

Newsletter

br/tpave

The British In-situ Concrete Paving Association

Summer 2005 | 11

Tight curves. . . . and no handling

Fastrack is a public transport network that will serve the regenerative development of the Kent Thameside part of the Thames Gateway. Fitzpatrick are currently involved in constructing Phase 1 of what will be an extensive network developed over several years as regeneration progresses.

The scheme consists of 5k m of bus route comprising a number of on-street bus lanes, segregated busways and dedicated off street busways with priority at signal controlled junctions. The project extends from Dartford town centre, over the A282 (M25 Junction 1b) to Bluewater shopping complex. The works involve constructing new areas of carriageway, either adjacent to or remote from existing carriageways.



Part of the slipformed high containment kerb constructed on a tight radius

In one of the eight sections of work, a semi-urban area, the scheme called for extensive lengths of precast concrete high containment kerbs to be installed, some 900 m in length, to prevent vehicular access to private land. The company proposed a slipformed alternative on the grounds of cost savings, increased speed of installation and on health and safety grounds as manual handling is avoided.

This was accepted by the client, Kent County Council. The works were carried out over a three-day period, which included a site trial, and involved some tight radius horizontal curves, coincident with vertical curves. The quality of kerb achieved at these areas was very good.

■ For more information contact tim.gibbs@fitzpatrick.co.uk

First step barrier installed



Work in progress on M62 step barrier



Construction of the new concrete step barrier began in June on the M62 motorway near Hull in East Yorkshire. These works represent the first implementation of the Highways Agency instruction to provide higher performance in-situ concrete safety barrier rather than steel barrier along all motorway medians.

The project falls within the boundaries of Maintenance Area Contractor 12 and the design team at CarillionWSP have worked closely with principal contractor Balfour Beatty and specialist slipform paving contractor Extrudakerb to deliver 4 km of refurbished motorway now protected by maintenance free concrete barrier.

Along this stretch, the concrete barrier bifurcated around the columns of two overbridges and an existing matrix sign. In-situ connections were cast to allow connection of existing steel barrier at either end of the new concrete barrier.

The foundation and restraint for the concrete barrier were also slipformed by Extrudakerb, although the strip between traffic face and edge of pavement featured an asphalt surface course.

Two four-track Gomaco Commander III slipform pavers were used by Extrudakerb in an effort to construct the barrier and foundation / restraint slab as quickly as possible. Paving moulds were mounted to the right-hand side of the pavers allowing works to progress in the same direction as adjacent traffic flow.

Concrete was supplied by Cemex UK Limited, 24 hours a day and 7 days a week; again in an

effort to construct the new barrier as swiftly as possible. Production peaked at over 18 m³ per hour.

In line with Britpave predictions the barrier, foundation and restraint incorporated around 4,000 m³ of bound materials – principally concrete. Costs of the barrier and restraint were less than budgeted.

Motorists using this section of the M62 motorway should enjoy at least 50 years service from this new improved safety restraint system within which time it is confidently predicted that there will be no crossover accidents. There should also be improved safety statistics, reduced congestion from lane closures set up to repair accident damaged steel barrier, and no maintenance costs associated with damage to the concrete barrier.

Britpave and the Highways Agency expect all other MACs to follow the lead set by CarillionWSP and begin to deliver reconstruction projects featuring concrete step barrier rather than a steel barrier.

■ For more information, contact james.charlesworth@extrudakerb.co.uk

Diary Dates

Czech roads visit
Late summer

Britpave Conference 2005
26 & 27 September (see page 5)

Guided bus seminar
Leeds, 8 November (see page 7)

Concrete Roads Symposium
Brussels, 19 – 22 September 2006



US and Belgium back low noise concrete



CRCP with low noise running surface used for rehabilitation of the Antwerp Ring Road

Extracted from an article by Phil Shirley in *World Highways*, April 2005.

The investment in research and development on High Performance Concrete (HPC) in the US alone, is staggering. The US Federal Highway Administration plans to spend more than US\$200 million in the next seven to 10 years.

