

# SOIL STABILISATION

## Relief for Weymouth

The long-awaited Weymouth Relief Road finally got underway with a little help from the London 2012 Olympic bid, as Weymouth and Portland are the Olympic venues for the sailing events. The £88 million funding was approved on the condition that the road was open in time for the summer of 2012. Skanska won the contract to build the road and awarded McArdle Stabilisation the sub-contract to stabilise the site-one chalk foundation.

The road was designed to import as little material as possible. Soil stabilisation would decrease the quantity of imported material by strengthening the site-one chalk as a foundation layer. The chalk would be stabilised with 75Kg/m<sup>3</sup> of ground granulated blast furnace slag (GGBS) and 75Kg/m<sup>3</sup> of OPC (Ordinary Portland Cement) to increase the strength of the 280mm slab to provide a class 3 foundation. This would enable a road construction of just 250mm of blacktop to be laid directly onto the stabilised chalk. This process was successfully pioneered by McArdle Stabilisation on the Polegate Bypass and A6 Higham Ferrers to Rushden Bypass. The process has been adopted by the Specification for Highways Works as an approved construction method and is now becoming more widely used across the UK.

The road is single carriageway with a crawler land running for over 2.5km up to the South Downs, giving a carriageway width of 12m and a stabilised construction of 13m. A spreader with a three-way splitter box spreads binder up to 2460mm in increments of 820mm. The binder was mixed with a Wirtgen 2500SK mixer that can also be used to spread and mix in one operation from its integrated spreader unit if adverse wind conditions required. Water was added at a controlled rate through a spray bar in the mixing drum from a Terragator-mounted water bowser attached to the Wirtgen.

The level tolerances were critical for the stabilisation as the depth of the blacktop was so shallow. Accordingly, McArdle trimmed the stabilised material to a 10mm window to enable the blacktop to be laid to no less than 250mm thick over the 7km road. Tolerances were achieved using a GPS grader control system that incorporates a conical laser beam to bring the trim down to millimetre accuracy.

The process was a dual operation of adding GGBS first, trimming to tolerance then adding OPC and final trimming, GGBS will not start to react until the alkaline OPC is mixed in the second operation so the 35 hours window of binder addition to final compaction was always achieved.

