CASE STUDY

WADHURST, EAST SUSSEX

FOUNDATIONS

CLIENT

O'Keefe Construction

DEVELOPER

Newcourt Residential

SCOPE OF WORKS

Combislab

ACHIEVEMENTS

Completed on time
Completed on budget

Project Brief

Roger Bullivant (RB) were approached by O'Keefe Construction to offer a suitable piled foundation solution at a prestigious housing development in Sussex.

The development at the former Bellerbys College site, would provide a range of 26 prestigious homes whilst maintaining and refurbishing the Grade II listed manor house.

ROGER BULLIVANT LIMITED
T. 0845 838 1801 www.roger-bullivant.co.uk info@roger-bullivant.co.uk

FOUNDATIONS

Key Issues/Requirements

- The site was logistically challenging on a steep bank made up of impermeable, poorly drained clay.
- A piled foundation design was required to withstand the possible heave of the Wadhurst clay formations. The strata sequence comprised of made ground overlying the Wadhurst clay to 20.0m and was shown to contain mudstones at depth.
- The piles were designed to BS8004 code, using a factor of safety of 3. The top three metres of the soil were neglected with regards to providing any compressive resistance to the piles. The top 1m was disregarded due to the uncertainty of the Made Ground composition and strength characteristics, whilst the further 2m layer of clay has been neglected due to its shrinkage/swelling potential. This would be likely result in upward (heave) forces imposed on the pile, which are counteracted by the reinforcement cage and central bar.

Solution

- 628 No. 300mm SFA bored piles were installed over the whole development with varying lengths between 6.0 – 8.0m to achieve loads of 225kN.
- The CombiSlab design was made up of a 225mm thick R.C slab with a 300mm void.

Advantages

- Pecafil encasing to protect the void for backfilling
- Can be ground bearing or suspended for heave protection or landfill gas ventilation.
- Pile positions can be flexible to avoid obstructions in the ground.
- Can be installed with ground treatment systems as well as piled systems, depending on ground conditions.
- Suitable for large commercial, schools, hotels and residential developments.
- Load sharing systems with settlement mitigation piles can apply to limit differential settlement where high concentrated loads exist.
- Minimal excavation is required which is useful on contaminated sites where disposal of arisings can be costly.
- Limited handovers between groundwork trades speeds up construction process.

Process

- Collapsible jacks and supportive trays are laid under a CCA ply decking platform fixed around pile heads and drainage fixtures.
- Rubber seals are applied round protruding pile heads to prevent localised concrete spillage.
- Steel reinforcement fixed to specification inter-connected to pile bars.
- Reusable shuttering enclosing the slab with vent formers.
- Clean, tamp-finished concrete casting

ROGER BULLIVANT LIMITED
T. 0845 838 1801 www.roger-bullivant.co.uk info@roger-bullivant.co.uk