According to Hardy Johnson, 2004 chairman of the National Ready Mixed Concrete Association, "HPC is the wave of the future, with higher and higher strengths". A particularly interesting, and politically focal, area of R&D is the development of concrete pavements with reduced tyre/pavement noise generating characteristics – intended to address the rising numbers of complaints about tyre/pavement noise from residents living in areas adjacent to highways and mandatory corrective actions for noise reduction, especially for urban stretches of highway.

In Belgium, approximately 375,000 m² of exposed aggregate surfacing (whisper concrete) will be laid during the Antwerp Ring Road Renovation, an ambitious project to improve one of Europe's busiest and noisiest road freight routes. Phase two of the project gets under way this summer.

As the whole substructure and sewer system was badly damaged after more than 40 years of use under extreme heavy loading conditions, the Flemish Road Authority (FRA) decided to replace the whole sub structure covered with a continuously reinforced 22 cm thick concrete pavement with a fine exposed aggregate surface finishing.

According to Romain Buys, general manager of concrete surfacing specialists Robuco, a subcontractor on the Antwerp Ring Road Renovation project, the FRA's decision is a clear indication that concrete is 'holding its own as an alternative to asphalt.'

"In Belgium, Austria, the Netherlands and Scandinavia, for example, the use of whisper concrete is widespread and very successful and continues to be the preferred choice of surfacing for road authorities," Buys said. "This is because they have learned to apply this technology in the correct way and with the right materials (low polishing aggregates)."

There are certainly long life advantages of wearing resistant exposed aggregate concrete surfaces, not least the overriding environmental benefits of low noise and fully recyclable concrete structure.

The final result of optimum noise reduction, however, is dependent on a combination of several components beginning with the mix design and ending with the wash (brush) out and the curing. "Experience is the only right way to optimise the technique," Buys said.

Ironically, the demise of whisper concrete in the UK can arguably be blamed on a lack of experience, claims Buys, whose company Robuco was involved in critical pilot projects during the 1990s. A subsequent patent infringement lawsuit only served to further erode confidence in whisper concrete.

Now, almost a decade after its launch in the UK, the argument for whisper concrete appears to have been well and truly silenced, its potential lost in the wake of the British Government's new timetable for the removal of all the concrete surfaces on the motorway and trunk road network - ironically to reduce traffic noise.

However, according to one expert, concrete road surfaces could still have a future in the UK, as a road maintenance tool. Moe Awaznezhad, a program engineer with the Colorado Department of Transportation (CDOT), believes European road authorities should be open minded about the potential of Ultra Thin Whitetopping (UTW), the so-called Prozac of road repair.

"We expect to get at least 10 to 15 years out of the whitetopping segment, as it's a good product if applied in the right situation," Awaznezhad said. "It's stronger and more durable than asphalt, the process promises to last longer than asphalt and be ready for reuse in a hurry."

Used to fix failing pavements, UTW is the thin layer of concrete that contractors place over traditionally milled asphalt. UTW projects, covering more than a million square yards, have been completed in the United States. UTW is not as widespread in Europe, although in Belgium several major trials are taking place.

Rehabilitation of the Antwerp ring road

The Antwerp Ring Road is one of the most trafficked freeways of European importance. Six radial freeways are tying into it and traffic volumes on its busiest sections are nearing 20,000 vehicles per day, 25% of which are heavy trucks. The dual carriageway of the Ring is 14.2 km long. The number of lanes varies from four to seven in each direction. Along with 30 km of access and exit ramps on the interchanges, the project comprises a total of 100 ha of pavement requiring renewal and full recycling.

Based on a Life Cycle Cost Analysis and a Multi Criteria Analysis, a continuously reinforced concrete pavement with a service life of at least 35 years has been chosen for the main part of the Ring Road.

The complete pavement structure is being renewed and consists of 230 mm of CRCP, a 50 mm thick bituminous inter-layer, 250 mm cement stabilized granulated asphalt rubble and 150 mm granulated lean concrete rubble. A fine exposed aggregate surface combines a good skid resistance with a low level of rolling noise.

A paper* to be presented later this year describes, among other aspects, the use of a new type of terminal joint and the design and construction of CRCP with variable width on the auxiliary lanes. By the latter method of construction, only short transverse transition joints occurred between the CRCP on the auxiliary lanes and the asphalt pavement on the ramps.

