

Newsletter

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The British In-situ Concrete Paving Association

Autumn 2002 | 5

Motorways AT FULL CAPACITY

Against a background of rising road use and congestion, the Government has said that there is little prospect of arresting the growth in traffic, and has now turned its attention to reducing congestion by improving the flow of vehicles.

Under the Ten Year Transport Plan, ministers predict that traffic will grow by 17% by 2010, but they are committed to cutting congestion over the same period by 6%.

The AA has said that the only effective way to reduce congestion is to widen motorway bottlenecks and improve junctions. With a growing economy, they say that there will be an inevitable rise in traffic, but there are no radical plans to deal with the increase in motorway use. They call for limited widening of motorways and improved junctions so that people don't go back to using the A roads, with an increased risk of accidents.

The Government has recently announced the first in a series of major road schemes that they are expected to approve over the next few months. The decision to turn the whole of the A66 across the northern Pennines into a dual carriageway is expected to be followed by plans to widen the A303 holiday route to Devon. Similar plans are likely for the A1 north of Newcastle and the M6 north of Birmingham, where the M6 Toll is already underway.

Alistair Darling, the Transport Secretary, has expressed an interest in a satellite-based system of charging drivers for every mile, but says that this system could not be installed in all vehicles before 2010. But he has yet to publish any new plans for dealing with congestion in the meantime. His review of the Ten Year Transport Plan will not be completed until 2004.

London City Airport safety IMPROVEMENTS



Overnight paving at London City Airport

The privately owned London City Airport, now 15 years old, has been reconfigured this summer to provide upgraded safety features and an increased landing distance.

Principal Contractor and designer W.S. Atkins selected Fitzpatrick Contractors Ltd to carry out the £2m civil engineering element of the project.

The work was carried out during overnight runway closures between April and August.

As well as increasing the landing distance and width of the runway, the project included strengthening the runway end safety areas (RESAs), by removal of the original Lytag arrestor beds and replacement with PQC.

A total of 3500 m³ of air-entrained concrete was supplied from a batching plant at the site. The air entrained PQ mix, with a flexural strength of 4.8 N/mm², included limestone aggregate.

The paving work was undertaken primarily at weekends, during a 21 hour runway closure. The project

required the breakout of existing concrete shoulders, excavation and formation preparation for the 370 mm thick PQC slab.

The 320 cubic metre pours had to be complete by 4.00am to allow joint cutting and initial curing before the runway was reopened to air traffic.

A Gomaco Commander III slipform paver was used to produce the jointed unreinforced concrete pavement. After four hours, when the concrete could be walked on, a Soff-Cut saw was used for induction cuts at 4 m intervals to induce contraction joints. This US invention has several advantages (see Innovation panel).

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Diary Dates

Britpave Conference 2003

29 - 30 September
Tortworth Court Hotel,
Wootton-under-Edge, Glos
(J14 on M5)



London City Airport... continued



Slipform paving at the London City Airport

For further information, contact Tim Gibbs at Fitzpatrick on 01707 644 466, email tim.gibbs@Fitzpatrick.co.uk

The environment

Two aspects of the construction techniques provided some relief for the local residents. First, in carrying out the works with a slipform paver on the weekend closure, Fitzpatrick were able to complete a large proportion of the noisier elements during daylight hours. Secondly, the use of the Soff-Cut saw for induction cuts made a significant reduction to noise levels during the early hours of the morning.

Innovation



As the first users of the Soff-Cut saw on airport projects, Fitzpatrick see the following benefits:

- Work can start earlier on the concrete.
- Crack control is much more effective due to early intervention.
- Less noise is generated than with a conventional saw as the blade speed is substantially lower, reducing environmental impact.
- Soff-Cut saws operate dry, so no slurry is produced, and water bowlers, jet washers and sweepers are not required.

ADVANCES IN CONCRETEPAVE

Following its launch in 1999, RoadTechs' flexible concrete repair material is now gaining wide use as a product for repairing concrete pavements.

The product, patented in the UK and USA and known as TechCrete, is a flexible concrete repair material consisting of a resin-based compound with cement, chopped fibres, polymer rubber, graded mineral fillers and graded granite aggregates combined with several other ingredients.

With conventional concrete repair materials the joints in the concrete slabs either have to be reformed or the repair material stopped at the joints. This new repair material is designed to bridge across joints, making it unnecessary to reform them.

