



CASE STUDY SPALDING



PILING

CLIENT

Eurovia

SCOPE OF WORKS

Driven Precast Concrete
Piles
CFA Piles

ACHIEVEMENTS

Completed on time
Completed on budget

Project Brief

In 2022, the Midlands team were awarded a project with Eurovia for Lincolnshire County Council. This scheme will provide a new route around the West side of the town and link the A1175 and A16 to the South and East of Spalding, to the B1356 to the north, via the B1172 Spalding Common with an estimated value of £109.5million.

The team was instructed to install 1666 No. 250mm Driven Precast Concrete Piles to depths ranging from 18m to 19.7m and 60No. 450mm diameter Continuous Flight Auger (CFA) piles to 20.5m depth with the top 12-13.5m supported using 508mm diameter permanent casing to suit the soft tidal flat ground conditions.

Project Design & Information Manager at Eurovia said,
“Our thanks must go to Roger Bullivant for providing a professional service throughout; from the initial design stage to the final pile installation. Lots of teamwork and collaboration between RBL, Lincolnshire County Council, WSP and Eurovia Contracting North has led to an exceptional end-product which has enabled the overall project to progress seamlessly.”

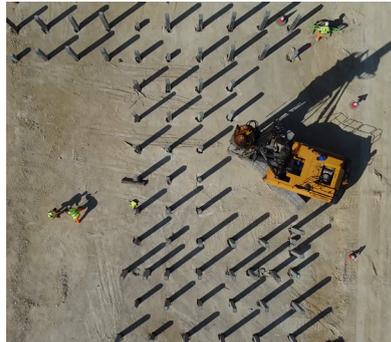


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PILING



Key Issues/Requirements

- ↘ The Midlands team worked closely with both clients and the engineers for over a year, carrying out preliminary precast pile installations and testing to confirm ground conditions and pile behaviour and load capacities for the embankment works.
- ↘ On the site there was also a larger diameter gas main on the Western side of the railway line which runs under the proposed route to the relief road and needed to be protected.
- ↘ Driven piles couldn't be used due to the stringent vibration levels permitted on the high pressure gas main and the horizontal loadings required to cantilever the slab.

Solution

- ↘ RB installed 250mm square Driven Precast Concrete Piles as support below the east and west embankments to be constructed to facilitate the proposed relief road route over the Peterborough to Lincoln railway line.
- ↘ We utilised 2 RB Quiet Hammer Driven Piling Rigs, one for either side of the railway line with pile sections manufactured specifically to suit the loading requirements of the embankment and project specification.
- ↘ The design was carried out to Eurocodes with the benefit of preliminary and working test piles to economise the design.
- ↘ The piles were installed through very soft tidal flat deposits and into the Oxford Clay formation at depth. The follow on works for Eurovia comprised individual pile caps and a load transfer platform below the proposed embankment.
- ↘ As driven piles couldn't be used for the Gas protection Slab located on the Western side of the railway line, RB utilised the partially permanently cased CFA piles to form the piled foundations for the gas slab protection to avoid any vibration transfer and suit the ground conditions and loading requirements.
- ↘ The 508mm outer diameter permanent casings comprised recycled steel tubes adapted with bespoke teeth, holes and collars welded to them to permit handling and installation by the rigs. These casings were socketed into the Oxford Clay to provide support through the soft deposits during pile construction and curing to permit the installation of the 450mm CFA piles to depth.
- ↘ Due to the scheme requirements, site, and ground constraints, a range of Roger Bullivant rigs and techniques were utilised to successfully complete the works. RB's 5000/5500 series rigs installed the precast concrete driven piles, the Hutte mini rigs installed the permanent casing and the 7007 CFA rig installed the CFA piles, showcasing the wide range of specialist piling works we can offer at Roger Bullivant.