

Zone Load Testing (ZLT) of improved ground

A large loaded area tests a group of treatment points together, measuring the settlement of the improved ground under a design-scale load.

TYPICALLY USED FOR

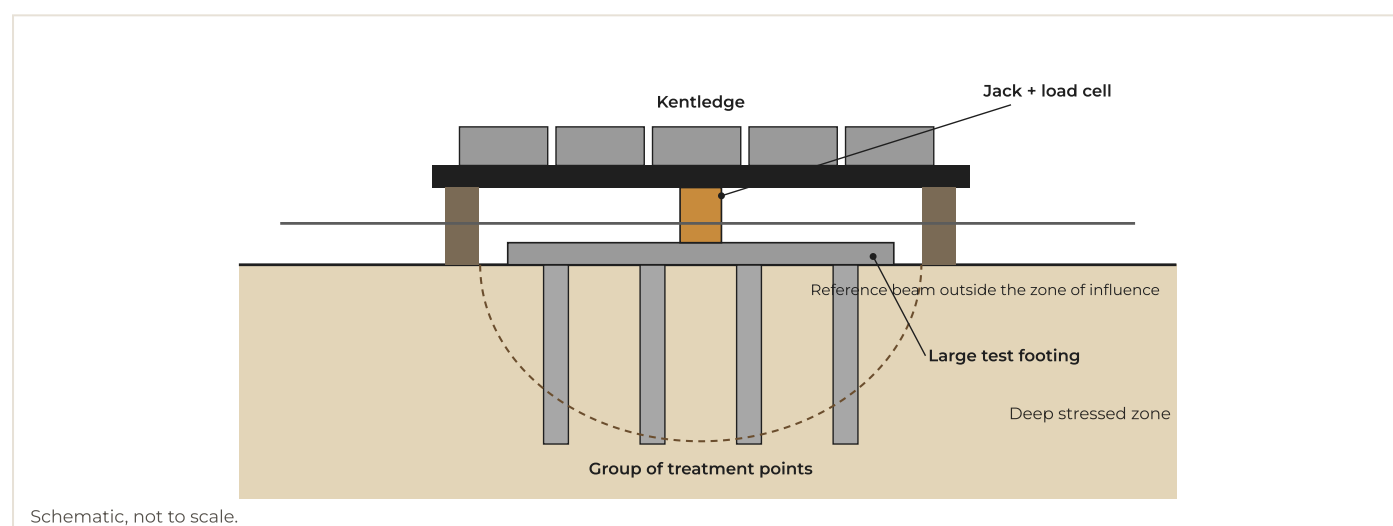
- Verification of stone columns, rigid inclusions and vibro replacement.
- Checking that a treated area meets the settlement criteria under foundation-scale load.
- Calibrating design settlement predictions.
- Important structures where small plate tests stress too shallow a depth.

LIMITATIONS

- Large reaction loads are needed and the test is slow and costly, so only a few are performed.
- The test is still smaller than most foundations and is interpreted with the design.
- Long-term creep and consolidation are not fully captured in the test duration.

HOW THE TEST WORKS

A reinforced concrete footing or large steel plate is placed on the treated ground over a group of treatment points, usually with a granular bedding layer. Kentledge blocks or a jacking system against a reaction frame apply the load in increments.



TEST PLANNING INPUTS

- Design foundation pressure and settlement criteria.
- Treatment layout and the points included under the footing.
- Footing size and test load.
- Reaction method and site access.
- Loading and holding sequence.

TEST EXECUTION CONTROLS

- Load applied and held to the agreed steps.
- Settlement readings at the agreed time intervals.
- Reference beam supports outside the zone of influence.
- Footing level and tilt monitored.
- Weather protection of instruments.

INTERPRETATION AND REPORTING

Test plan: What is specified

Test load and settlement acceptance criteria agreed with the consultant.

Test record: What was measured

Load-settlement and settlement-time curves.

Interpretation: What it shows

Comparison of measured with predicted settlement, in the test report.

DELIVERABLES

Test procedure · Calibration certificates · Load and settlement records · Load-settlement and time curves · Interpretation report