Another important feature is that it is applied in a heated state, without the need for on-site mixing of materials and the associated problems. TechCrete rapidly gains strength and can be trafficked within one and a half hours of laying the material, making it an attractive proposition for highway and airfield pavement maintenance where closures of only limited duration are permitted.

The TechCrete material is manufactured by RoadTechs at its Norfolk factory to a strict quality control system and packed into plastic 'melt pack' bags and transported to site.

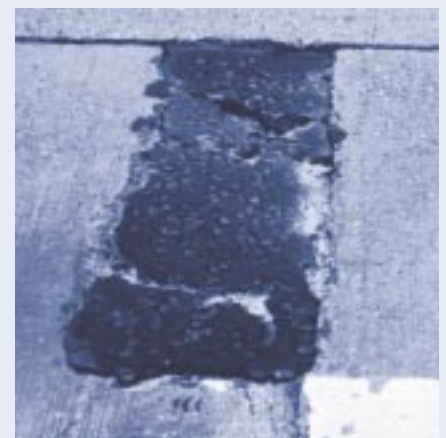
Since the launch and the first road trials of TechCrete almost four years ago, the material has undergone a number of developments and improvements. These improvements can be seen mainly in the elasticity and adhesion of the repair.



iViva Britpave!



David York, Council member, and David Jones, Director, pictured with (centre) Carlos Jofré, Technical Director of IECA – The Spanish Institute for Concrete and its Applications – who visited Britpave to exchange technical and marketing opportunities.



A failed temporary repair on the M25



Where **NEXT?**

ROUNDUP OF POSSIBLE **GROWTH**



With UK air passenger numbers expected to more than double from 120 to 400 million by 2020, there is much Government thinking, not to mention public speculation and environmental group lobbying, about the possible alternative sites for

expansion of runways and airport facilities.

While it still all up in the air, Britpave thought that a list of airport expansion options might help its members target any commercial plans they are working on.

Airport	Present facilities	Options
Aberdeen	1 runway, 1 terminal	Additional terminal capacity and runway extension by 2015
Birmingham	2 runways, 2 terminals	New runway OR new 2 runway airport between Coventry and Rugby
Bristol	1 runway, 1 terminal	Runway extension, new taxiway and 2nd terminal OR new airport north of Bristol
Cardiff	1 runway, 1 terminal	Expand terminal after 2015
Cliffe	Nothing	New 4 runway airport
East Midlands	1 runway, 1 terminal	New runway
Edinburgh	2 runways, 1 terminal	New runway
Gatwick	2 runways, 2 terminals	No expansion planned before 2019
Glasgow	1 runway, 1 terminal	New runway
Heathrow	2 runways, 4 terminals	New shorter runway
Leeds/Bradford	2 runways, 1 terminal	Runway extension
Liverpool	1 runway, 1 terminal	Runway extensions
Luton	1 runway, 1 terminal	Change runway set up
Manchester	2 runways, 3 terminals	New terminal, possible new runway
Newcastle-upon-Tyne	1 runway, 1 terminal	Runway extension
Stansted	1 runway, 1 terminal	3 new runways

MENTREPAIRS

To date over 75 sites throughout the UK, both on highways and airfields, have been treated with TechCrete, and many engineers now specify it as their first choice for repairs to concrete surfaces.

The results of a three-year field study on a number of major highways carried out by TRL Ltd concluded that the product outperforms most cementitious repair methods currently in use on the national road network. TechCrete is now approved by the Highways Agency and BAA.

Airport engineers at Gatwick airport consider TechCrete their first line of defence in dealing with the problems of spalling and cracking concrete.

When carrying out repairs to concrete on an extremely busy international airport the time required to allow the repairs to cure is crucial. With TechCrete this is kept to an absolute minimum, and most runways can be opened to heavy aircraft within 30 to 60 minutes after completion.

TechCrete has been successfully overlaid with asphalt and thin surfacing materials as part of the Government's current policy of reducing the noise generated on concrete roads at many sites.

Major export orders from countries as far afield as Australia, China, the Falkland Islands and the USA have been received by RoadTechs, which is now training other companies' staff to use the repair material under licence.

For further information contact Ted Jenkins on 01379 872500, e-mail tj@roadtechs.uk.com



TechCrete installed after removal of the temporary repair. After two years it is still performing well.



