

New airfields guide...

with help from Britpave Task Group

The long-awaited revision to the 'PSA Green Book' for the design and evaluation of airfield pavements is now available.

The new Defence Estates design and maintenance guide – *A Guide to airfield pavement design and evaluation* – brings the previous guide up to date. The changes include:

- The latest tridem undercarriage arrangements
- Provision for higher Aircraft Classification Numbers (ACNs)
- Higher strength ranges for pavement quality concrete
- The use of high strength bound base materials for flexible pavements
- New design and evaluation charts have been developed to read over a wider range of values
- The ACN tables have been updated and expanded
- More information is provided on pavement investigation techniques

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spain

Britpave visits a major contract using the Rheda 2000 slabtrack system

Continued from front cover »

New airfields guide...



Adequate strength is an important design factor

The new design guide is complemented by the revision of the Defence Estates airfield pavements materials specifications for concrete and bituminous materials, all of which have been updated to take account of current best practice and the latest European CEN standards. In particular, Specification 033, *Pavement quality concrete for airfields*, has benefited greatly from discussions within the Britpave Airfields Task Group, which has helped Defence Estates incorporate best practice aspects from designers, specifiers and contractors.

The intention is that the Design and Maintenance Guide and the materials specifications will be available electronically as pdf downloads through the Defence Estates website at www.defence-estates.mod.uk. Until this route is available, requests for copies on CD-ROM should be sent to Andrew.higgs@de.mod.uk or John.cook@de.mod.uk



Slipforming pavement quality concrete at RAF Fairford

Slabtrack chosen for tunnel safety

In April Britpave member RAIL.ONE (Pfleiderer Fastening Systems) helped organise a short visit to Spain to see the installation of the Rheda 2000 slabtrack system.

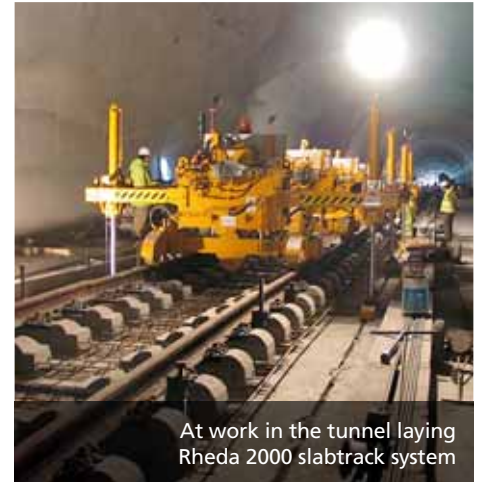
RAIL.ONE is a new name. In April Axa Private Equity acquired Pfleiderer Track Systems, which was formed over 100 years ago. The company is well known in Europe, Korea and China as concrete sleeper manufacturers and providers of ballastless track systems such as the Rheda 2000.

Members of the Britpave Rail Task Group flew to Santiago de Compostela in Galicia, northern Spain, and received a series of first class technical presentations on the Atlantic Axis high-speed line. The site visit that followed, some 40 km from Santiago, was to a 6 km section of new track. Some 2.2 km of this is the Guadarrama tunnel, which is being paved using the Rheda 2000 system. This contract is part of a 230 km upgrade of the high-speed line towards the Portuguese border.

Four companies led by Aldesa are working on this contract, which is due to finish by the end of



The Britpave Rail Task Group with their hosts



At work in the tunnel laying Rheda 2000 slabtrack system

the year. It was explained that the decision to use slabtrack in the tunnel had been made on safety grounds because the rigid slabtrack allows easy access by ambulances in case of emergency. It has already been decided to place slabtrack in the tunnel sections of the final contract of this project, which is due to be completed by 2010.

Special plant and equipment is used to transport and position the precast elements of the system. Once in place, a high level of accuracy of ± 2 mm was achieved using wireless technology. Concrete supplied from a batching plant using normal truck mixers for delivery was placed between the reinforcing steel. RAIL.ONE explained how they have opened a new production facility in Spain to deal with demand for their slabtrack system.

Britpave would like to thank Roland Brueckmann and Thomas Silbermann of RAIL.ONE, Nicole Weißmüller of Vossloh and Luis Baldó Macía of Aldesa for putting together this highly successful visit.

■ For more information contact roland.brueckmann@railone.com



Close up of the system showing precast elements and reinforcement

airports

Atkins supervises work at Pogorica

Upgrading a Balkans airport



Atkins have been working for the last three years with the Airports of Montenegro on a major modernisation programme of the country's airports.