* The authors of the Antwerp Ring Road paper are Luc Rens (Febelcem) and Manu Diependaele (Technum). The paper will be presented at 8th International Conference on Concrete Pavements Colorado Springs, US, 13 – 18 August 2005.



HBM boosts sustainable road construction



Reconstruction of the A52 in Staffordshire, where planings used as the aggregate were relaid after stabilisation off-site with lime and PFA.

Following research published last year and the November 2004 update of the *Specification for Highway Works* pavement engineers are now in a much better position to use the existing subgrade or pavement materials for in-situ or off-site recycling, and to use waste or by-product materials such as pulverized fuel ash (PFA) or granulated blast furnace slag (GBS) as binders alongside the traditional cement, lime or bitumen.

Writing in the *Surveyor*, Ian Walsh explains that the results from the recent SMART (recycling) project reported in TRL 611 coupled with the new versatile pavement design method reported in TRL 615 mean that engineers can now access a much wider range of materials in the capping layer, subbase and base. What is particularly new is that the foundation, which is the combination of capping and subbase or subbase alone where no capping is used, can be designed to different strengths or stiffness and the performance checked on site. So now, unlike previously, the stiffer the foundation the thinner the pavement above it.

What is also different is that the new hydraulic-bound materials using slow setting, slow hardening binders based on PFA or GBS were investigated in TRL

reports 611 and 615 and these are now included in the SHW.

An additional benefit from the 'performance' approach to pavement foundations is that a wider range of permitted materials can be used, including processed highway maintenance arisings and demolition material, and crushed concrete or asphalt millings/planings.

The other development that has proved its worth on reconstruction and development sites in the South East has been the successful stabilisation of clays with lime to make a pseudo-granular material, and then adding cement or other binders to give strengths in excess of the normal capping soaked CBR requirement of 15%. CBR values in excess of 100% have been achieved to produce subbase.

Where the clay is naturally occurring, and the contractor can be satisfied that sulfate will not be a problem, dramatic savings in use of imported granular material can be made. This has a great sustainability benefit in reduction in fuel for transportation, especially in the South East, where naturally occurring hard stone subbase is rarely available locally.

The author makes the point that these materials will enable a local authority to satisfy its best value performance indicators for sustainability because most of these new materials use recycled or secondary materials and less energy in their production.

References

TRL 611 (SMART project). D Merrill, I Carswell & M Nunn. *A guide to the use and specification of cold recycled materials for the maintenance of road pavements*. TRL 2004

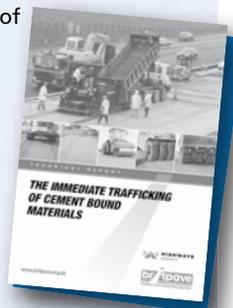
TRL 615. M Nunn. *Development of a more versatile approach to flexible and flexible-composite pavement design*. TRL 2004.

Available from www.trl.co.uk

The immediate trafficking of cement bound materials

Reviews the results of a joint Highways Agency/Britpave project to examine the immediate trafficking of a range of cement bound materials. The report identifies those mixtures that can be trafficked early and those that require a curing period.

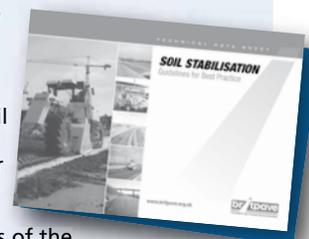
Date 2005; Price £10.00



Soil stabilisation: Guidelines for best practice

Provides guidelines for all involved in soil stabilisation. Pays particular attention to the responsibilities of the parties to the contract, and can be used to assess the information that is required to specify a soil stabilisation project and schedule the detailed testing required.

