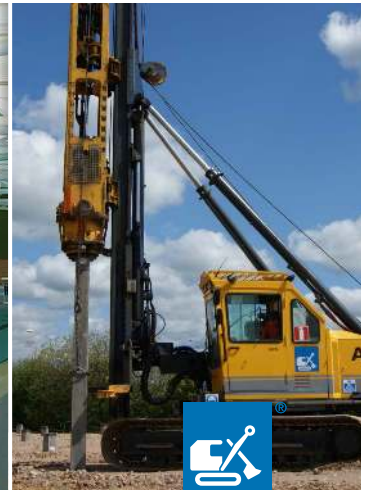


Wales National Swimming Pool, Swansea

Driving of precast concrete piles and steel piles for the new Wales National Swimming Pool in Swansea.



AARSLEFF

Shepherd Construction awarded Aarsleff Ground Engineering the piling contract for the new Olympic size Wales National Swimming Pool in Swansea. The swimming pool complex, constructed for the City and County of Swansea, includes a 50m main pool and a 25m practice pool, and is located within Swansea University's existing sports compound.

Aarsleff started piling late March in 2001, driving just under 560 No. 300mm square, single and jointed precast concrete piles from 11m to 18m long through about 6m of fill and underlying dense gravel. However, Aarsleff's Banut 500 piling rig, with a St Uddcombe drop hammer, ran into difficulties with occasional piles refusing and breaking. It was expected that some of the precast concrete piles might be difficult to drive through the stiff made ground with obstructions, prompting a reassessment of the piling operation.

"We anticipated hitting problems and predicted about 10% of the precast concrete piles might hit obstructions and break, but in the end only about 7% failed," said Shepherd Construction project manager Frank Lambert. "We worked closely with our specialist piling subcontractor Aarsleff Ground Engineering, who were very co-operative and suggested replacing the concrete piles with steel tubes in those locations where the concrete piles failed. We thought it was a good idea, which solved the problem."

"We needed an alternative solution, so we suggested driving steel tubes next to the few concrete piles, which failed. We can put the same impact energy from the drop hammer into a much smaller area of steel and believed that with this method we could get through the very stiff fill and deal with the obstructions. We had successfully used a similar technique on the grandstand foundations for the new Rockingham Motor Speedway at Corby, Northamptonshire."

For the replacement steel tubular piles Aarsleff used 244.5mm outside diameter oil well casing, which were collared and coupled together in 10m to 13m long sections.

The precast concrete and tubular steel piles, driven on an approximate 3m grid pattern, were designed for compressive working loads up to 650kN. Precision Monitoring & Control carried out independent dynamic testing to verify capacity of the concrete piles and the replacement tubes.

Construction of the Wales National Pool Swansea was completed on schedule by October 2002.



Scope of Works

560 No. 300mm square diameter precast concrete piles & steel tubular piles

Client

City and County of Swansea

Contractor

Shepherd Construction

Equipment

Banut 500

Construction period

March 2001

Aarsleff Ground Engineering Ltd, is the UK trading arm of Danish contracting giant Per Aarsleff A/S, and is one of the UK's leading piling and geotechnical design and installation specialist contractors; actively promoting early consultation to ensure each scheme can be Value Engineered to give clients the best service, quality design, safety and value. Aarsleff's strategy and philosophy of investment into the future has resulted in its wholly owned subsidiary Centrum Pile Ltd having the most advanced precast pile production facilities in the UK, producing segmentally jointed precast concrete piles to BS En12794 to Class 1A.

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