The main focus of the programme has been at Pogorica, the capital's Aerodrome Crna Gore, where six new aircraft stands, a new taxiway system and CAT1 AGL system are nearing completion. Additionally the construction of a new 5000 m² terminal building, fire rescue station and car park plus utilities upgrades are well under way with completion expected during 2006.

Strategically the development of Aerodrome Crna Gore is key to the country's economic growth in providing a gateway for tourists visiting the Adriatic coast.

Atkins has been involved extensively with the European Bank-funded project by undertaking scheme and detailed designs and preparing tender documentation for various work packages. Project Manager Rob Jenner said 'The requirement for the work to be tendered within the region and

internationally meant that all documentation had to be prepared in both Serbian and English languages to a demanding programme; this proved a particular challenge'.

The upgrade to the airfield infrastructure, designed by Atkins, has been sized to cater for Boeing 767 aircraft. The accommodation of such aircraft has required the construction and refurbishment of 1.5 km of taxiway system along with 30,000 m² of aircraft apron in pavement quality concrete (PQC).

Site investigation for the pavement design confirmed it was underlain with gravel deposits with CBR values in excess of 30% being achieved. The initial design was for 330 mm PQC on a 150 mm dry lean concrete (DLC) base. However, as part of a value engineering exercise, the DLC was replaced with a cement treated base (CTB) layer, thus recycling the in-situ material.

Trial mixes of the CTB proved it to be particularly good, raising concerns it would attain too high a strength. The cement content was adjusted to



View from the air during construction

achieve the desired mix strength. The PQC was laid between forms using a 7.5 m ABG machine. A mix of local and imported labour was used by the contractor to achieve the high strength and finish required of the concrete pavements.

Atkins' current involvement is the supervision and contract administration of the airfield pavement and aeronautical ground lighting works, supported locally and from the UK.

■ For details contact rob.jenner@atkinsglobal.com



Finishing work to pavement quality concrete

Where in the world?

Take part in Britpave's own travel quiz



Where was this photo taken?

A pair of stylish Britpave cuff links for the first correct answer drawn. Answers on a postcard to reach the Britpave office no later than 15 July (Members of the CSB Project Board are not eligible to enter).

Any members who have similar puzzling photographs (relevant subjects only, please) should send them to info@britpave.org.uk

scotland

Britpave's first seminar north of the border

Britpave - A perspective for Scotland

An enthusiastic Scottish audience of 35 attended Britpave's first Seminar in Scotland at the Carlton Hotel in Edinburgh on 21 February. Contractors, engineers, consultants and representatives from Transport Scotland had been invited to attend this half-day event, which was chaired by Dr Jim Troy (Tarmac Group).

David Jones (Director of Britpave) started proceedings by giving an overview of Britpave activities and encouraged attendees to consider the benefits of membership of Britpave.

Forbes Macgregor (Manatee Associates) spoke on concrete in the Scottish roads environment, drawing on his many years of experience as a roads engineer in Scottish government. This was followed by a lively and enthusiastic presentation by James Charlesworth (Extrudakerb) on the new Concrete Step Barrier.

After the tea break Heather Ceney (Arup) spoke on guided busways and showed interesting examples of systems already in use across Europe. David York (Sitebatch Technologies) presented CBM for Scotland followed by Bill Armstrong's overview of new opportunities for PFA in Scotland.

The afternoon concluded with a lively panel discussion and drinks reception where delegates could network and further discuss the topics amongst themselves. This was a most successful trip to Scotland and Britpave look forward to continuing relations with colleagues north of the border in the future.



Dr Jim Troy

Tarmac Group –
Chairman



David Jones

Director of Britpave –
Introduction to Britpave



Forbes Macgregor

Manatee Associates – Concrete in
the Scottish Roads Environment



James Charlesworth

Extrudakerb –
Concrete Step Barrier



David York

Sitebatch –
CBM for Scotland



Bill Armstrong

ScotAsh –
PFA in Scotland



Heather Ceney

Arup –
Guided Busways

International roads conference 19–22 SEPTEMBER



Don't forget the International Symposium on Concrete Roads to be held in Brussels on 19 – 22 September.

- Special theme – sharing of knowledge and experience
- Two days of technical visits
- Two days of technical sessions
- Themes – concrete roads and sustainable development, urban pavements and rural roads
- Special topics – airports pavements, smart roads and industrial pavements
- Full programme for accompanying partners
- Official language: English

■ For more information visit www.concreteroads2006.org

britpave 2006

Dinner, seminar and golf day

It's all happening in Buxton

25 – 26 September 2006

Golf day – Monday 25

A Stableford competition is to be held at the nearby Cavendish Golf Course, Gadley Lane, Buxton. Breakfast will be served from 10.30 am, with tee-off times starting from 11.00 am.

