



## Foundation Assessment

Testconsult Foundation Testing services are now renowned for their quality of service and the range of tests provided. All equipment used is designed and manufactured by Testconsult Equipment, and is in use worldwide, in over 50 countries. Technical support is provided overseas by Testconsult foundation engineers.

Pile Integrity testing is generally carried out using the TDR method, which enables changes in pile section to be analysed in detail using simulation and impedance profiling techniques.

Sonic logging is carried out using the latest SCXT system, which can log to 1cm vertical resolution and is power-

ful enough to check large diameter foundations. 2D & 3D tomography plots help to visualise problems.

Simbat dynamic load testing has been independently shown as one of the most accurate methods of determining pile capacity dynamically. With a variety of drop weight systems we can test mini-piles to high capacity large diameter cast in place piles.

Parallel seismic testing is sometimes the only solution for checking piles under existing structures. We have the equipment and the expertise to carry out this test if required.

## Services

- ◆ Full Ireland Coverage
- ◆ Fast Efficient Service
- ◆ UKAS Accredited to ISO17025\*
- ◆ Overseas work and technical support / training undertaken
- ◆ Pile Integrity Testing  
Cast, precast and timber piles
- ◆ Sonic Logging of piles, diaphragm walls and foundations
- ◆ Dynamic Pile Load Testing  
Simbat method for accuracy
- ◆ Static Pile Load Testing
- ◆ Parallel Seismic Test for foundations under structures
- ◆ Pile Instrumentation
- ◆ Fully Independent Service



\*See accreditation schedules for full list of accredited tests

## Testconsult Pile Testing Services

### Pile Integrity Testing

**Equipment:** TDR2 System

**Method:** The TDR (Transient Dynamic Response) method is routinely used for testing piled foundations. The test operates in both the time and frequency domain and can provide the following: depth measurement to pile toe/defect, pile head stiffness, pile mobility (i.e. section & concrete properties), pile impedance profiles and simulation of test results. TDR has been shown to be the most accurate method for assessing cast in place foundations, but can also be used on precast and timber piles.

**Advantages:** rapid operation and most effective low strain method for cast in place piles. Can detect overbreak.

**Disadvantages:** requires surface preparation and depth of measurement depends on pile /soil properties.

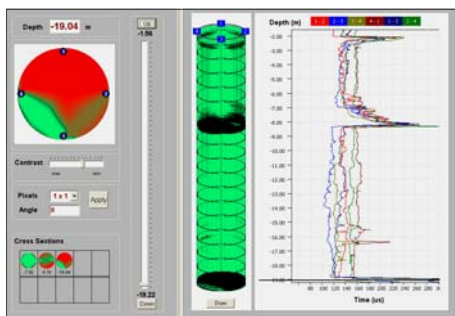
### Sonic Logging

**Equipment:** SCXT2000 Digital system

**Method:** Sonic logging is based on measuring the propagation time of an ultrasonic sonic signal between two vertical metal tubes cast into the pile during construction. Defects such as soil inclusions, voids and honeycombing have a lower signal velocity and are very easily detected. High powered equipment eliminates false defects such as tube de-bonding. Analysis options include waterfall plots, first arrival and signal energy analysis. 2D & 3D tomography are used to help assess spatial extent of any anomalies.

**Advantages:** no depth limitation, extremely accurate location and analysis of defects

**Disadvantages:** requires pre-installation of tubes, no information outside reinforcement



### Dynamic Load Testing

**Equipment:** Simbat System

**Method:** SIMBAT can determine the performance of a pile from dynamic measurements. Drop weights are used to send high strain waves into the pile. Waveforms are analysed to determine dynamic soil reaction and are then converted to static reaction. Computer models can be used to determine the distribution of soil resistance down the shaft and at the pile toe.

**Advantages:** rapid (10+ pile per day), minimal preparation, any size pile.

**Disadvantages:** does not suit all piles/soil types.

### Static Load Testing

**Equipment:** SLT2 system

**Methods:** Maintained load test, Constant rate of penetration test, tension test, horizontal load test.

### Parallel Seismic

**Equipment:** Paras System

**Method:** A closed end tube is installed adjacent to the pile under test. A hydrophone then measures the transit time of a shock wave travelling through the pile to the sensor, as it is raised in vertical steps. A change in the rate of signal arrival time indicates the depth of a shaft discontinuity or base. Results can be backed up with magnetometer for steel piles.

**Advantages:** Can check pile depths under structures.

**Disadvantages:** tubes need to be installed close to pile, no information of pile section

### Instrumentation of Piles

**Equipment:** Inclinometers, electro-levels, strain gauges, thermocouples and geophones.

**Method:** Foundations can be instrumented to obtain information on how foundations are reacting to loading and environment. Lateral movement, concrete temperature, internal stresses and vibrations and even loading at the pile base can be determined by selecting the appropriate transducers. Readings can be taken manually or automatically depending on the system used.

## Contact Details

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