

ULTIMATE EXPERIENCE

TOPROC. UNDERBRIDGE 41, CORBY, NORTHANTS
THE ULTIMATE HIGH WEAR, EARLY STRENGTH CONCRETE

A night-time construction site for an underbridge. Several workers in high-visibility orange vests and hard hats are visible. A yellow concrete pump truck is positioned in the foreground, with its long boom extending across the top of the frame. In the background, a blue excavator is working. The site is illuminated by bright work lights, creating a high-contrast scene. Large concrete pipes and corrugated metal sheets are scattered on the ground.

**LAFARGE
TARMAC**

READYMIX CONCRETE

Toproc achieves high strengths so early that it can be lightly trafficked in 24-48 hours.

Product TOPROC

Client RAILTRACK

Main Contractor BIRSE RAIL - BIRMINGHAM

Project UNDERBRIDGE 41, CORBY, NORTHANTS.

Completion MARCH 2002

TOPROC

Toproc delivers early strength when curing time is critical, to provide ultimate rapid strength development.

THE CHALLENGE

A time critical construction of a concrete saddle over an existing masonry long arch that was tying together bridge spandrels. The task needed to be completed over the Easter period in 2002. Sufficient strength was needed at two hours to enable the installation of waterproofing material and a minimum 10N/mm² compressive strength was needed at eight hours to allow subsequent backfilling over the arch.

OUR SOLUTION

Our expert team at Lafarge Tarmac analysed the site and proposed a site trial in weather conditions likely to occur at placement time. This helped to accurately gauge temperature conditions and the precise dimensions of the elements to be cast. As a result, the decision was taken to use thermal insulation blankets to ensure the heat of hydration that developed was retained. Temperature matched curing was carried out against the thinnest concrete section at the top of the saddle to work with the 'worst case scenario' for assessment of the in-situ concrete strength.

RESULTS AND BENEFITS

Toproc allowed the concrete to be carried out in two pours of 48m³ and 180m³, separated by a two-hour interval at a pour rate of 18-24m³/hour. The last concrete pour was made at 4.30pm on Sunday 31st March and by 6.00pm it had acquired enough strength to install the waterproofing material. Analysis of the temperature during curing confirmed in-situ temperatures of 370°C and 450°C had been achieved by 9.00pm. By 11.30pm an in-situ strength of 11.9N/mm² allowed backfill over the arch top. The completed, backfilled arch was handed over to Railtrack on time at 5.00pm on Monday 1st April 2002 – allowing the track work to be reinstated.



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