Recycling high on agenda

Tarmac companies are committed to reducing environmental impact, with Quarry Products looking hard at the benefits of recycling.

Environmental awareness has penetrated every industry by now, but the number of companies which have taken on board the message that attention to environmental matters can have a positive impact on the bottom line is relatively small. Tarmac Quarry Products is one of those taking a lead in the construction industry, with many recycling initiatives successfully underway in its asphalt and aggregates business.

Stockpiling recycled material

Tarmac has a long track record in recycling, having hot mix recycling featured in the BBC's 'Tomorrow's World' television programme as long ago as 1980. Fresh impetus has come from the Group-wide environmental policy which has recently been adopted, committing all Tarmac companies to seek reductions in the environmental impact of their operations.

This itself is as strong a driver as legislation and the search for ways of cutting costs, but each of TQP's recycling projects has the potential to save costs at the same time as being environmentally beneficial, says Company Technical Manager Phil Sabin.

"The asphalt and aggregates businesses are changing and recycling is not optional any longer, it is a necessity and it has become a major part of our business. We have a recycling team with a recycling director driving initiatives throughout TQP. So recycling is not an offshoot of the business, it is a mainstream part of it which will extend the life of our aggregate reserves," he says.

One of Tarmac's recycling projects involves a cooperative joint venture in a new company called Roadstone Recycling Ltd, which has been especially created to market foam stabilised road planings and secondary aggregates for use in road construction.

Roadstone Recycling is a joint venture between Tarmac and Bruce Cook Roadplaning, formed to promote a technique which has been extensively used in a number of countries, particularly Canada. The company has invested in mobile plant which can recycle planings on site, resulting in savings of one third to clients compared to traditional road reconstruction.

The system scores through having financial and environmental advantages over the manufacture and laying of hot mixes. For example, the plant is smokeless, odourless and extremely quiet in operation.

Phil Sabin said: "The process is called FoamMaster, which is based on the foamix macadam technology. It can use a wide range of reclaimed materials, including road planings and crushed concrete and masonry.

"There are a variety of environmental benefits here as we use

Crushed materials are screened to match a grading envelope

a wide range of marginal materials, the process is quiet and emission free, it reduces site transport movements and conserves resources. It results in a cost effective material produced under a quality controlled process."

The reclaimed materials are first crushed and then screened to match a predetermined grading envelope. The materials are used to produce an enhanced bituminous product for road base or base course. FoamMaster is delivered to a consistent quality as a cold material suitable for storing for up to two weeks.

Much of the asphalt planings would previously have been recycled as sub base but this would have wasted the bitumen which the material would have been coated with. Now a higher value product can be produced, which benefits Tarmac and its partner, and the customer can get a reconstructed carriageway where previously only a patch up would have been financially possible.

The only special plant requirements are that the final pass must be with a pneumatic tyred roller to ensure complete compaction and a properly sealed surface.

The technology of foamix macadam has been established since the 1950s and has proven to be particularly useful where indigenous aggregates are of marginal quality. Some sizable projects have been completed by Roadstone Recycling.

One of 6000 square metres was for an industrial estate spine road for Walsall Metropolitan Borough Council. This road varied from surface dressing at one end to 300mm thick concrete at the other. The road was reconstructed incorporating these older materials by foamix, before being overlaid with Masterpave wearing course; resulting in a saving of one third for the client. Another was of 5500 sqare metres for Solihull Borough Council.

The focus has not been entirely on recycling construction derived materials. One of TQP's most successful schemes so far confers substantial environmental advantages by taking waste greensand from foundries and recycling it as a raw material in asphalt manufacture.

Up to 600 tonnes a month of this sand is being used at TQP's Parkstone Works at Poole, Dorset and TQP has another 12 schemes under negotiation. The asphalt material produced is of a quality equal to that produced at plants which do not recycle greensand.

TQP Products Technical Manager Nick Toy takes up the story: "We have formed a partnership with foundry operator Precision Disc Castings Ltd which is a major supplier of ventilated brake discs to the automotive industry.

"They recycled a lot of the sand which is used for making moulds but what couldn't be re-used was sent to landfill, which has become much more expensive because of the Landfill Tax. Their waste sand is not all suitable for our use and we carried out a detailed feasibility study to determine just what could be used."

Operational testing in early 1997 confirmed that greensand was suitable for use in the asphalt mixing plant. Overall there has been no serious obstacle to introducing greensand to TQP's production process. All the products using greensand meet all relevant BSI standards.

Planing old carriageway with hightech recycling in mind

Nick Toy said: "Tarmac is saving by not having to use scarce sand resources and the environment scores from a reduced need for quarrying, landfill and transport."

Tarmac is now looking to extend the scheme to at least a dozen other foundries throughout the UK and has formed an industry partnership with the Casting Development Centre to carry out a two year project to find ways of using foundry sand in a wide range of construction products, also involving other Tarmac group companies.

Saving used asphalt from going to landfill is the aim of another Tarmac recycling effort in London. Under an agreement with Talbot Aggregates excess bituminous materials from TQP's Hayes coating works in West London is granulated and then reprocessed by adding it to hot mixes.

"It has so far been used only at 10% of the mix but potential is seen for using it in greater proportions, up to 30%."

Phil Sabin said "These are exciting times and it's great to see Tarmac's genuine commitment to the recycling initiatives underway throughout TQP and clearly demonstrates Tarmac's total commitment to the environment".

The asphalt and aggregates businesses are changing and recycling is now very much a necessity

Loading up with foamix asphalt for delivery to a local authority site