

Nynas Bitumen

Swiss expertise tackles UK bridge surfacing problem

High performance Gussasphalt using a 'Premium' category Nynas bitumen binder is being laid in a major scheme to reduce maintenance on Avonmouth Bridge.

Avonmouth bridge on the M5 near Bristol is no exception to the general rule that 'lively' steel structures can have difficulty holding on to their asphalt. Movement in the heavily trafficked crossing means that its surfacing wears out relatively rapidly and requires frequent maintenance. Now the Highways Agency has sanctioned use of Continental technology which promises minimal interventions and a very long life.

The bridge's new surfacing is made from highly durable Gussasphalt, a very dense mastic asphalt bound by a high performance polymer modified binder. Special recipes for the asphalt and the bitumen come from Switzerland – from Aeschlimann International and Nynas respectively – but both materials are being produced in England. Aeschlimann International claims its asphalt will last from 20 to 30 years, at least three times as long as the bridge's previous surfacing.

The choice of the Swiss Gussasphalt was

made after two years of intense research by the Highways Agency (HA) to find the right material; and after the agency had accepted the asphalt's higher initial cost on the grounds that the surfacing would bring a range of benefits. "The HA and its specialist technical arm Netserve have put a great deal of work into this, to ensure we get the best rate of return over time for the money we're spending," says the HA's Project Sponsor Dave Stock.

"The Gussasphalt ticks all the right boxes, including assured longevity, the likelihood of minimal intervention, resistance to water penetration, early life skidding resistance, good ride quality and relatively low noise."

Activity on Avonmouth's southbound deck began last September and asphaltting has recently been completed, meaning that motorists from the north now cross the Avon in a more smooth and comfortable manner than before. Vehicles continue to bump and clatter over the northbound deck, on which work is scheduled to start this September.

The Gussasphalt looks intensely black, hard and – with its coated chips on top – 'grippy'. It is being laid by Aeschlimann International personnel to high standards and tolerances.

Aeschlimann International opted for Hanson operating out of its local Tytherington plant to produce its Gussasphalt, designed by company Chief Executive Heinz Aeschlimann and mixed to his exacting specification. A blend of sands, a very high proportion of limestone filler and a number of additives including Trinidad Lake Asphalt granules go into making the gussasphalt for the bridge's binder and surface courses.

So does Nypol 45MA, one of the new generation of polymer modified binders to come out of Nynas, purpose designed for specific applications (see Performance Programme box alongside). Nynas has the policy of working closely with those it supplies with bitumen to help ensure the competence of asphalt mix design and production. Its Nypol 45MA is a high performance binder particularly well suited to the kind of asphalt mixes designed by Heinz Aeschlimann.

"We resurface between 80 and 100 bridges each year with Gussasphalt, in Switzerland and around the world. Wherever possible we use Nynas' product – it really is the Rolls Royce of bitumen," states Mr Aeschlimann. Much of this has to do with the quality and consistency of the feedstock, which comes from Venezuela. "But the support from Nynas is also very good, the collaboration we get from the company. I ask for quality from them and they provide it, they're very good partners."

The 'lively' Avonmouth bridge has historically struggled to hold on to its asphalt and needed frequent resurfacing





Continental technology – Gussasphalt containing Nynas’ Premium binder – has been employed for assured longevity

“What clients must understand – what the UK Highways Agency has accepted – is that you must pay for the best quality. Perhaps you pay 5% or 6% more, but you get double the life time or more, for you money. This has to be good sense. I am not just talking about long life: a durable surfacing means less maintenance, and less disruption to traffic.”

Acceptance and use of the Nynas continental designed Nypol 45MA owed much to the endeavours of Nynas UK staff.



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“Good personal contacts and long standing relationships are important in any sales operation,” says Nynas Southern Region Sales Manager Miles Williamson. “Our Swiss colleagues made sure Mr Aeschlimann knew about and had access to our latest binders, and had help formulating the right Gussasphalt mixture. Here in the UK, we also worked hard to ensure Hanson and others involved with the project were kept fully in the loop about product development and production.”

The others involved include InterRoute, the joint venture of Mott MacDonald and Balfour Beatty Infrastructure Services which is service provider to the HA under the Area 2 EMAC (or Enhanced Managing Agent Contract) and Stirling Lloyd, contractor for the bridge deck waterproofing and resurfacing. (Stirling Lloyd appointed Aeschlimann International for its Gussasphalt, which in turn appointed Hanson to do the mixing.)

Avonmouth bridge is 1.4km long, of which 400m constitute the steel central sections, the rest made up of 17 approach spans (10 to the north, seven to the south) in reinforced concrete. All the surfacing is with Aeschlimann International’s Gussasphalt. Surface and binder course add up to 50mm thick on top of the steel, 60mm on the concrete.

NYNAS PERFORMANCE PROGRAMME

Nynas is currently realigning its products to enable these more clearly to meet customers’ demands for value and also their varying requirements for functional performance. In response to detailed analysis of future trends, and in close cooperation with customers, Nynas will offer three levels of product to cover the full range of functional needs.

- Regular** – standard, high quality bitumens
- Extra** – bitumen with special characteristics and tailored specifications
- Premium** – the highest level of specialisation for unique, multi component solutions

Focusing on the delivery of value and performance to meet functional requirements

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