



FUGRO DYNAMIC LOAD TESTING

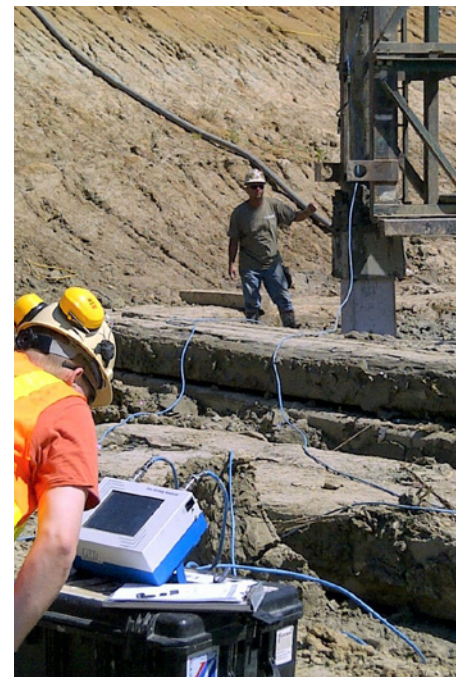
A dynamic load test (DLT) is a quick, efficient test that provides verification of pile integrity and capacity. It uses an applied impact force at the pile top while monitoring the pile response using a Pile Driving Analyzer (PDA). Combined with static tests, the DLT addresses site variability and allows a more economical design.

The DLT measures the impact stress wave traveling down the pile and the reflected stress wave that returns up the pile, generated by penetration resistance and changes in pile properties. Transducers installed on the pile measure strain and acceleration, which are transmitted to the PDA via cable or wireless connection.

The DLT can be a stand-alone test for either driven or cast-in-place piles. The test is nondestructive and requires only the PDA plus an impact force from a hammer or drop weight.

Dynamic tests have a small footprint on site and cause minimal disruption to construction operations. The PDA monitors pile stresses to help avoid installation damage and provides real-time feedback on capacity.

Proper interpretation of dynamic test results requires a high level of technical expertise, which Fugro engineers maintain through training and assessment. Detailed resistance and integrity analysis for a variable pile model is performed on end-of-drive or restrike blows using the CAPWAP computer program.



PDA field testing

SERVICE FLYER



DLT APPLICATIONS

- Profile pile capacity vs. depth
- Verify driving system selection
- Supplement static test program
- Production quality control
- Monitor site variability
- Proof testing
- Unusual driving or hammer behavior
- Test over water or in limited access
- Test existing foundations
- Restrikes for pile setup (or relaxation)
- Check drive cushion behavior, establish replacement criteria
- Calibrate wave equation, develop driving criteria

ADVANTAGES

- Test any pile, driven or cast-in-place
- Requires minimal time and equipment
- PDA is rugged, compact, and portable
- Use cabled or wireless transducers
- Economical capacity verification
- Mobilizes pile capacity up to 100 times ram weight
- Improve reliability, reduce safety factor and foundation cost
- Measure stresses to avoid installation damage
- Monitor hammer performance, improve driving efficiency

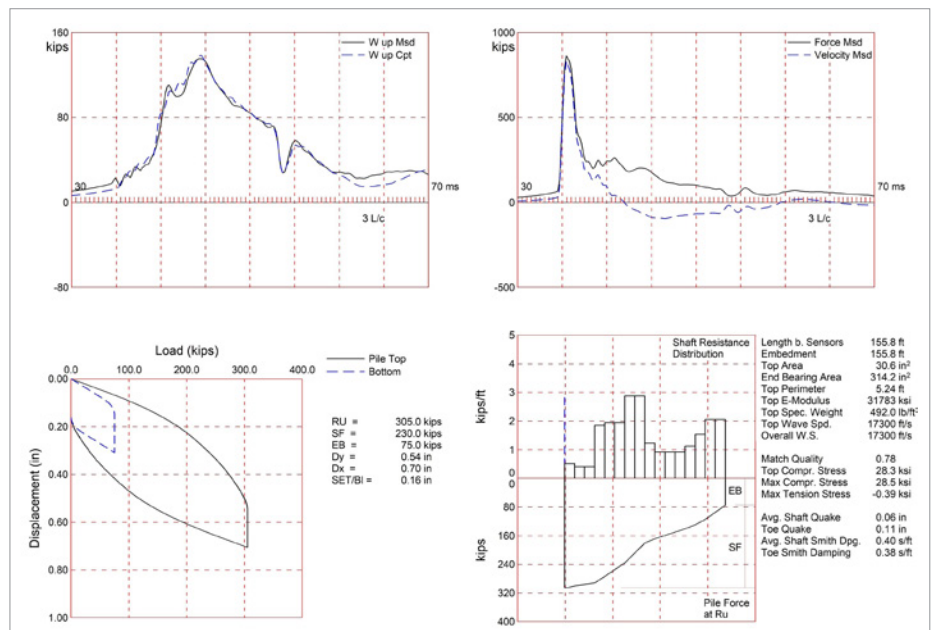
TEST RESULTS

Fugro's experienced technicians and engineers can provide preliminary test results on site, and detailed analysis within 24 hours when required.

- Compression stress
- Tension stress down the pile
- Pile bottom compression stress
- Bending stress to help align hammer
- Transferred energy, efficiency
- Blow rate
- Pile/hammer cushion effectiveness
- Diesel hammer stroke
- Pile integrity
- Pile capacity
- Depth plots
- Resistance distribution
- Simulated static test plot



PDA monitoring



CAPWAP output

