavated and it appears previous ground works have occurred leaving this location weaker than the surrounding area.
- When the operator walked over the ground underfoot appeared solid.

### 3. Recommendations

- Investigate the ground conditions and any history of works on the site.
  - [NZ Ground Investigation Specifications](#) gives guidance.
- Exclusion zones – Only experienced and competent people, essential to the task should be in the vicinity of piling operations.
- If the experienced piling rig operator feels an unexpected change in ground conditions, then assume a ground collapse is possible and keep exclusion zones in place for all persons until additional controls are in place.

### 4. Revision History

Date	Author	Brief Description of Change
10/07/2023	B Cox	Draft alert
		Review & approve for publishing