Please book with the Britpave office, sending your cheque in advance. For full details see the seminar programme.

Please note that Golf only is not an option.

Quarry visit – Monday 25

Tarmac have kindly offered delegates a chance to visit one of Europe's largest quarrying operations at its Tunstead Quarry, Buxton. In addition to producing crushed stone, which is distributed by road and rail, visitors will see the lime, coated stone and ready-mixed concrete operations as well as one of Britain's most modern cement works.

The tour will be conducted in mini-buses and last approximately 1½ hours. Anticipated start time is 2.30 pm at Tunstead Reception. It would be helpful but not essential if you provide your own PPE equipment.

Please indicate at the time of booking if you wish to take advantage of this rarely offered opportunity.

Exhibition – 25 & 26 Sept

There is a limited number of display areas available, providing an opportunity for companies to promote themselves to Britpave members and other guests attending the dinner and seminar.

Stand areas measure 3 m by 2 m, costing £470 incl. VAT to Britpave members and £822.50 incl. VAT to non-members. Ring the office on 01276 33160 for booking details.



2006 Seminar Programme

| | | |
|-------|--|--|
| 09.00 | COFFEE & REGISTRATION | |
| 09.30 | Welcome & opening remarks | Britpave Chairman |
| | P2P – An Initiative to move from Prescriptive to Performance | Robert Garbini President, National Ready Mixed Concrete Association, USA |
| | National Accounts Promotion Programme – A national approach to support local promotion and the advancement of concrete | |
| | The RMC Research Foundation – An investment in the future of the concrete industry | Julie Luther-Garbini RMC Research Foundation, USA |
| | Slabtrack: opportunities in UK & elsewhere – The RHEDA 2000 system | Roland Brueckman RAIL.ONE GmbH Pfleiderer Track Systems |
| | Questions | |
| 11.10 | COFFEE BREAK | |
| 11.40 | Concrete roads & fuel savings | Erik Simonsen Cemeta AB, Heidelberg Cement |
| | Concrete Step Barrier & EN1317: Dispelling the myths | Naomi Green Arup |
| 12.40 | LUNCH | |
| 13.45 | Airbus A380 programme and pavement testing | Cyril Fabre Airbus |
| | Highlights of Britpave Task Group activities | John Donegan Roller Compacted Concrete Co. |
| | Hydraulically-bound mixtures & stabilisation – New opportunities | John Kennedy Consultant |
| | Questions | |
| 15.40 | CLOSE | |

Dinner – Monday 25

The dinner is a first-class event that offers members real networking opportunities and is an ideal occasion at which to entertain clients. It starts at 8.00 pm following a drinks reception from 7.00 pm. The cost is £90 incl. VAT.

The after dinner speaker this year is Tom Sutton, reputed to be one of the funniest speakers on the circuit, with many TV appearances and regular bookings on the world's top cruise liners.

Seminar – Tuesday 26

Check in from 9.00 am for a 9.30 am welcome by Britpave's Chairman.

This is the yearly opportunity to get up to date with the latest in roads, airfields, barriers, slabtrack, soil stabilisation and the work being undertaken by Britpave's Task Groups.

Payment of £240 incl. VAT per person must be received by 15 September to guarantee a place.

Accommodation

The Palace Hotel is holding a block of rooms for those wishing to stay overnight on Monday 25 September. A special rate of £90 including breakfast has been arranged for those attending.

For those wishing to stay the night before, a rate of just £70 for B&B or £85 including dinner has been agreed.

All bookings must be made by the beginning of August direct with the hotel on 01298 22001.



foreign exchanges

**US visitors
French drains**

Britpave hosts US roads delegation

Members of Britpave Roads Task Group spent a full day with a group of 17 delegates from the USA who were visiting the UK at the end of a European fact-finding mission.

The mission, jointly organised by AASHTO and Federal Highways Administration, was examining European best practice in concrete road technology, construction and procurement. The other countries visited were Germany, Austria, Belgium and the Netherlands.

A series of questions had been posed to Britpave by the group in advance of the visit, which gave the Britpave Roads Task Group the opportunity to demonstrate the current situation with concrete roads in the UK. Alex Lake (Burks Green) headed up a powerful presentation that led to some probing questions about UK procurement policy.

