



AARSLEFF®

OTTERHAM QUAY LANE, RAINHAM

May 2021

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SCOPE OF WORKS 3196No 15m long, DPC Piles of 200mm diameter, 600No grout holes, 750 m3 of mortar

CLIENT Persimmon Homes

CONTRACTOR Aarsleff Ground Engineering Ltd

CONSULTANT Leap Geotechnical Ltd

TYPE OF CONTRACT Subcontract

CONSTRUCTION PERIOD January 2021 - May 2021



COMPACTION GROUTING AND DRIVEN PRECAST CONCRETE PILING.

On behalf of client Persimmon Homes Ltd, whom we have previously worked with on several piling schemes, Aarsleff Ground Engineering has undertaken the ground improvement package for a new housing development on Otterham Quay Lane in Rainham, Kent.

Specifically, Aarsleff installed, 600No. compaction grout holes and 750 m³ of mortar over a 12-week period following behind with the installation of some 3,196No. 200mm 15m-long driven precast concrete piles.

Technically, the use of compaction grouting has been very effective in mitigation of the risk of solution features beneath the site.

Solution features are common phenomena within chalk areas, formed by dissolution of the chalk as a result of chemical weathering.

These solution features pose a risk to development and infrastructure works in these areas due to the presence of soft or loose infill materials which can lead to settlement and collapse.

On this site, compaction grouting has been used to stabilise solution features and metastable ground beneath roads

and hardstanding areas as well as domestic gardens.

The property themselves being supported on Driven Precast Piles (DPC). Compaction grouting is a process employed for increasing the density of the soil by injecting a stiff, mortar-like grout under pressure through cased boreholes.

The grouting is usually carried out bottom-up, in successive stages of about 1m. As the grout is pumped in, it gradually forms a bulb which pushes the surrounding soil to the side, thereby increasing the relative density of the soil.

The degree of densification depends on the type of soil treated and the grid pattern for the injection points. Injection rates have varied from 2 to 6m³ per hour, with injection pressures in the range of 1 to 4MPa.

All the properties which have suspended floors are being supported on driven precast piles (DPC), supplied by our sister manufacturing company Centrum Pile.

Aarsleff's Senior Geotechnical Consultant Dr. Dan Adams said

“This marks the first time that we have been able to offer both compaction grouting and piling as part of an overall works package. Our environmental impact has been reduced with the selection of a CEM II cement for our mix design of the mortar. CEM II is a cementitious product that reduces landfill through re-using Fly Ash, a by-product from coal fired power stations, and reduces CO2 emissions up to 25% for each tonne produced.”

Aarsleff also carried out some additional works which were identified by Persimmon's consultant Leap Geotechnical Ltd which were not in the original scope but completed in the first week of May. The works were completed on time, and on budget.



Aarsleff Ground Engineering Ltd is the UK trading arm of Danish contracting giant, Per Aarsleff A/S. Incorporated in the UK in 1991, Aarsleff Ground Engineering is one of the UK's leading ground engineering specialist contractors, with piling, geotechnical, and retaining walls divisions. An in-house design team means Aarsleff can offer you a full package of design and installation and we actively promote early consultation for value-engineering to give our clients the best service, design quality, safety factor, and value.

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