

AP25968 – Streets Court, East Street, Havant, PO9 1DF

CFA Piling Construction sequence

CFA piling is a rotary replacement piling technique where continuous augers are drilled to a designed depth and concrete is pumped, under pressure, through a central stem to the toe of the pile as the auger is withdrawn. This ensures that a monolithic concrete pile shaft is formed with the pile spoil being lifted, and removed, by the augers as the concrete is placed. CFA piling is a vibration free technique. The identified ground conditions are Made Ground/ Head Deposits overlying a Clay stratum of the Lambeth Group. Ground water was not encountered in this Clay mass which will be the main load bearing stratum for the piles and was proved to a depth of 17m.

- Set up at the pile position. Ensure that the 'Permit to Dig' is in place confirming that there are no services present at the pile location.
- Drill to the specified design depth, adding augers as necessary to achieve the required length. The maximum anticipated pile depth is 13.5m. The continuous forwards rotation of the augers will ensure that the pile spoil can only be lifted upwards. The rate of penetration/ rotation of the augers will be monitored to prevent over-flighting of the soils at this stage.
- On reaching the design depth, concrete will be pumped through the central stem of the augers to the toe of the pile. The concrete pressure will 'blow' the bung at the bottom of the auger stem and pumping will continue briefly before the augers are lifted. The flow of concrete will act to scour the base of the pile and, as the pressure builds, the concrete will 'climb' the lower part of the augers preventing any possible contamination of the concrete shaft with the spoil.
- Start to lift the augers. As the augers are lifted, the concrete flow rates and pressures will be continuously monitored, with positive values being maintained at all times. This will ensure that the pile shaft is correctly formed preventing spoil and groundwater ingress. Any undulations in the side of the pile bore will be filled by the pressurised concrete. As the augers are lifted, a slow forwards rotation may be implemented. This, along with the maintained concrete pressure, will assist in lifting the spoil vertically on the augers as the shaft is concreted. It will also reduce the risk of downwards or sideways migration of the spoil. The attendant excavator will remove the spoil as it rises to ground level.
- Concrete placement will be stopped as the augers reach ground level. The rig is moved away from the pile bore and the attendant excavator will clear the spoil to expose the head of the pile. The piling operatives will inspect the top of the pile to ensure that there is no spoil in the wet concrete. The specified reinforcement cage will then be lowered into the pile to the required level.

