

## 6.4 DYNAMIC TESTING

6.4.1 Date tested,

6.4.2 The modulus of elasticity, density, and wave speed of test pile,

6.4.3 Length of pile, embedded and below apparatus, for obtaining dynamic measurements,

6.4.4 The maximum measured force, transferred energy to the gage location, corresponding stresses and the Case method bearing capacity for the CAPWAP analyzed impact.

6.4.5 Rigorous laboratory wave analysis of the derived data using CAPWAP software (Case Pile Wave Analysis Program) on the tested shafts to get the following information from the field data; pile load capacity, tip bearing resistance and its distribution, end bearing resistance, pile integrity as well as a simulated static load-deflection curve. In addition, the variables entered into the wave theory, such as damping, quake, and resistance shall be given. For more information, please refer to, page 3-1 "CAPWAP Background REPORT Version2006".

6.4.6 Assessment of the results both with respect to pile capacity and integrity.

## 8- REFERENCES

- ASTM D4945 - 2000 *"High Strain Dynamic Testing of Piles"*.
- *"Specification for Piling - Guidance on Dynamic Load Testing Piles"* Institution of Civil Engineers - Thomas Telford, London 1988.
- PILE DYNAMICS *"Manual of the Pile Driving Analyzer 2009"*.
- G. Linkins & M. Hussain *"High Strain Dynamic Testing of Drilled Shafts and Cast-in-place Piles"* Deep Foundation Institute – 20<sup>th</sup> Annual Members Conference & Meeting in South Carolina USA 1995.
- *"Specifications & Instructions for High Strain Dynamic Testing of Drilled Shafts and Cast-in-place Shafts"*- PILE DYNAMICS - PDA Manual February 2009.
- PILE DYNAMICS *"iCAP Manual October 2013"*.