In order to stimulate further discussion, two site visits were included in the day. Britpave arranged to meet with the US party at a hotel just outside Cambridge, which was convenient for two sites which had recently been paved in concrete. There were presentations by



Carillion-URS and Birse on the A429 Madingley where the CRCP dual carriageway of 150 mm in depth is being overlaid with a thin asphalt running surface. The second site visit was a drive to the A1(M) Peterborough, which gave the opportunity to debate the funding of DPFO schemes. David York (Sitebatch) and Mike O'Brien (Alfred McAlpine) led the discussions.

A further presentation was given by Harry Potter (Atkins) who described the design and construction of the M25 at Clacket Lane and also of the nearby Thorney By-pass. At the end of the day Peter Brindley of Laing O'Rourke facilitated a round table discussion, which led to a lively exchange of views.

Excellent contacts with the US team were made and Britpave intends to develop much closer relationships with colleagues working in our industry in the United States. Particular thanks are due to all members of the Britpave Roads Task Group, chaired by Richard Betteridge (Carillion), who put a lot of effort into producing an interesting programme and presentations of a high standard. The ground work for the visit was prepared by John Donegan in his role as Chairman of Britpave's Technical Committee.

Thanks also to John F. O'Neil, the US International Co-ordinator who worked closely with Sheridan Cremer-Evans in the Britpave office to ensure that arrangements on the day ran smoothly.

Slot drains: innovative solutions from France

Until recently Britpave members Interface Développement were known as manufacturers of inflatable technical plastic tubes (Gaine CF), which allow pavers to provide up to 500 m of slot drain in one element. However, over the past two years, the French company has developed some interesting solutions in response to specific requests from clients. Three examples are discussed below.

Long length small diameter slot drains

The Gaine CF allows pavers to easily provide very long length small diameter slot drains with reinforced concrete. The inflatable plastic tube is strong enough to withstand pressure from the air and from concrete and abrasion inside the mould.



View of work at Marignane Airport, where a 150 mm diameter pipe was formed over a distance of 3500 m.

Slipforming multiple slot drains in one pass

Using a special mould, it is possible to slipform several drains at the same time with different diameters (from 100 mm). This system was used in an Austrian tunnel to create three slots in one pass.



At work in an Austrian tunnel where three 100 mm slots were formed to accommodate electrical cables in the walkway.

Waterproofed slot drains

Interface has developed a new product to fully waterproof slot drains. This product, ID Seal, is a specialist sheet that is textured on one side, and is inserted with the Gaine CF into the mould.



The ID Seal lining sheet is wrapped around the inflatable tube before slipforming the drain. Inset: the finished drain showing the frictionless lining.

During the slipforming process, the textured outer side of the lining bonds with the concrete, while the inner side provides a very smooth surface inside the drain channel. Afterwards, the inflatable Gaine CF is removed and the ID Seal remains strongly bonded to the concrete.

■ For further information contact Matthieu Biens: contact@interface-dvlpt.com

new from britpave

barrier details
guided bus construction
barrier crash tests



Concrete step barrier: design guidance

A series of datasheets covering design of the new concrete step barrier:

- Selection of profile
- Working width and setback
- Standard profile
- Foundation and restraint
- Variable profile
- Dual CSB
- Bifurcation and tapers
- Lighting columns
- Gantry bases and bridge piers

Ref. DS/CSB 500 to 511. Free of charge from the Britpave office to members. Downloadable from Britpave website.

New step barrier CDs

Two new CDs have been produced that will help make the roll-out of the step barrier programme swifter and more efficient.

The first, a **comprehensive folder of technical drawings and specifications** is the product of many months work, which Britpave commissioned from Arup. This CD contains some 70 drawings of both concrete and steel step barrier and ancillary products. It is produced in pdf format and includes AutoCAD blocks of principal items for download.

The CD can be ordered from the website or through the Britpave office. **Ref. BP/22.**

The other is a new issue of the **multi-media CD** on step barrier, providing a comprehensive explanation of how it works and how it can be configured for every eventuality likely to be met on site. Dramatic use of animation illustrates many of the features, and there is film footage of recent contracts and some of the recent crash testing, which Britpave has carried out at the Motor Industry Research Association, MIRA.

Ref. BF/23. Free to Britpave members, £20 to all non-members.

Guided busway: construction handbook

**OUT
SOON**

Developed as a sequel to the *Guided busway design guide*, which was published in 2004, this construction handbook sets out best practice for highway and busway schemes constructed in slip-formed in-situ concrete. It gives recommendations and advice on:

- Design aspects influenced by the construction techniques
- Concrete production and supply
- Surface texture and smoothness
- Interfaces
- The construction process

Ref. BP/24. Free to Britpave members, £60 to non-members from www.concretebookshop.com

Barrier crash tests

Britpave has recently carried out two full scale crash tests of the step barrier at the Motor Industry Research Association (MIRA). Both tests were carried out in accordance with the latest European Standard EN 1317-2:1998.



