TARMAC

Product	Blue Circle Portland Cement, Blue Circle EN450-N Fly Ash
Client	TfL
Contractor(s)	Morgan Sindall
Location	London

Northern Line Extension

MAJOR INFRASTRUCTURE DEVELOPMENT

The challenge

Morgan Sindall's specialist Precast Facility in Kent was asked to manufacture bespoke concrete segments to tight tolerances which slot together to form tunnel rings. The order requires 3,308 concrete tunnel rings, which will be 5.2 metres in diameter and line 2.4 kilometres of twin tunnels, requiring 10,000 tonnes of cementitious product. Each segment weighs 2.9 tonne and there are 6 segments to a ring (5 plus a key).

Our solution

Following extensive trials by the customer, Blue Circle Portland Cement and Blue Circle EN450-N Fly Ash were chosen for the project with the two products being blended in the concrete at the customer's facility to produce the tunnel rings. The reason behind using Blue Circle EN450-N Fly Ash was twofold; firstly, for the concrete segments to achieve the correct DC class required to meet the ground sulfate conditions of the project. Secondly, because the replacement rate of Fly Ash needed for this DC class was lower than would have been the case had GGBS been used. The higher CEM I content made it easier for the early age strengths required for demoulding the segments to be achieved.

Results and benefits

Tarmac Cement's two product solutions provided Morgan Sindall with a single point of ordering, while additionally offering a sustainable source of UK produced Fly Ash. All orders were placed with our Northfleet logistics office who then took ownership of ensuring that the correct product was delivered to the correct silo at the time requested by the customer. The ability to achieve the early age strength required to strike the units ensured that the project timeline was met with the tunnel sections being delivered on time, avoiding any costly delays to the programme.

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