

Piling & Foundations, says he has tendered for jobs that would need £70,000 of site surfacing – all of which would have to be removed once the piling is finished. “Our clients are looking for us to be as sensible as possible,” he says. “Quite often, the measures outstrip what is actually needed.

“In the past, it wasn’t always necessary to present options,” he continues, “but now, when you see how much it’s going to cost at the start, and how difficult it can be to get a certificate for site surfacing, it’s important that we can offer different solutions.”

Mowlem has invested in two smaller machines to overcome

the need for these large working platforms, and is also intending to operate some of its rigs from timber mats – a practice common in the rest of Europe, but one that hasn’t previously taken off in the UK. “There is some loss of protection,” admits MacDonald, “but that is offset by the cheaper cost of the surfacing.

“With factors such as site surfacing in place, the more versatile companies are going to be able to select a range of options. However, that requires a certain degree of confidence in your piling contractor – not simply going for the cheapest pile.”

www.roger-bullivant.co.uk

Breaking records

Loadtest has created a new world record for static load testing of piles on a new cable-stayed bridge in South Korea, achieving a loading force of 210,000kN.

When complete, the Incheon Bridge will link Incheon International Airport with the New Songdo City. It is being constructed and financed through a Public Private Finance Initiative for concessionaire Koda, a special-purpose company headed by contractor Amec.

The central section of the 12km link is a steel box girder cable-stayed bridge that has five spans, with a centre span of 800m and a clearance height of 74m.

A joint venture company, headed by Samsung Corporation, has the contract to design and construct the bridge. It proposed four preliminary test piles along the route in water between 5m and 14m deep, and Loadtest was contracted to fit these test piles with Osterberg cells (O-cells) to perform a static bi-directional load test.

The piles were constructed using permanent casings installed through the sea bed into the soft rock to depths of between 38m and 48m, with boring carried out down to a maximum level of -56m using reverse circulation drilling. Up to nine levels of strain gauges and three sections of embedded telltales were incorporated into the test piles.



Artist's impression of Incheon Bridge.

The patented bi-directional Osterberg Cell testing technique involves casting specially made sacrificial jacks (O-cells) within the pile at a specific depth, at which equal capacity exists above and below.

The O-cell derives all reaction from within the soil and/or rock itself. Working in two directions, upward against skin friction and downward against skin friction and end bearing, the O-cell automatically separates the resistance data.

Load testing with the O-cell continues until one of three things happens: skin friction is fully mobilised, ultimate end bearing capacity is reached or the maximum O-cell capacity or ram travel is obtained.

After the four load tests at the Incheon Bridge had been carried out, loading continued beyond the planned maximum loads. Three of the tests exceeded the previous world record of 163,000kN set by Loadtest in 2003, with the new world record of 279,000kN exceeding the old one by 116,000kN. www.loadtest.co.uk

Eyes on the job

Medway NHS Trust is constructing a new ophthalmology ward in the grounds of Medway Maritime Hospital at Gillingham, Kent, using piled foundations to overcome problems with underground services and poor ground conditions.

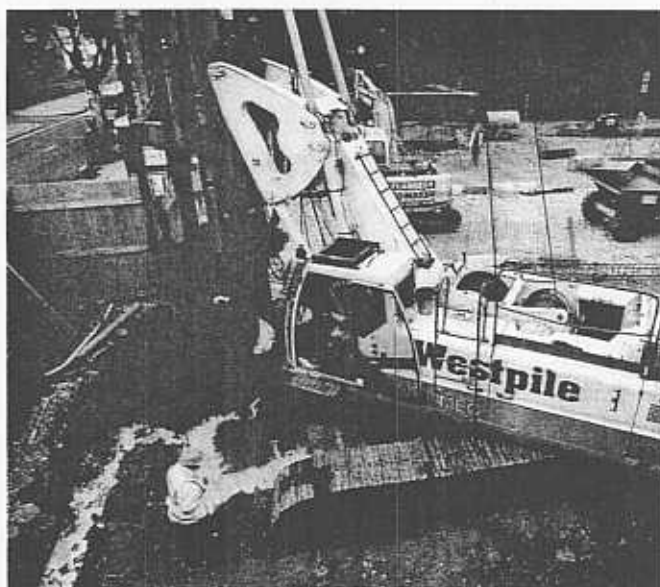
As the site of the new ward is bounded on all sides by occupied hospital buildings with no passage for construction traffic, the only access was over the roof.

Withers Piling used a 100t

mobile crane to lift its restricted access piling rig, power pack and ancillary equipment, together with 30t of sand and 15t of cement, over the hospital roof into the courtyard site, while operatives accessed the site via a scaffold walkway over the hospital roof.

Withers installed 28 auger-bored piles measuring between 250mm and 300mm in diameter to depths of between 5.5m and 12m. Once drilled, the piles were reinforced and completed with a C40 sand/cement grout.

www.withers-group.co.uk



Home work: Westpile is installing 450 retaining wall and foundation piles in a new residential scheme in Bermondsey, London. The 2,000m² site is the third phase of a major Galliard Homes development in the area.

After several days of pilot ground probing for obstructions, Westpile sank its first pile on 4 May. The company expects to be on site until early July to complete its £360,000 contract. www.westpile.co.uk