Going for **GOLD...** on a **brownfield site**

THE CITY OF MANCHESTER STADIUM

The new City of Manchester Stadium that hosted the flagship events at the recent Commonwealth Games was built on the site of a former gasworks. The old foundations had been excavated and all heavily contaminated soil removed. Then came the task of dealing with spoil heaps containing 170,000 m² of slightly contaminated material, as well as rubble. Moreover, this material was completely saturated and unsuitable for use as fill.

treat the remaining material to form a structural base for the main carpark. This had lime added to it to achieve a 5% CBR to a depth of 4 m in places, followed by a 350 mm layer treated with lime/cement to create a strength of 30% CBR and give it frost resistance.

Because of the uneven nature of the site, an 800 m long earth retaining structure was required around the car park. This was constructed at a 70°



Aerial view of stadium



At work in the new stadium

Disposal of the material to landfill was not an option, partly because of the high cost, and partly because it would have required some 11,000 truck movements near to the city centre, where gridlocked traffic could not be contemplated.

The solution had to be soil stabilisation, and Britpave member Geofirma was called in. They began by screening the material and stabilising it with a lime/cement mix to achieve a bearing strength of 30% CBR. With a 100 mm stone base this created a strong working platform within the stadium to form a structural base for mobile cranes and other heavy plant.

The next phase was to move and

slope, and varied between 3 m and 7 m in height. Geofirma used a lime-stabilised material incorporating Netlon geotextile, with a naturally vegetated face retained by a stainless steel mesh. This provided substantial cost savings for the client by avoiding the need to dispose of material and import a bulk fill/stone material.

The stadium itself is built below existing ground level, so back fill was required for its outer perimeter. Here Geofirma used lime-modified site-won material left over from the construction process

For further information contact Jonathan Smith of Geofirma on 01787 224532, e-mail soils@geofirma.co.uk

2 for the **ROAD**

PIARC, the World Road Association, is holding two major seminars this autumn.

Road pavement recycling
10 to 11 October, in Warsaw, Poland

Sessions cover all aspects of road recycling, including equipment, quality control, execution of the work, and economic and environmental aspects.

The seminar will include outline presentations of the work of the sub-committees, as well as invited speakers from a variety of countries. The official languages include English, and an edited set of the proceedings will be sent out after the conference.

Application should be made by the end of September to the Road and Bridge Research Institute of Poland. Ring +48 22 814 13 39 or e-mail promotion@ibdim.edu.pl

Sustainable development – life cycle analysis

11 to 12 December, Paris

After introducing the concept of sustainable development and the use of life cycle analysis as a tool, the conference moves onto considering the role of various industries involved with roads.

Recycling of roads and the effect on the environment is covered and there will be a full session on the impact of a road project, including the use of local resources and adapting the project to reduce its consequences.

Conducted in both French and English with simultaneous translation.

Applications should reach the French arm of PIARC by 10 October. Phone +33 (0)1 48 24 30 04 or e-mail tciconcgres@tci.tm.fr



From paper mill to brewery distribution centre...

On firm foundations

The site of an old paper mill at Thatcham near Reading has been recycled for use as a regional distribution centre for Scottish and Newcastle Breweries. The process of preparing the site by strengthening the material already on site was carried out by Britpave members, Fitzpatrick, during the summer.

Previous demolition works at the site, being developed by Gazeley, had left a huge stockpile of some 45,000 m³ of primary (200 mm down) crushed concrete.

The site also suffers from a particularly high water table, which renders many areas unusable after rain.

The development footprint covered over 70,000 m², of which the building occupied nearly 50%. The remainder is predominantly concrete hardstanding.

The design and build specification, by Burks Green and Partners, called for the following:

- Building footprint - 225 mm C40 concrete on 150 mm CBM3
- External hardstands - 175 mm air-entrained PQC on 200 mm CBM3

All CBM3 materials were to comply with SHW 1000 Series and to be made with crushed concrete aggregate.

The 26,000 tonnes of crushed concrete required were re-processed through a crusher and screen to sub-40 mm.

All materials were mixed on site through an Elba 60 batching plant and laid by an ABG Titan paver.

No additional aggregates were required for the OPC mix.

Typically, the mix provided 7-day strengths of 12 N/mm² and in-situ densities in accordance with the specification.

