
BORLAND
NUSANTARA
DRILLING CONTRACTORS & FOUNDATION ENGINEERING

BORLAND NUSANTARA

Foundation work is our expertise. We are principally engaged in ground engineering works and services, such as bored piling, retaining wall, static loading test, PDA and concrete laboratory. We identify ourselves as being more than contractors — our portfolio displays our extensive ability in providing total solution to client's foundation problems as well.

OUR HISTORY & WHAT WE DO

BORLAND NUSANTARA was founded in Surabaya in 1989. For over 28 years, we have been working on prominent projects from diverse clientele bases. Our deep commitment to excellence and quality have developed us strong rapport and relationships with our clienteles. Hundreds of projects have been awarded nationally since our inception with footprints on **COMMERCIAL, RESIDENTIAL, INDUSTRIAL, INSTITUTIONAL, UTILITIES AND INFRASTRUCTURE** sectors.

The main service we do is bored piling. Bored piling, in simple words, is a modern foundation construction method which offers incredible strength and flexibility with minimal disturbance to the surroundings. The main advantages of bored piling include: minimal vibrations and noise, flexible pile length and diameter, no joint problems, minimal soil induced movement due to pile installation process, and convenience in urban areas.

BORED PILE AS FOUNDATION

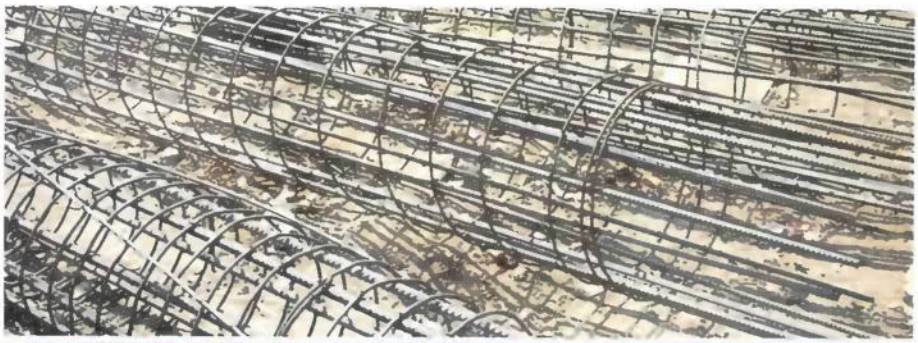
A bored pile is most often used as a foundation. It is a type of deep foundation that is constructed by placing fluid concrete in a drilled hole. Reinforcing steel can be installed, if desired, prior to placing the concrete. Properly designed and constructed bored piles have proved to be reliable foundations for many structures and are cost-competitive compared to other types of deep foundation construction methods. Borland Nusantara is committed to employ proper and well-established procedures to ensure our bored piles are installed successfully in a wide variety of subsurface conditions, with differing geometries, and for various applications. Take a closer look on how a typical process is done.

STEP 01 (BELOW)

Pile Layout Survey: Prior to commencing the work, each pile location is carefully surveyed and laid out in the field to ensure the foundation is installed at the correct location.

STEP 02 (BELOW)

Steel Reinforcement Fabrication: Various steel reinforcement cage arrangements can be assembled according to design. Special care is taken to ensure the rebar type, diameter, and stirrup spacings are all correctly set up and secured in place. Flat space is selected for the fabrication site to ensure the reinforcement cages do not sag and proper geometries are maintained prior to installation.



STEP 03 (BELOW)

Drilling Process: A hole with a specified diameter is drilled using an auger or a bucket to a specified depth. During the process, temporary casing may be installed or drilling slurry may be introduced to stabilize the hole. When the specified depth is reached, the drilled hole is carefully cleaned to ensure no mud is trapped at the bottom of the hole so that the pile capacity will not be compromised.

STEP 04 (ABOVE)

Installation of Steel Reinforcement: Pre-assembled reinforcement cage is lifted at one end to preserve the geometry before carefully lowered into the drilled hole.

STEP 05 (BOTTOM TWO RIGHT)

Placing of Fluid Concrete: Fresh concrete is cast into the drilled hole using a tremie pipe. Special care is taken to ensure that the tremie pipe is installed all the way down to the bottom of the drilled hole and at any time, the tip of the pipe is always buried within the freshly poured concrete. This will flush any remaining drilling mud out of the hole which will results in solid and consistent bored piles.

BORED PILE AS RETAINING SYSTEM

Bored piles lined together will form a contiguous wall which can be used as a retaining system for either an excavation or a slope stabilization program. Contiguous wall is an essential and economical part of the underground construction protection system because its stiffness can be easily adjusted according to design needs. For a large scale excavation, contiguous wall can provide high stiffness which is absolutely necessary to control deformation induced by an excavation. Furthermore, contiguous wall provides excavation faces that are near vertical and can also be used as a permanent structure.