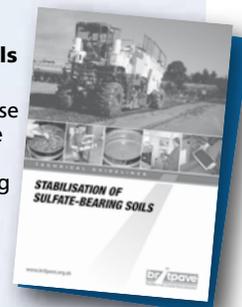
Date 2005; Price £10.00



Stabilisation of sulfate-bearing soils

Explains the mechanisms that cause sulfate heave, before recommending methods for sampling and testing for sulfates and sulfides and describing measures to minimise the risk of sulfate-induced disruption

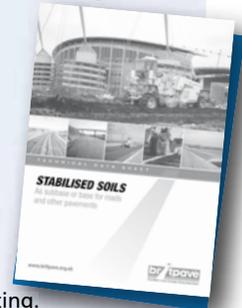
Date 2005; Price £10.00



Stabilised soils as subbase or base for roads and other pavements

Gives guidance on the two stage stabilisation of cohesive soils such as clay using lime followed by cement, pfa and/or ggbs to produce a strengthened subbase or base. Covers specification guidance, site investigation, mix design, construction and testing.

Date 2004; Price £10.00



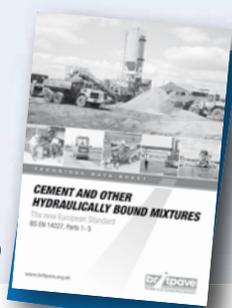
Available free to Britpave members; non-members may buy online from www.concretebookshop.com

Cement and other hydraulically bound mixtures

Describes the new European Standard, BS EN 14227 issued in November 2004 that covers hydraulically bound mixtures for road and other pavements. Explains how the new mixtures compare with

those specified for use before that date, and gives guidance on the selection and specification of the new mixtures.

Date 2005, Price £10.00





Concrete treads lightly in National Park

Mowlem plc is nearing completion on the £40 million Otterburn Training Area Development project within Northumberland National Park, approximately 60 km north west of Newcastle-upon-Tyne, an area which has been used for military training for around a century. This Ministry of Defence project has been the subject of two sittings of a Public Enquiry in 1997 and 1999 with work on site finally starting in April 2003.

The moorland region is highly valued for its rolling landscapes, ecological diversity and archaeological interest. Such is the environmental and local sensitivity of the project that Mowlem appointed a full time Environmental Officer and a full time Community Liaison Officer to oversee the works. White Young Green is the Consulting Engineer for the project with RPS providing them with specialist environmental advice.

Added to the environmental concerns, the logistics of importing one million tonnes of Whinstone quarried stone fill and then batching and transporting 40,000 m³ of concrete across a site covering 112 km² presented a major challenge to the team.

The project details

The MoD needed to develop the infrastructure of the ranges in the training area to allow the modern generation of artillery equipment to be deployed at Otterburn – the only training facility in the UK able to carry out this sort of training.

The project entails widening 40 km of asphalt roads and the construction of 28 km of stone track, laying 40,000 m³ of concrete including 20,000 m³ of high strength black coloured microsilica pavement quality concrete.

Environmental concerns

What could be more challenging in environmental terms than a major and dispersed construction project within a National Park in a sensitive high altitude



The Central Maintenance Facility workshop, designed to maintain the AS90 artillery, surrounded by 45,000 m² of concrete parking

environment that is, in addition, an active heavy weaponry military training area? It is the location of a number of SSSI and other sites of high conservation value, some of which – like the mires – represent a large percentage of such a habitat within the UK and Europe, supporting a high proportion of a number of native species.

Roman and prehistoric archaeological features are scattered throughout the National Park. The Romans occupied this area, 20 miles north of Hadrian's Wall, and built military marching camps and roads, including Dere Street, which runs through the site.

Many of these features have been preserved by the presence of the Army within the National Park and Mowlem employed specialist archaeologists to watch all topsoil excavation to ensure no artefacts were lost or damaged. Five salmonoid rivers are also present on the site and have meant that no works within the rivers could be undertaken within the period September to May (the spawning and breeding season).

Mowlem's Environmental Officer has been working closely with the Environment Agency, Defence Estates Conservation Officer and the Northumberland National Parks Authority throughout the project period to ensure all environmental factors have been taken into account.

Central maintenance facility

The Central Maintenance Facility (CMF) is a major extension of the Otterburn Camp. Some 45,000 m² of pavement quality concrete has been laid here alone, providing the Army with a huge parking area for its heavy artillery and support vehicles.

