

AERO BUILDING SYSTEMS LTD

Method Statement for Surefoot pile foundation system

Date 8th February 2018 Written by: Greg Harding

Project details

Project name: Boat House Cottage, Rudyard Staffordshire.

Description: Installation of concrete-free root pile foundation system for timber frame extension.

Location: Reacliffe Road, Rudyard, ST13 8RS, Cheshire

Project start date: TBC

Personnel: 2/3 installers TBC, Aero building will provide staff that are sufficiently experienced to guarantee the correct installation of the system to the consultant engineers specifications.

Equipment, tooling and Safety

Key Materials: Steel pile caps fabricated to EN 1090 EX2/3, Mag alloy coated Steel tubular piles and galvanized steel fixings.

Key Plant & Vehicles: Light commercial vehicles, portable <u>(hand held)</u> hydraulic and petrol driven pile drivers, portable power tools. No heavy plant of any description is required on site.

PPE: Standard PPE equipment, helmet gloves, boots, ear and eye protection.



Specific Hazards: Refer to Risk Assessment.

Specific staff training: All staff have basic CITB H&S courses, all other training is proprietary.

Sequence of work

- 1. Surveyor layout of load axis points: site is prepared by others and load points are identified using a Total-station theodolite. In the case the pile caps are required recessed in the ground, each load point is hand excavated 20cm deep (performed by others).
- 2. Pile caps are positioned over the layout points either on the surface or recessed*.
- 3. Tubular piles are positioned in pile caps and driven to specified depths.
- 4. Pile caps are locked in place and levelled with proprietary bolt system
- 5. Connection system is installed to support floor system of the building.

*recessed pile caps are to accommodate floor/joist system depth and final desired finished floor levels.



Tree roots and tree root management

The piling systems involved are non-invasive, and non-disturbing to existing ground conditions. The essence of the system is a pin pile/root pile system that involves the driving of small diameter (42 and 60mm) hollow (open) tubular piles into the ground. Pile /tube walls are only 3mm thick thus the piles core into the soil with displacing it. The combination of such small diameter hollow tubes driven by portable post drivers enables a low impact foundation to be installed that does not interfere with natural drainage patterns or the general stability of the tree root systems.

On driving, tree roots are most commonly avoided, pushed out of the way or in the case of larger roots, a refusal could be indicated. In the case of a refusal the pile guide on the pile cap is ignored and another pile guide is used to avoid the root. Larger pile caps with more guide options are specified when in close proximity to the tree (within 2m) to present more driving options to avoid large roots. The degree of roots that could be hit during an installation is negligible.

In this way the piles are installed in and around root zones with no damage to the trees root systems. To summarize, the small diameter tubes do not interfere with ground drainage, stability or other factors that could affect the health of the tree.*

An Arboricultural consultant will be present on site during the installation to monitor the procedures.

*System has been approved for a large project in Cambridge University Botanical gardens to be executed in March. The system is specified in and around champion trees. References/contacts are available on request.



Mobilization / demobilization, work around trees

All equipment is hand carried into the construction area, no vans or other vehicles are required. All plant is hand held or hand wheeled to position, all tools weighs less than a 32kg with the exception of a power pack that weighs 80kg (the weight of a person) and that can be positioned anywhere within 10m of the installation point. None of the tools would be considered as plant or heavy items that could affect a root protection area around a given tree.

Power packs also sit on Trays to present spillages of oil and/or fuel.

Site management

Root protection areas will be marked out and fenced accordingly. Access routes for works determined and signs positions to comply with legislation.

Construction works associated with the preparation of the foundation components and the timber frame shall be carried out on the existing area of hardstanding to the northwest of the cottage

Materials of construction are to be stored on the area of hardstanding to the northwest of the cottage & proposed timber frame

No heavy machinery is to be utilised on site in the construction of the extension. This is relevant to both the root protection areas and also the land in close proximity to the reservoir, no equipment used would give rise to any potential land Instability issues.

Quality Control

- 1. Any superficial damage to pile caps or end cut piles is repaired on site with galv paint or covered plastic caps (in the case of the piles).
- 2. All pile depths and selected driving times are recorded in the pile records and sent to the consulting engineers during the project install.



- 3. Pile caps that are found not to comply with the design (refusals that could not be compensated), pile caps are either cut out and reinstalled with new piles or replaced with larger plates and new piles following the consulting engineers indications.
- 4. Installed pile caps will be within 3cm of the load axis points, within the parameters of adjustment of the levelling system.

Submittals

- 1. Pile records and timing data are given to the consulting engineers end of each day.
- 2. Post install calculation pack and "as built" are submitted to the client for their records on completion.