LEFT AND RIGHT: Bored pile cut-off levels can be specified at a level below the bottom of an excavation, which eliminates the cost of cutting excessive driven piles.

RCTI Project

BORED PILE FOR SPECIAL CONSTRUCTION NEEDS

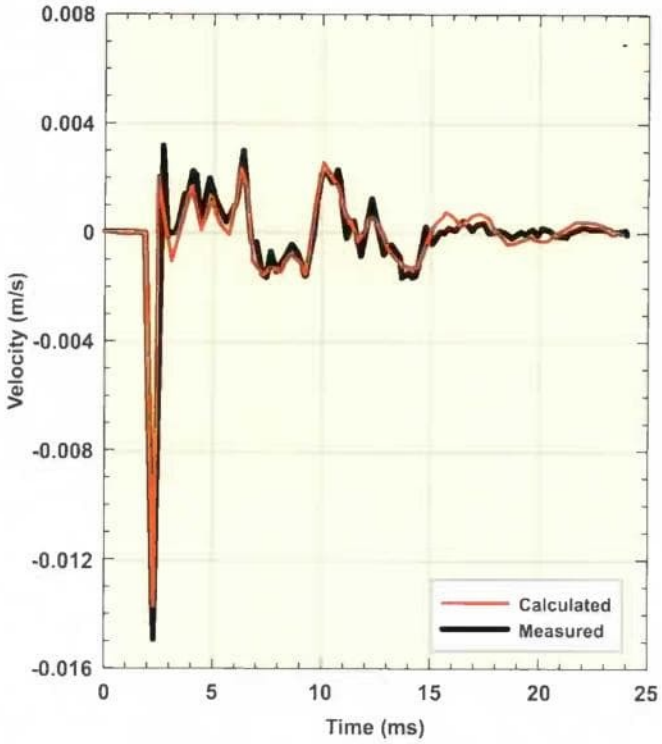
For very heavy structures, lare-diameter and / or deep bored pile fondation may be needed.

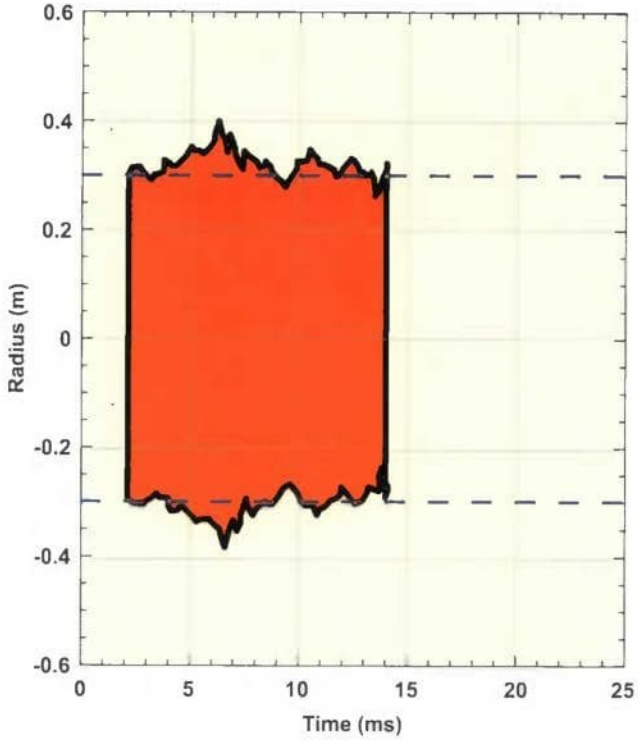
Our boring machines are capable to install up to 2,200mm diameter piles with depths penetration up to 88m (TOP LEFT) and also capable to install up to 2,500mm diameter piles with depths penetration up to 92m (TOP RIGHT).

PILE INTEGRITY TEST

A pile performance is highly dependent on its integrity. Borland Nusantara offers Pile Integrity Testing method that can detect any defect caused by faulty pile installation procedure. Energy is propagated down a pile by striking the pile head with a hammer. Changes in cross-sectional area will produce wave reflections. The wave reflection is then processed to provide imagery of the pile profile.

LEFT: Typical procedure of Pile Integrity Testing. BOTTOM: Typical Pile Integrity Test result showing comparison of recorded and calibrated wave velocity time history and the cross-sectional profile of pile along its depth of embedment.