Specified concrete requirements

The two concrete mixes specified for the paving works on the project are CBM2 and

C60 silica fume – both providing high performance concrete (HPC). The same specification applies to the Central Maintenance Area paving and all the concrete junctions to the roads. To enhance durability the specification requires 35 kg/m³ of 50 mm cold drawn fibres and polypropylene fibres.

To meet the specified requirement that the concrete paved areas closely matched the colour of the road asphalt, a raven grey pigment additive was chosen.

Concrete batching plant

To produce the required 40,000 m³ of in-situ concrete from an off-site batching unit would have been difficult, as the nearest ready-mixed concrete plant was some 30 km away. As a solution, Tarmac Northern erected a new Liebherr Mobimix 2.25 concrete batching plant on the site, which supplied all the concrete for the project. It comprises a 2.25 m³ wet batch mixer, three 100 tonne cement silos and four aggregate bins of 50 tonnes each; it is capable of achieving an output rate of 78 m³/hr.

The plant has been modified with the installation of a special micro silica fume weighing pot with bulk storage for 45 t in order to make the C60 silica fume concrete. The pavement concrete also contains steel fibres added directly into the mixer from an automatic dosing machine purchased from Sweden.

With the completion of this major project in July 2005, the MoD acquires a new facility that will enable them to continue the training of NATO armed forces for many years to come. The project has been completed with little, if any impact on this area of outstanding natural beauty.

■ For more information, contact Richard.Trinick@mowlem.com



AS90 artillery at Otterburn



Come to **Blackpool** and see how illuminating concrete can be! **2005 Britpave Dinner & Seminar – 26 & 27 September**

Golf Day – Monday 26

This will be held at the De Vere Heron's Reach Golf Course with tee-off times from 11.06 to 12.27 following breakfast served from 10.30. Teams of two will play a 4-ball better ball competition for the Britpave Cup.

The price is £40.00 including VAT each, including refreshments. Book with the Britpave office and send your cheque in advance, payable to Britpave.

Dinner – Monday 26

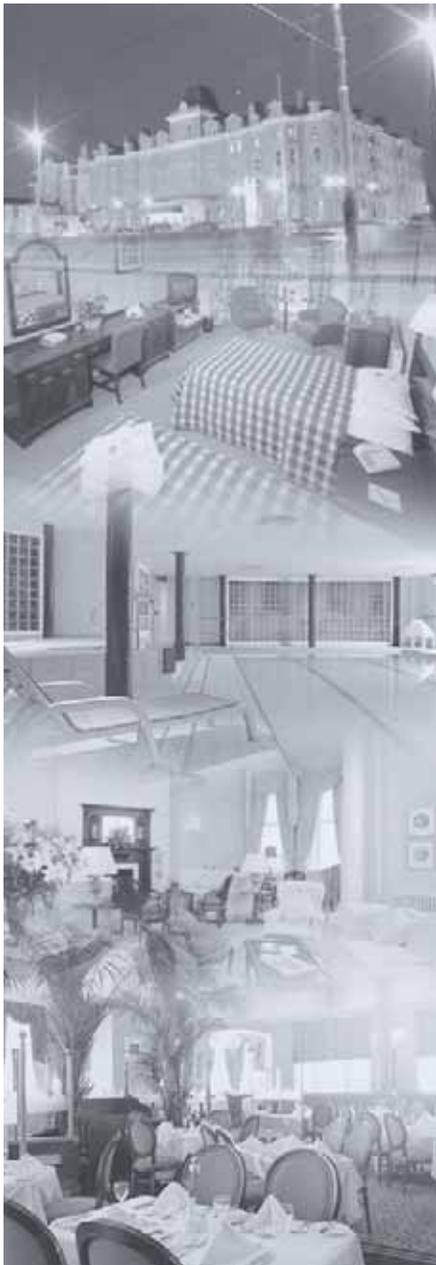
A major networking opportunity, the annual Dinner starts at 8.00 pm, following a drinks reception from 7.00 pm. The cost is £70.00 + VAT.

The after dinner speaker this year is Phil Walker, North West comedian of the year 2002/3. With a host of TV credits, Phil is guaranteed to make this 14th Annual Dinner a night to remember.

