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Small Diameter Bored Piles

Application

Suited to most types of soft and/or water bearing soils.

Temporary casings can be used on rotary bored piles through non-cohesive strata.

Diameters generally within the range of 300mm to 600mm with depths up to 30 metres for CFA piles and 40 metres for Rotary augered piles.

Used for bearing piles and contiguous or interlocking walls. Integral enlarged heads can be formed with CFA piles.

Advantages

- CFA is vibrationless and quietest known form of piling.
- Smaller rigs can operate in confined spaces with limited access.
- Small diameter piles can be installed near to existing services.
- Generally reduced noise levels.



Cementation Skanska operates a large fleet of piling rigs for the installation of small diameter rotary bored piles. Small Diameter Bored Piling is a definition which applies to piles with diameters not exceeding 600mm. They can be constructed in most ground conditions and carry their loads by either friction or end bearing or a combination of both depending on the geology encountered. Construction is by means of hydraulically operated rotary boring rigs that are in a range of sizes to suit the project requirements. Choice of method is dependent on factors such as available space, access, pile loadings and ground conditions. Rotary bored piling is a low vibration method and therefore can be installed, with the appropriate controls, close to sensitive receptors such as services or existing structures.

Rotary Boring

Rotary bored piles can be constructed either as continuous flight auger (CFA) or using a short

auger and extendable Kelly bar. The CFA technique uses the self-erecting hydraulic rigs and is one of the quietest forms of piling and virtually vibration free. The system eliminates the need for any form of casing, using the continuous auger itself to keep the hole open during drilling. Concrete is injected through the hollow auger stem so that the concrete flows from the bottom of the pile as the auger is withdrawn from the pile bore. After concreting, the reinforcing cage is inserted into the fluid concrete – cages up to 18 metres length is common. Rotary augered piles are constructed with hydraulic rigs using a short auger and Kelly bar. Where ground conditions dictate, a length of temporary casing is installed to support any non-cohesive or loose strata and prevent ingress of ground water. A reinforcement cage is placed within the pile bore prior to concreting and any temporary casing is removed as the final operation in construction.

Where design conditions require, a heavy reinforcing cage can be installed to withstand horizontal loads or long reinforcing cages to withstand tension loads. Pile diameters of 300mm, 400mm, 500mm and 600mm are available with varying depths up to a max of 36 metres for CFA and 40 metres for Rotary augered piles depending on ground conditions.

Where access and working space are restricted, purpose built smaller rigs are used to construct Small Diameter bored piles. Piles can be installed working in limited headroom. The headroom and pile diameters available vary depending on type of rig.

Bored Piled Walls

Temporary or permanent bored piled walls can be constructed using CFA or Rotary rigs and can be designed as cantilevers or with the support of props. Vertical loads from the proposed structure can also be accommodated.

The choice of any particular system will be dependent on access, working space, soils and loading conditions and we are always pleased to consider your individual design requirements.