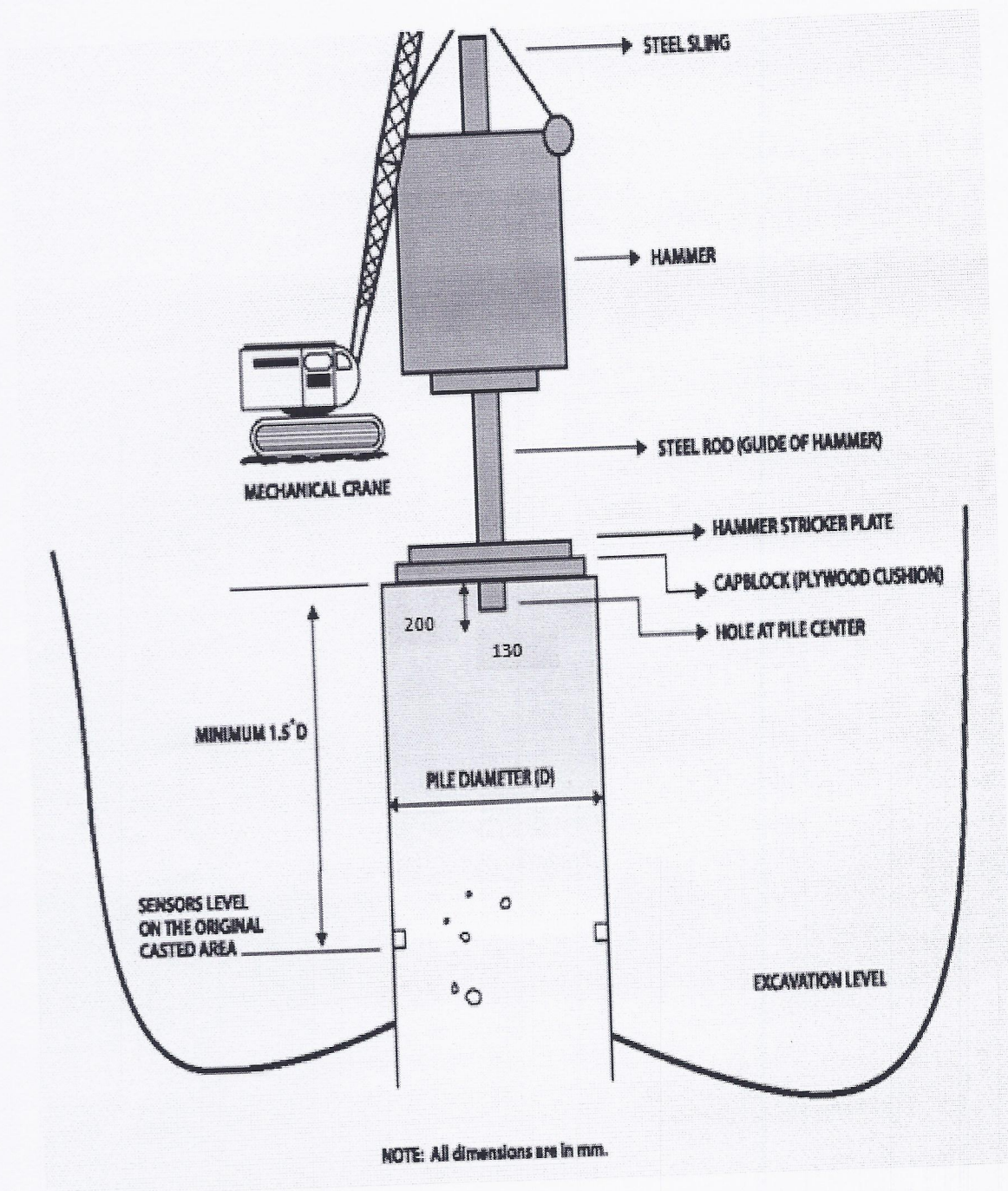


FIGURE -1 FREE FALL HAMMER SYSTEM AND PILE TOP REQUIRMENTS



# Pile Driving Analyzer® (PDA) Model PAX

## For Dynamic Load Testing and Dynamic Pile Monitoring

*Bearing capacity of all types of deep foundations.*

The Pile Driving Analyzer (PDA) acquires data from accelerometers and strain transducers attached to a pile or shaft. The tests require the impact of a pile driving hammer or, if that is not available, of a suitable drop weight.

High Strain Dynamic Tests per ASTM D4945 - quick, reliable and non-destructive

### Dynamic Load Test

- Results: Bearing capacity, structural integrity assessment
- PDA data analyzed with the CAPWAP® software
- Excellent correlation with static load tests
- Performed on drilled shafts, continuous flight auger, cast-in-situ or driven piles on a restrike

### Dynamic Pile Monitoring

- Results: Capacity at the time of testing (Case Method and iCAP™), driving hammer performance, driving stresses, pile integrity
- Performed during driving
- Helps establish the Driving Criterion
- Contributes to safe and economical production pile installation

The PAX may also evaluate the energy of SPT Testing Equipment by force and velocity measurements, per ASTM D4633 (optional SPT program).

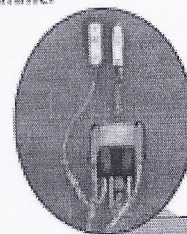
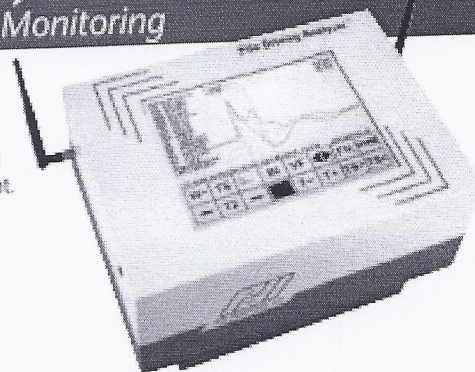
### PAX Wireless Mode

- All cables from the test pile to the PDA are eliminated
- Uses Pile Dynamics Smart Sensors and Wireless Transmitters
- Smart Sensors communicate their calibration value to the PAX, eliminating entry errors
- Signal transmission of up to 100 m (330 ft)
- Reduced volume and weight of the PDA system, simplified field setup

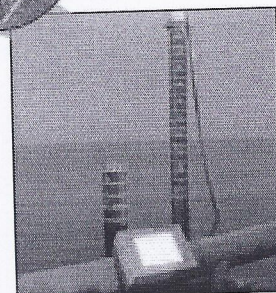
The PAX may also be used with cabled (traditional) accelerometers and strain transducers.

### Site Link (Remote Testing)

- The engineer performs High Strain Dynamic Tests from any office
- Real time field to office data transmission via Internet (PDA-R mode)
- All field measured signals and results on a computer running PDA-W software
- Simple PAX field setup may be performed by a technician
- Improves testing efficiency:
- Eliminates engineer's travel time, delays and expenses and down time on the job
- Allows immediate data analysis with CAPWAP and faster reporting of results



Smart accelerometer and strain transducer, offshore version.



PAX in Wireless Mode at Offshore job.



**FIGURE - 2 Pile Driving Analyzer Model PAX-8**