Seminar – Tuesday 27

Check in from 9.00 am for a welcome by David Gillham, Britpave's Chairman, at 9.30am.

Costing £190.00 + VAT, the seminar is an opportunity to get up to date with all the latest developments in roads, airfields, soil stabilisation, guided bus and industrial hardstanding. Complete a booking form or book online at www.britpave.org.uk



2005 Seminar Programme

09.00	COFFEE & REGISTRATION
09.30	Welcome & opening remarks
	Overview <ul style="list-style-type: none"> • The work of EuroRAP • Understanding risk and reducing road injury
	Concrete options for motorway widening
	Motorway widening – maintenance issues
	Widening Europe's busiest motorway, M25 J12-15
	Questions
11.10	COFFEE BREAK
11.40	Overlays and inlays – the Belgian experience
	High output concrete paving – a new motorway in the Czech Republic
12.40	LUNCH
13.45	A conundrum of airfield pavement construction
	Highlights of Task Group activities
	Soil stabilisation - the zero landfill option
	Dutch developments in roundabout paving: Guided bus system in Eindhoven
	Industrial hardstandings – the new Britpave Design Handbook
	Questions
16.15	CLOSE

Booking

The Imperial Hotel is holding a block of rooms for those wishing to stay overnight on Monday 26 September. A special rate of £90.00 pp including breakfast has been agreed for those mentioning Britpave.

For those who would like to stay on Sunday 25th there is a special rate of £65.00.

Reservations must be made direct with the hotel on 01253 623 971 or fax 01253 751 784.

Exhibition

There are a number of display areas available to companies who wish to promote themselves to those attending the dinner and seminar

This is an opportunity to showcase your company and its products and services to anyone who is anyone in the industry.

The spaces are 3 m by 2 m, available to Britpave members for £400 + VAT. Ring 01276 33160 for more details.



Hard facts on concrete hardstanding

Alex Lake of Burks Green introduces the new design handbook due out shortly from Britpave

Hardstanding market

Each year, considerable areas of hardstanding and circulatory routes are constructed around industrial and commercial premises for use by heavy goods vehicles and other handling plant. The distribution industry has, in recent years, been one of the main contributors to the demand for new hardstanding areas, requiring approximately 1,500,000 m² of newly constructed external pavement each year.

The market for such hardstandings is likely to grow in parallel with the relentless growth of the logistics industry in food, grocery and manufactured goods distribution. Additionally, as the manufacturing base of the UK decreases, the demand for next day delivery of imported goods increases and the requirement for cargo and distribution facilities and their associated hardstandings will rise.



Modern distribution and process facilities demand significant hardstanding areas

Traditionally, hardstandings for heavy usage have been constructed from concrete and, to a slightly lesser extent, concrete block paving. However, in recent years, alternative materials have increasingly entered the marketplace, driven partly by the need to have hardstandings constructed within the very tight programmes associated with the development of these facilities.

The client often needs to make the quickest possible use of the proposed facility, so as to achieve an early return on investment. Potential tenants may be easily attracted to alternative facilities, or may have a specific timescale that is linked to a production process or import/export project. Design life may therefore not be a major factor but will typically vary from just five up to 30 years. However, once the facility is in use, any downtime or loss of



Traditional construction of a concrete hardstanding alongside fast track building construction

availability to allow for maintenance is a vital factor, which may affect the viability of the project.

Also, increasingly, the move away from owner-operators to tenant operators has led to the need for facilities to be constructed on fast-track principles, requiring considerable thought with regard to the concrete paving construction techniques available to ensure the concrete solution remains a viable option. The processes of slipforming pavements (almost exclusively adopted on highways and airfield construction) and laser screeding (for the most part adopted on internal floor slab construction) are little used on large industrial hardstandings due to current detailing and practices.

Elsewhere in the industry significant advances have been made with steel and synthetic fibre reinforced concrete and with roller compacted concrete, each of which could offer effective concrete solutions to an increasingly competitive hardstanding market.

Long term performance

Hardstandings are understandably seen as being of secondary importance to the facility that they surround, be that a distribution centre, industrial plant or other process that requires a hard surface around it. Unfortunately, this view frequently leads end users, designers and contractors to focus their attentions (be they financial or technical) on the building facility, leaving the hardstanding with minimal attention from the project team.

