

## Lafarge Aggregates & Shell Bitumen

Successful use of recycled asphalt in Norfolk should be a significant step towards convincing the market that these environmentally friendly products can perform.

# Norfolk roads prove recycling performance

Villagers in Norfolk are major beneficiaries of Norfolk County Council's (NCC) approach to carriageway reconstructions over the past two years, with quieter thin surfacings being used on roads through communities. Another major benefit being reaped more widely in the county is NCC's use of recycled materials in binder courses on repair and maintenance projects on all grades of road.

NCC is keen to promote environmentally beneficial approaches and also wants to have a range of alternatives for road works. The council let a one year extendable contract to Lafarge Aggregates this year following a successful one year trial with in situ recycled aggregates in 2001. A major difference this year is that recycled material is being processed exsitu, at Lafarge's asphalt plant at Higham, where earlier trials convinced Lafarge Aggregates and Shell Bitumen that they had a winning combination.

The process being used in Norfolk is foamed

*"Ex situ recycling keeps down the amount of dust and other nuisance on site."*

**Jim Wilson.**

bitumen Axofoam which Lafarge developed jointly with Shell Bitumen. Lafarge Aggregates National Commercial Development Manager Jim Wilson says: "The market has not been willing to pay any premium for more environmentally friendly products and some clients even expect a reduction in price because it is often assumed that recycled materials are technically inferior. We worked jointly with Shell Bitumen on trials at our Higham plant to show that the performance characteristics of an asphalt using recycled material would be equal to alternatives."

Specifications and approval procedures also act as barriers to new products generally, but Wilson says Agenda 21 and various European Community directives are encouraging local authorities to take steps to prove they are promoting sustainability. "One way to demonstrate this is to point to the amount of recycling being carried out," he says. "Where we are putting a thin surfacing on top, as we are in several of the Norfolk sites, there is additional environmental benefit from reduced noise. Ex situ recycling also keeps down the amount of dust and other nuisance on site."

Lafarge's Andy Ince has been supervising work on site. The contracts are for either full width reconstruction of the carriageway or for haunching, mainly in rural areas. The approach taken at each site varies according to the needs of that site and Lafarge and the council collaborate on the design. The sites vary, mostly because of the variable ground found in Norfolk, ranging from heavy clay to sand and gravel. Carriageway records are consulted by the design team and a site specific solution devised.

This is the first time Lafarge has used a foamed bitumen on these types of schemes. The process is straightforward. The material to be recycled is taken to the Lafarge plant where it is rescreened, coated in the batching plant and delivered back to site and used as road base material. No special equipment is required. About 30 sites will have been completed by March 2003 under the current contract.



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**1: Foamed bitumen is used to create Axofoam and uses Shell Bitumen's WAM technology**

**2: Up to 10,000m<sup>2</sup> of road will be recycled and resurfaced under Lafarge Aggregates' contract with NCC.**

**3: Lafarge is recycling road planings from Norfolk roads at its Higham plant.**

The process at the plant is cold, with only the bitumen being heated, to 'warm' rather than hot. Shell Bitumen's WAM-Foam technology allows bitumen to be used at temperatures between 110°C and 200°C, rather than the usual 150°C to 180°C. The only modification needed to the batching plant is the addition of a foaming bar for coating the stone. Mobile plant was considered but using the Higham plant allows more control over the product and is regarded as more cost effective. "There is an environmental disbenefit from the lorry movements," admits Wilson. "But you would also have them with conventional materials where you don't have the offsetting environmental gains."

The current contract includes sites where up to 10,000m<sup>2</sup> will be used. Sites completed so far have

included a section on the B1094 at Nordelph near Wisbeach where 4,000m<sup>2</sup> of Axofoam was used for a binder course, topped by a thin wearing course, which took 1.5 weeks. Another completed project is at Oxborough, near Downham Market, where haunching work was undertaken over one week. One section here was overlaid and surface dressed. "The approach is very flexible, to allow for a wide variety of circumstances to be accommodated," says Wilson. "We are not trying to convince people that one recycled material approach will fit all, but to provide a range of alternatives using recycled material as much as cost effectively possible."

Other drivers towards increasing use of recycled materials include the aggregate tax which came into operation this year, and the landfill tax. Lafarge says

its recycled material also allows road operators to demonstrate best value is being achieved by reference to the lower life cycle costs inherent in the reuse of materials.

NCC is pleased with the results on the sites which have been completed so far. NCC General Manager Planning and Transportation Ian Taylor said: "Last year's contract was successful so this year we built on that that, and if all goes well the contract can be extended for a further year.

"We are also using road planings arising from our resurfacing framework contract and stockpiling those we cannot use. We may be able to find uses for the stockpile next year."

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