In addition to the 26,000 tonnes of new materials saved, the re-use of the

demolition arisings saved nearly 2,500 HGV movements.

The general reaction of the client, end-user and trade contractors was that the CBM3 platform provided the ideal working platform for the whole construction process.

For more information contact Tim Gibbs at Fitzpatrick on 01707 644 466, e-mail tim.gibbs@fitzpatrick.co.uk

Special products for stabilisation

A special range of geoenvironmental products has been introduced by Castle Cement for use on contaminated land. Further information on stabilisation techniques and products, including a series of case studies, is available from www.castlecement-geocem.co.uk



Re-processing the crushed concrete to below 40 mm

Guidance on recycling in transport infrastructure

The increased use of recycling transport infrastructure and the use of alternative materials will be made easier by a new publication from TRL. It gives information on how to overcome the potential barriers to recycling:

- Specifications
- Reliability and quality
- Environmental concerns
- The complexity of the waste management licensing regime
- Economics
- The balance between supply and demand.

Current guidance is summarized, and 14 case studies provide evidence

of how the application of basic principles can result in increased recycling plus significant economic and environmental savings.

The publication also highlights where further action is needed. Many of these are similar to the conclusions of the Egan report – for instance the need for partnering, supply change management and the creation of culture of continuous improvement.

The guidance document, *Recycling in transport infrastructure* is available as hard copy or on CD, each priced at £35, from TRL Publications on (01344) 770 783, or e-mail info@trl.co.uk



Keeping up-to-date with **Britpave...**

Sticking to the straight & narrow



Britpave members visit Balfour Beatty Rail's test site near Nottingham where they inspected their new embedded rail slabtrack system

New Slabtrack VIDEO

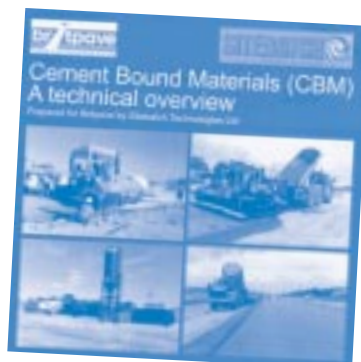


The new slabtrack video that addresses the buildability issues when constructing concrete slabtrack is now available. It examines slabtrack

options, discusses European and Japanese systems and stresses the economic, environmental and safety benefits of slabtrack construction compared with conventional ballasted track. It includes segments of interviews with Eric Pickles, MP, Opposition Transport spokesman, and Lord Berkley, the champion of the rail freight industry.

Cement-bound MATERIALS on CD

Members should be now have received a new CD-ROM, **Cement-bound materials (CBM): a technical overview**. Prepared for Britpave by Sitebath Technologies Ltd, it covers specifying, designing, mixing, laying, compacting, curing and testing of CBM. This presentation has been sent to all universities with a civil engineering course as a contribution to the course content.



NEW from Britpave



Concreting Pavements in Winter

This Guidance Note covers concreting road pavements at temperatures at or below freezing, giving practical advice for UK conditions. It has been produced with the assistance and support of the Highways Agency. Thanks are due to their technical staff for working with Britpave on this, the first of a series of collaborative projects with the Agency.

Two Airfields Guidance Notes

Airfield pavements: Concrete joints and joint sealing reflects industry best practice and provides consolidated technical information from a wide range of sources. It covers joint types and design, joint details, construction and sealing. It also lists the most common reasons for joint failure.

Airfield pavements: Design and evaluation methods gives advice on the selection of rigid pavement design methods. It is targeted at those interested in the background, use and selection of design method suitable for their particular circumstances.

Members will soon receive their own copies; further copies can be downloaded free from the members-only area of the website. Non-members can obtain copies for £10 from the Concrete Bookshop on 01344 725704.

Don't forget that we are always pleased to welcome volunteers to the teams that prepare these Guidance Notes.



News from the industry *at home and abroad*

SRA blockades open the door to concrete

In response to the ever-increasing costs and lengthening timescales on the West Coast Route modernisation project, SRA chief Richard Bowker and colleagues have opted for total blockades in an effort to cut two years off the programme and billions off the cost.

This is just one example of the vigorous leadership promised by Bowker, who says 'It is time the industry got to grips with the challenges facing it'

More changes are expected as route building moves away from

a prolonged series of weekend works to dedicated line possessions with diversionary routes.