If insufficient focus is placed on the hardstanding planning, design and construction, the end result will frequently be a hardstanding that is inappropriately

specified, over or under-designed, poorly laid out and constructed to marginal standards of quality. This in turn will be reflected in the long-term performance of the hardstanding.

Updated guidance

A new design handbook from Britpave explains some of the simple steps that can be taken to ensure that the next concrete hardstanding that is purchased, designed and constructed does not leave the end-user with a long-term problem.

It provides an overview of why concrete pavements are designed and constructed in the way that they are, reminding the reader of important aspects of concrete pavement technology that are occasionally overlooked. The handbook also incorporates the latest advice on selecting appropriate concrete classes for hardstandings in accordance with the new European Standard BS EN 206.

In addition, the design methodology developed within this handbook incorporates the latest foundation classes developed for use by the UK Highways Agency, adapted for use with concrete pavements by the Transport Research Laboratory. These foundation classes give the designer a high degree of choice when selecting foundation materials.

The advice given on integrated design, if adopted, should also enable constructors to adopt more fast track paving methods such as slipforming and laser screeding.

This handbook has been prepared for designers, constructors, owners and operators of concrete hardstandings that are subjected to heavy goods vehicle and forklift trafficking, for which the design thickness methods given have been developed.

- Copies will be given to attendees at the Britpave seminar in September.



Stabilisation to create subbase materials



Floating north at **300mph**?



The high-speed rail line in operation in Shanghai – is this the future for North/South rail links in the UK?

London to Newcastle upon Tyne in 1 hour – that is the prospect if ‘Maglev’ trains were introduced to this country. The concept of building an additional dedicated high-speed line in parallel to the existing East Coast main line has been around for some time, and was put to one side by the government a year ago. Now Tony Blair is reported to be excited by the idea of reaching the north so quickly.

‘Maglev’ relies on a near friction-free magnetic levitation system, and can produce running speeds of up to 300 mph. The carriages float on an electromagnetic cushion above the guideway, which provides power for running and braking.

A system that has been developed in Germany has proved successful on a short

route in China between Shanghai and its airport. The Transrapid vehicles went into full commercial service at the end of 2003, running every few minutes at 267 mph. They transport up to 600 passengers to the city in just eight minutes, replacing an hour-long road journey.

In this country the Maglev system would probably be viable only on longer routes – in a country where we have not yet caught up with the use of TVG trains.

Upgrading the East Coast main line and its capacity makes sense. The £7bn cost of upgrading the medium speed West Coast route has provided both politicians and railway engineers with food for thought. And Alistair Darling has said that a high-speed north/south route is needed.



Light rail beats improved bus systems

New light rail schemes are far better at attracting motorists and cutting congestion than are improvements to bus services. This is the finding from a new report for the Passenger Transport Executive Group. It reviewed seven operational light rail schemes and found that they were delivering on ridership, regeneration and modal shift. In particular the report found that:

- Light rail achieves six times the level of traffic reduction achieved by major improvements to bus services
- All UK light and tram systems are popular and are at or near capacity at peak times
- The system has improved access and mobility for people with disabilities.
- It can also provide access between deprived areas and jobs, and give better connection to community and shopping areas.
- When passenger numbers are high, light rail can be more cost-effective than the bus alternative.
- Tram schemes have played an important part in delivering regeneration and shaping how and where it occurs. All UK tram schemes have led to increases in commercial and residential property values.

■ The report is available at www.pteg.net/lightrailcentre.htm

Rail Task Group Update



Guided busway seminar

A guided busway seminar is to be held in Leeds on 8 November, hosted by The Concrete Centre, to promote the Britpave guided busway design guide. This free half-day event will cover planning, design and operational aspects from both the UK and international experience.

The Rail Task Group has welcomed two new Britpave members this month. Vossloh Fastening Systems join with expertise in rail fastenings and experience of slab track systems from around the world. Pfeleiderer, a major slab track contractor from Germany, also bring practical experience of ballastless track to the Group.