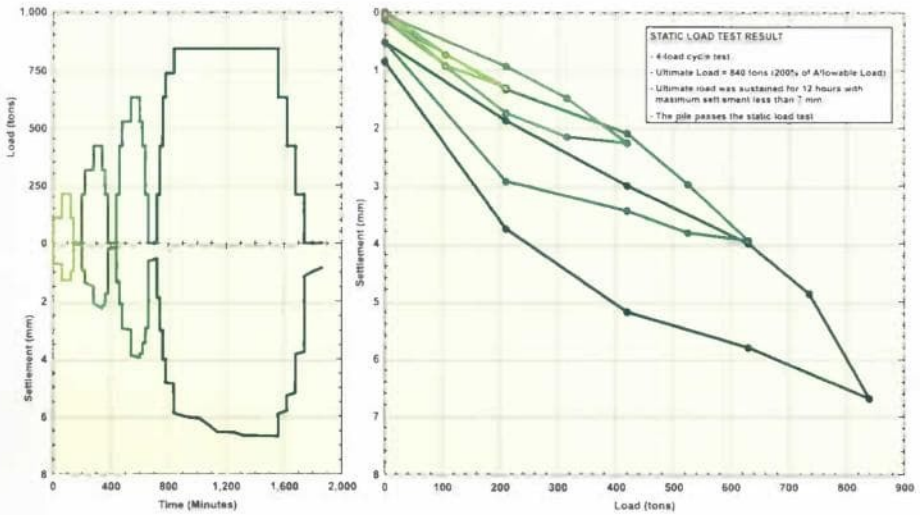




STATIC LOAD TEST

Static Load Test is used to evaluate the axial compressive, axial tensile, and lateral capacities of a single pile or a group of piles by placing real load onto the tested pile(s) and measuring the movement needed to mobilize the pile(s) capacity. Borland Nusantara is highly experienced and knowledgeable in performing different static load test arrangements and has the capability for up to 2,000 tons pile capacity testing.

TOP AND RIGHT:
Counter weights used in an axial compressive static loading test.

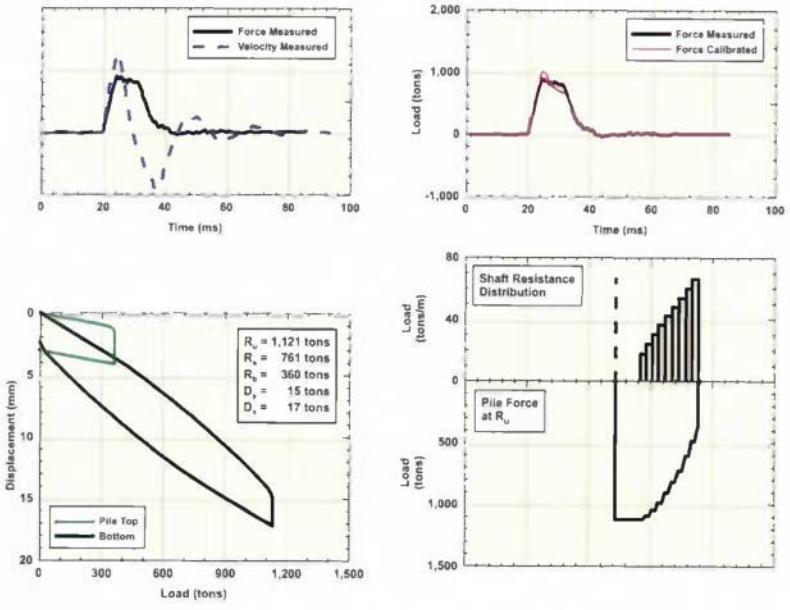


TOP THREE: Equipments needed to apply the load and measure pile movements. BOTTOM LEFT: Typical static load test result showing load vs time, deformation vs time, and deformation vs. load figures.

▸ DYNAMIC LOAD TEST

Dynamic Load Test is a quick and cost-efficient alternative to evaluate the axial compressive capacity of a pile. In this test, a pile is instrumented and hit with a mass dropped from a certain height. The energy propagated down the pile is recorded by the instruments and analyzed using Wave Propagation Theory to obtain the mobilized pile capacity. The higher the pile capacity to be verified, the heavier and/or the higher the mass needs to be dropped. Borland Nusantara is capable to provide various hammers needed for a wide range of pile capacity dynamic testings.

TOP TWO:
Energy is propagated down the pile by dropping a hammer with certain weight from a certain height.



LEFT: Typical dynamic load test result showing recorded result, energy calibration result, pile settlement corresponding to the mobilized capacity, and skin friction resistance distribution along the pile.

EXAMPLES OF PREVIOUS PROJECTS

Capital Square


One East Residence


Ciputra World Surabaya


U-Residence Apartment Karawaci

EXAMPLES OF PREVIOUS PROJECTS


Rembang Cement Plant


De Papilio Tamansari


Anderson Apartment, Supermal - Surabaya


Kompas Multimedia Tower

EXAMPLES OF PREVIOUS PROJECTS

MNC News Center

MNC Tower Surabaya

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