Method Statement for foundations in a root protection area

This method statement has been specifically developed for the installation of Chance helical piles within a root protection area.

Chance helical piles have been around since 1912 and are used worldwide for earth anchoring and foundations. As well as being a highly effective foundation structure the Chance helical pile system has the added benefit of being extremely low impact and is therefore suitable for use with delicate listed building structures and within root protection areas.

There are many examples and points of reference available but in particular, I am aware of a recent application 1597/12 (28 Cambridge Road) in the London Borough of Redbridge where this approach was granted approval for use within a tree protection area and successfully implemented.

Installation overview

The pile installation is carried out using a portable hand held hydraulic rig powered from a hydraulic power pack which can be kept remote from the root protection area. The rig consists of a hand held hydraulic torque motor (MDT-001 Drive Head) applying a torque of a maximum of 6800 N.m, screwing the pile leading head into the ground. A reaction arm is attached to the side of the drive head to resist the clockwise torque applied to the piles (see photograph below).

Photograph of pile insertion with a portable hand held hydraulic rig

Unlike traditional piling, all the equipment is hand held so there is no requirement to install protection to the ground or install a piling mat to support pressure from the tracks of a piling rig.
The extent of the site disturbance is therefore limited to the foot traffic from the 3 trained operatives who control the equipment and the installation of the piles.

For the proposed works at 34 Netherhall gardens, the existing paving slabs to the perimeter of the extension would be removed along with any hardcore or sub base material. The pile locations would then be set out and a shallow excavation carefully made with a hand shovel – approx. 400x400x400mm to check for the presence of any significant roots. If a significant root is detected then the location of the pile could be moved along the line accordingly.

devilfish design limited
272 Field End Road, Ruislip HA4 9NA
+44 (0) 7971 761487 www.devilfishdesign.co.uk
Company registered in England No. 5720034

Each pile has a leading head made of a 40 mm square steel shaft with 3 helical bearing plates - 203 mm, 254 mm and 305 mm in diameter (see photograph below) The pile would screwed into the ground in a controlled manner and additional sections added until the desired torque or depth has been achieved. Any remaining pile shaft would then trimmed back and the pile head left ready to receive the above ground construction.

Photograph of pile lengths prior to installation

Installation procedure

1) Attach drive head to lead section at pile location
2) Attach reaction arm to drive head and position to prevent turning moment
3) Ensure all personnel are within safe working area and install lead section
4) For grouted piles, add lead displacement plate and extension
5) Install extension, adding grout to pile void as required
6) Continue adding extensions and extension displacement plates until the required depth and torque is achieved

An installation log shall be recorded for each installation showing
a) Site, date and pile number
b) Pile type
c) Installation pressure/torque at regular depth intervals
d) Total installation depth and final torque readings
e) Volume of grout used (if any)

The area will be left in a clean and tidy manner

devilfish design limited
272 Field End Road, Ruislip HA4 9NA
+44 (0) 7971 761487 www.devilfishdesign.co.uk
Company registered in England No. 5720034

In summary, the proposed foundations are considered to be extremely low impact and as such will not cause harm to any existing trees or roots.
With the exception of the shallow holes made with a hand shovel to inspect for the presence of significant roots, there will be no excavation or spoil removed from site. The will be no vibration, drying out or contamination of the existing soil and the existing ground water will be unaffected. The presence of the 40mm square pile shafts will not impede future root growth or expansion.
The disturbance of the site is limited to the foot traffic of the 3 trained operatives.

Peter Phillips BA(Hons)Int Arc

For & on behalf of devilfish design limited

Enc.

Chance piling system approvals
Case study - GS-M-CS006-Screw Piles Bromley Kent
Case study - GS-Screw Pile-platform 1

devilfish design limited
272 Field End Road, Ruislip HA4 9NA
+44 (0) 7971 761487 www.devilfishdesign.co.uk
Company registered in England No. 5720034