Following publication of the *Guided busway design handbook*, a guided bus working group has been formed to develop best practice guidelines for the construction of busways. With the Cambridgeshire guided busway project currently out to tender, the Task Group sees this as a valuable opportunity to present in one document accumulated experience from other slip forming and guideway construction projects. This publication will be launched at the Britpave 2005 seminar.

Nottingham trams exceed targets

During its first year of operation, Nottingham Express Transit has had to increase its tram frequencies twice to meet the demand. Twenty percent of passengers use the associated park and ride schemes and over 30% of passengers have transferred from cars. There are also signs of regeneration along the route, with new facilities being developed close to tram stops.



WELCOME to new members

Britpave is pleased to welcome the following new members, and looks forward to their participation in the Association's activities.

Colas Limited

Tel: 0121 561 5561

www.colas.co.uk

Principal contact: Kevin Harding

Interface Développement

Tel: +33 472 07 71 71

www.interface-dvlpt.com

Principal contact: Claude Bernard

Pfleiderer Track Systems

Tel: +49 9181 28 8634

www.pfleiderer-track.com

Principal contact: Roland Brueckmann

Vossloh Fastening Systems GmbH

Tel: +49 2102 49090

www.vossloh.com

Principal contact: Joachim Spors

Crack & seat developed for taxiways



As part of the preparatory work to allow the A380 to operate at Heathrow, BAA started a research and development programme in 2003 to investigate new cost-effective ways of rehabilitating taxiways. They concentrated on 'crack & seat' techniques used for roads, but not yet used on heavily trafficked taxiways. Consultants WSP drew on expertise from around the world to model 'crack & seat' pavements when loaded by heavy aircraft, then verified it by monitoring deflections at Heathrow.

The technique creates a composite pavement by overlaying existing concrete with asphalt. Traditional overlays are generally more expensive than concrete pavement construction, but the new technique allows less asphalt to be used. This is made possible by the use of a guillotine breaker to produce hairline cracks at frequent intervals into the concrete. This reduces the movement in the concrete and so minimises reflective cracking in the asphalt, so allowing the overlay depth to be reduced from over 300 mm to 150 mm.

Britpave says farewell to John Ruggles

John Ruggles, who was Britpave's first Secretary, died earlier this year aged 73. John joined Britpave in 1991. His earlier career, however, started with a period of National Service with the Royal Engineers from where he joined Compactors Ltd. There he enjoyed a number of positions during the 36 years that he worked with them. In his spare time John was an enthusiastic sailor and latterly was very involved with the local Rotary Club.

John's enthusiasm for concrete paving ensured that Britpave soon developed from being an organisation of contractors involved with paving concrete roads into the broad-based association that now represents the whole of the in-situ concrete paving industry.

During his five years in office, John laid the foundations for the successful association that Britpave now is. He will be sadly missed by his wife and two sons and by many Britpave members.



John Ruggles – Britpave secretary from 1991 to 1996

Massive investment in network for N Ireland

Northern Ireland's transport infrastructure is to benefit from more than £1.5bn over the next decade.

Launching the plan earlier this year, regional development minister, John Spellar, also announced the province's second package of road improvements to be procured under a public-private partnership. Costed at £250M, this is £100M larger than previously outlined and has been expanded to include six schemes covering 125 km of motorway and trunk roads.

Of the £1.5bn, about 45% is earmarked for rail services, while 5% will go towards improving inter-urban bus and coach services. There will be greater benefits per head of population in the west, including 50 highway 2+1 schemes that add a third lane to single lane carriageways for overtaking.

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Call for papers

The call is out for papers for the 10th International Symposium on Concrete Roads to be held in Brussels in September 2006.

The themes are:

- Concrete roads and sustainable development
 - Cost-effective and long-life pavements
 - Maintenance and rehabilitation
 - Safety and environment
- Urban planning and rural roads
- Special topics

Abstracts of 300 words or less should be submitted by 15 September 2005. For more information visit www.concreteroads2006.org

With joint themes of 'A century of experience' and 'The way ahead is concrete', the week long conference starts on Monday 19 September 2006. A minimum of five technical visits are planned, to both experimental projects and 30-year old sites covering a range of pavement applications.



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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