



SPECIFICATION

INTEGRITY TESTING OF FOUNDATIONS BY THE PARALLEL SEISMIC TEST

Date Issued : Feb 2006
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Number of Pages : 02

1. GENERAL

The Parallel Seismic test is a method for determining the length of piles under existing structures and sheet steel piling using a remote sensor. The test involves applying an impact to the pile head using a small hammer with internal trigger and measuring the time taken for the signal to propagate through the pile to the sensor located within an adjacent tube.

Testing will be carried out by Testconsult Limited or another similar approved specialist.

2. TUBE INSTALLATION METHODOLOGY

- 2.1 A closed ended tube shall be installed parallel to the pile axis and shall extend at least 2m beyond the expected maximum toe level.
- 2.2 It is recommended that ABS plastic inclinometer tubing is used, compatible with 'Digitilt' inclinometers. Tube alignment can then be checked on long installations.
- 2.3 The tubing shall be installed a maximum of 400mm away from the pile at any point.
- 2.4 The tubing shall be watertight and in intimate contact with the surrounding soil. This may mean the use of a bentonite cement grout to achieve a good contact.
- 2.5 The level of the top of the tubing shall be taken with respect to the pile/structure being tested.
- 2.6 The tubing shall be filled with potable water and capped to prevent the ingress of debris prior to parallel seismic testing.

3. TESTING METHODOLOGY

- 3.1 The remote sensor shall be lowered to the base of the tube in increments of either 0.5m or 1.0m. At each increment, the pile/structure shall be struck with the instrumented hammer and the transit signal from hammer to sensor recorded and plotted.
- 3.2 Transit signal profiles shall be plotted sequentially and the signal arrival time marked on each. The change in signal arrival gradient indicating the point at which the sensor drops below the pile base.

4. TEST EQUIPMENT

The test equipment shall consist of one remote sensor, this being a geophone, accelerometer or seismic detector and a hammer with internal trigger. These transducers will be connected to a data acquisition system with the following characteristics to ensure accurate and well-defined results

Analogue to digital sample rate min 20 kHz
Analogue to digital accuracy min 12 bit

5. REPORTING

The test report shall contain the following:

- 5.1 Copies of all transit signal profiles for each pile. Each plot shall have marked on it Date of Test, Site Name, Pile Number, Operator, Signal arrival gradients, and estimated depth of pile.
- 5.2 A brief description of pile type, soil conditions and methodology.
- 5.3 A table of results giving pile number, response depth and any other relevant comments.
- 5.4 Inclinator readings and relevance if these are taken.
