



# Federation of Piling Specialists Testing Datasheet No 1

## Guidance for the Principal Contractor

It is an essential requirement that the specialist testing contractor is allowed to work in a safe way and fully in accordance with their own procedures.

### 1. Static Load Testing of Piles

#### **Introduction**

The piling work on this site may require one or more pile maintained load tests. These tests can be of two types:

- **Preliminary Test:** This is a test carried out on an expendable pile in advance of the main piling work. The pile is usually tested until it fails and the results are used to refine the design of the subsequent working piles.
- **Working (or Proof) Test:** This is a test carried out on a working pile and the test load is usually limited to 50% over the design load to avoid overstressing the pile or the ground. This test is to check that the piles are capable of bearing the loads imposed on them.

The test piles (and reaction piles/anchorages, if any) will be installed by the piling contractor. The loading test will be carried out by a specialist testing contractor. After installation, any concrete cast-in-situ piles are left for a minimum period of 7 days or until the concrete has gained sufficient strength.

#### **Pile Protection between Installation and Testing**

Between installation and testing, the test pile and reaction piles/anchorages must be protected from damage and interference, specifically:

- Reaction piles are normally reinforced with prestressing bars which protrude from the piles to allow connection to the test beams. The bars are formed from high grade steel which can be damaged by heat or bending. The test area must therefore be **barriered off** from plant movement and no hot work allowed in the vicinity. In the unfortunate event of a bar being bent, it must never be straightened, but the piling contractor should be informed so that they can re-end the bar. This may require the breaking down of the pile.
- No excavations must take place around reaction piles/anchorages as these have been designed assuming ground level remains undisturbed. Excavations or loosening of the ground can cause these to pull out, stopping the test. A repeat test will severely disrupt your program!

#### **Testing**

The testing contractor will need road access from the public highway to the test location for the lorries which contain test beams and the data-logging cabin. The lorries will need to be able to park adjacent to the test pile to enable the data cables to run from the data cabin to the test assembly without interference. The lorries will also need to be able to park a safe distance from the test area.

The area around the test must be made suitable for the technician to safely work, i.e. levelled, hard-cored and without trip hazards or excavations.

An exclusion zone will need to be established around the area of the test, clearly marked and signed. This zone then becomes a **restricted** area.

During the test, no work that could cause vibration should be carried out adjacent to the test as the measurements being made may be affected.

The Principal Contractor can usually mitigate the disruptive effects of complying with the above requirements by careful selection of the location of the pile(s) to be tested.

### **Overnight Working Attendance**

The Engineer's Specification for the load testing normally requires the load to be maintained and measurements made continuously from the commencement to the completion of the test over a period of about 20 hours. This will invariably mean that monitoring will continue overnight. The testing contractor's risk assessment addresses the issue of lone working, however the Principal Contractor will need to also make the following provision outside of normal working hours;

- General site illumination.
- Access and egress will need to be maintained and security provided where appropriate.
- Although the technician will provide his own food and drink which he can consume in the data cabin, access to toilet and washing facilities must be provided in accordance with the Health and Safety at Work Regulations.
- An emergency contact number should be provided to the technician.

The testing contractor will normally try to commence the test before lunchtime so that the "6 hour hold" which comes about 12 hours into the test is reached before midnight, thus minimising the work needed overnight.

## **2. Dynamic and Rapid Load Testing of Piles**

### **Introduction**

The test pile will be installed by the piling contractor. These tests do not require reaction piles/anchorages. The loading test will be carried out by a specialist testing contractor. After installation, any concrete cast-in-situ piles are left for a minimum period of 7 days or until the concrete has gained sufficient strength.

### **Pile Protection between Installation and Testing**

Between installation and testing, the test pile must be protected from damage and interference.

### **Testing**

The testing contractor will need road access from the public highway to the test location for the lorries which contain the testing equipment. The lorries will also need to be able to park a safe distance from the test area. Craneage or piling rigs will also need safe access to the test location.

The area around the test must be made suitable for the technician to safely work, i.e. levelled, hard-cored and without trip hazards or excavations.

An exclusion zone will need to be established around the area of the test, clearly marked and signed. This zone then becomes a **restricted** area.

During the test, no work that could cause vibration should be carried out adjacent to the test.

The Principal Contractor can usually mitigate the disruptive effects of complying with the above requirements by careful selection of the location of the pile(s) to be tested.

### **Overnight Working Attendance**

These tests will not normally be carried out at night.

**3. Integrity Testing**

It is normal practice to carry out a test on the integrity of the piles after they have been trimmed to cut-off level. To enable this test to be carried out, the Principal Contractor should note that:

- The pile need to be trimmed down to cut-off level.
- A safe access needs to be provided for the test technician to gain access to the head of the pile.
- The pile cap/ground beam excavation must be clear of any standing water.
- The pile cap or ground beam reinforcement must not be in place.
- Although a thin layer of blinding can be in place around the pile, it must neither cover the pile nor be greater than 75mm thick.

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*Disclaimer*

*Although every effort has been made to check the accuracy of the information and validity of the guidance given in this document, neither the FPS or its members accept any responsibility for mis-statements contained herein or misunderstanding arising herefrom.*