The first test assessed a 13-tonne bus impacting against a surface mounted step barrier. The barrier came through the test unscathed.



The coach accelerated up to 70 kph and hit the barrier at a 20° angle. The massive impact was absorbed by the step barrier and the coach was re-directed along the face of the barrier in text book manner. The coach was still driveable and the barrier undamaged apart from some surface scarring.

The second test was required by the Highways Agency. It also involved crashing a 13-tonne coach into a variable sided version of the step barrier. Again, the barrier came through the test unscathed.

At the time of writing the formal notification of the two successful tests has not been received but when this is obtained the savings in embedment will make step barrier dramatically more competitive, particularly in the massive trunk roads market.



More on these tests in the next issue of Britpave News

the last word...

Welcome to **new** members

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

Ardan Construction, Israel

Tel: 00 972-8-8593268

Principal contact: Aharon Zorawsky

Highway Care Limited

Tel: 01622 734215

www.highwaycare.co.uk

Principal contact: Richard Endersby

Interserve Project Services Ltd

Tel: 01895 238111

www.interserveplc.co.uk

Principal contact: John Ward

Power Curbers Inc/Power Curbers (UK & Eire) Ltd

UK Tel: 01524 762762

US Tel: 001 7046365871

www.powercurbers.com

Principal contacts: Bryan Hebble-Thwaite (UK)
Stephen Bullock (USA)

New Chairman for Britpave

David York, a founder member of Britpave, has been elected as Britpave Chairman. He started his career in heavy civil engineering contracting on the M5 in Somerset in 1969. Since then David worked for contractors, including a spell of three years in the Middle East until the mid 80s.



He then started a specialist CBM business, Sitebatch, in 1992. The company has been involved in many major road schemes plus port developments in the UK and Bahamas. In 2003 David founded the Roller Compacted Concrete Company Ltd.

A founder member of Britpave who has represented CBM interests from day one, David has represented Britpave projects at TRL, Nottingham University (where he is an industrial fellow) and on CEN standard committees.

Sitebatch and Roller Compacted Concrete Company Ltd were acquired by Aggregate Industries in early 2006. David continues to be a director of these companies with as much enthusiasm as ever. Meanwhile he looks forward to consolidating Britpave's successes, and taking the Association forward to meet the challenges of the future, under the themes of 'Keeping Britain moving, saving lives and respect for the environment'.

Gaps in concrete barriers – no problem

A recent incident on M25 triggered criticism in the press of the Highways Agency for not having any emergency crossing points (ECPs) in the central reserve barrier where vehicles could be turned round after the motorway was closed.



Britpave, the promoter of the step barrier system, has worked closely with HA to develop an easily removable 'gate' that can be incorporated into the concrete step barrier at whatever intervals the client chooses.



These emergency crossing points are short steel sections with the same profile and performance characteristics as the concrete step barrier. They have been designed so that two men with spanners can easily remove the steel section and push it aside by using the integral demountable wheels. So far these ECPs have been installed on M18, M180 and M5.

Full details of this feature, and of all construction and design aspects of concrete and steel step barrier are contained on the Britpave CD *Drawings for concrete step barriers and ancillary items*, available from the Britpave office (see page 7).

New member on Britpave Council

Steve Davies is an Associate Director of Arup with 24 years experience in transportation and infrastructure projects.

For the past four years Steve has been actively involved with Britpave working with the Rail Task Group producing studies into aspects of implementation on the UK rail network of slabtrack, and producing the design and construction guidelines for guided busway systems. More recently Steve has been part of the Concrete Step Barrier (CSB) Project Board developing the guidelines for the use and implementation of CSB in the highway industry in accordance with Highways Agency directives.



Steve has extensive experience in the management of multi-disciplinary design teams working on projects up to the value of £450 million, including both the rail and highways sectors. Recent and current projects include Cambridgeshire Guided Busway, West Coast Route Modernisation and the N25 Waterford Bypass

DBFO in Ireland. Steve's consultancy experience covers all stages of major civil engineering projects from feasibility to detailed design and construction supervision. He also spent five years working for a major UK contractor and therefore has a breadth of knowledge and experience across the construction industry.



The British In-situ Concrete Paving Association

Britpave News 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.

Britpave

Riverside House, 4 Meadows Business Park,
Station Approach, Blackwater, Camberley
GU17 9AB

Tel: **01276 33160**

E-mail: info@britpave.org.uk

Web: www.britpave.org.uk