The new programme sees two strategic projects, both involving 17 weeks long line possessions, the first in summer 2003 and the second in 2004

- This opens up a great opportunity for concrete slabtrack paving. Britpave is currently discussing performance specifications of slabtrack with the SRA, and is still offering a full scale paving trail site to the client.






Truck lanes US style



Special toll truck lanes, separated from cars by concrete barriers, could significantly reduce the number of car-truck accidents, according to the Reason Foundation, a think tank based in Los Angeles.

The report proposes long-distance, intercity toll truck lanes that would be added to existing inter-state highways. They would be separated from regular traffic by continuous concrete barriers, and would have their own exit and entry ramps.

Four main advantages are seen:

-  A reduction in truck-car accidents.
-  The use of longer combination lorries that would reduce shipping costs by \$10 to \$40 billion a year.
-  Lower road maintenance costs, as there would be no need to upgrade all lanes to accommodate heavier lorries.
-  Environmental benefits due to a 6% to 12% reduction in fuel usage and 8 billion fewer trucks miles per year.
-  ...And possible additional fuel savings and emission reduction if the trucks run on a concrete surface (Britpave).

The report, *Toll truckways: a new path towards safer and more efficient freight transportation*, can be seen at www.rppi.org/lps294.pdf

The West Midlands **From spaghetti to bypass surgery in 30 years**

For motorists sitting in a jam at the grid-locked Spaghetti Junction and other M6 junctions, it seems a far cry from the days when people once made special outings to view the new junction. Now the whole Birmingham area is so congested that it costs business in the area more than £2bn a year and forms a barrier to development for North Wales.

Some help is at hand in the form of the M6 Toll, now under construction to the northeast of the M6 - motorists will be able to bypass Spaghetti Junction and Junction 8.



Detractors claim that it will simply fill with vehicles when it opens in 2004, but the charging mechanism may help regulate traffic volumes.

Britpave members were treated to a detailed presentation by Chris Jackson of CAMBBA at their AGM held at the M6 Toll site offices, and were also given an updated version at the annual seminar this year.

Back to the future: **Trams for London**

Mayor of London, Ken Livingstone, recently gave the go-ahead for two tramways for Central London. Almost exactly 50 years after the last tram ran there, the Mayor plans to focus on the Cross River Tram Scheme running for 10 miles from Kings Cross and Camden across Waterloo Bridge to Peckham and Brixton. It will cost £300m to build and carry 72m passengers a year.

The second route will be 12 miles long running in to west London

from Uxbridge to Shepherd's Bush, carrying 50m passengers a year, and costing £200m to build.

The schemes were welcomed by transport experts who said that central and west London were sufficiently congested to justify the trams. It could take three years to get Parliamentary approval, although Mr Livingstone said he will press ministers to speed up the process.



ANOTHER **SUCCESSFUL** BRITPAVE CONFERENCE

Belton Woods
23-24 September 2002



The 80-strong audience were treated to the first viewing of the latest Britpave video on slabtrack



US member, Ron Guntert Jr, making his presentation

Come join in the **ACTION**

Britpave would welcome more interest and participation by members in its Task Groups.

This is where the action is – at the cutting edge of technical development in each field of interest, and making decisions about where the Association focuses its activities.

The Technical Committee Chairman is John Donegan, at john.donegan@siac.co.uk

Contact any of the leaders if you would like to be involved with any of the Task Groups.

Roads – Alex Lake
alex.lake@burksgreen.com

Airfields – Peter Tindall
peter.tindall@weeks.co.uk

Rail – Rory Keogh
pavinguk@gomaco.com

Specialist applications – James Charlesworth
james@extrudakerb.co.uk

Environment – Dr Tony Parry
aparry@trl.co.uk



Committed to **RAIL...**

Lafarge Cement, makers of Blue Circle Cement, has appointed Freightliner Heavy Haul to service all its depot operations, moving over 1,000,000 tonnes of cement a year. Lafarge's distribution director said that they were committed to using rail, with a progressive increase in its rail depot network. They also aimed to improve the environment by minimising their road transport.



The British In-situ Concrete Paving Association

Britpave Newsletter is published regularly by Britpave with the aim of keeping members up to date on Association matters, industry developments and member company news and views. Please help keep us in the picture on all of this by sending us any relevant information that you feel may be of interest to the membership.

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