

Newsletter

br / tpave

The British In-situ Concrete Paving Association

Spring 2005 | 10

Britpave achieves barrier breakthrough



Tests on the new step barrier show how it controls a 13.5 tonne bus . . .

Britpave has been working hard for 10 years to convince the Highways Agency that the central barrier on most of Britain's motorways should be constructed of concrete, and so the recent news from them was greeted with no small sense of satisfaction. In essence the Agency will now take account of whole life costs and the other benefits of concrete; their new policy states that where the AADT (annual average daily traffic) exceeds 25,000 vehicles a day there are significant benefits in using rigid concrete barriers on motorways and dual carriageways.

On 12 January the HA issued Interim Advice Note 60/05 that came into force with immediate effect. The introduction of a new Highways Agency policy for the performance requirements for central reserve safety barriers on motorways follows a review comparing the performance and maintenance of concrete barriers with steel barriers in the central reserve. The IAN says 'The evidence indicates that where the AADT exceeds 25,000 vehicles/day there are significant benefits from a maintenance viewpoint in using rigid concrete rather than deformable steel barriers on busy motorways and dual carriageways. These benefits include significant health and safety benefits for road maintenance and traffic management operatives, as fewer safety barrier repair and maintenance operations are required'.

It further states "On the M25 no replacement or maintenance of concrete

barriers in the central reserve have been necessary in two years. Taking into account the Whole Life Cost and benefits of all safety barriers in the central reserve, the evidence supports a change in policy. Initially this is to be implemented as policy on motorways but the benefits obtained can equally apply to busy all-purpose dual carriageways".

The new concrete barriers will have to be of performance class H2 and with a working width class of W2, and be designed to achieve an essentially maintenance-free serviceable life of not less than 50 years. Where lamp columns are to be mounted on the safety barrier the working width will be increased to a minimum of W3.

The Interim Advice Note will be used forthwith on all future schemes for the construction, implementation, improvement and maintenance (major maintenance renewal schemes only) of motorways provided the AADT exceeds 25,000 vehicles per day. It will also apply to all those schemes that are in preparation provided that, in the opinion of the overseeing organisation, this will not result in significant additional expense nor delay progress.

The note goes on to say that although concrete barriers can be up to 30% more expensive to install, on a sample of schemes the average costs of installing concrete barrier are assessed as being only 0.2% greater than steel safety barrier. In

certain cases this will be greater where changes to the central reserve drainage may be required. The additional initial costs will be offset by the reduction in maintenance and associated traffic management costs. Further cost savings should be made by increasing safety and reducing the likelihood of crossover accidents.

■ Visit www.britpave.org.uk to request a CD-ROM which contains detailed designs.



. . . and keeps it safely contained

Diary Dates

Czech roads visit

Dates to be announced soon

Britpave Conference 2005

26 & 27 September (see website)

Concrete Roads Symposium

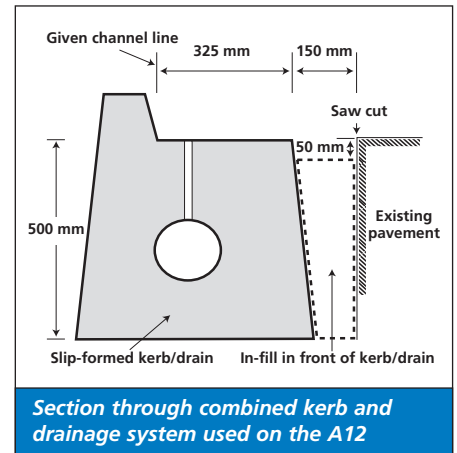
Brussels, 19 – 22 September 2006



Combined kerb/slot drain installed on A12 contract



Slipforming the kerb/slot drain on the A12 contract



Section through combined kerb and drainage system used on the A12

Britpave member, Fitzpatrick, has recently completed slipforming 4.5 km of combined kerb and slot drain on their £7.7 million major maintenance project on the A12 at Kelvedon in Essex. Carried out for the Highways Agency, the project was supervised by WS Atkins, and carried a £20,000 per day bonus/penalty clause.

The specification called for contractors' design proposals for linear drainage systems, with specific reference to Manual Lifting Regulations. The rapid pace of the project meant that precast and cast-in-forms solutions were unlikely to meet the

programme. Fitzpatrick therefore proposed the use of a combined kerb/slot drain.

The slot drain design was accepted and after a short trial, work commenced on site. The 150 mm diameter carrier pipe was formed using an inflated polyethylene tube, provided by French company Gaine CF. The tube is inflated by compressed air, which is maintained at constant pressure by a regulator.

The tube passes through the slipform mould within a steel tube, on top of which the slot former is fixed. Conventional

gully outlets were provided at regular intervals. Kerb upstands were removed at verge crossovers whilst the concrete was still fresh. The concrete mix was C35, air entrained with the addition of polypropylene fibres.

The slipformed slot drain provided a high-speed solution to this drainage problem, with the added benefits of simple outfalls and easily adaptable crossover construction. It is thought to be the first large scale use of slipformed slot drain on a trunk road in the UK.

Profiles

My current position is Contracts Manager with Mowlem Civil Engineering based at the Bracknell office, where I have been located for 3½ years. The main role is to investigate and develop tendering opportunities in the paving sector mainly on airfields, although I am involved in other major pavement projects. My duties also involve working within a bid team in the tendering process and overseeing successful tenders in a Contract Manager role.

Prior to taking up my present appointment I worked for Amey for 30 years on major road and DBFO projects and airfield pavement works throughout the UK with projects from Shetland to Cornwall. During this time I also spent eight years overseas, mainly in Nigeria, constructing roads and airports.

Current projects running at the moment include Birmingham Airport, which involves both flexible and rigid pavement works.

Another major project is the MOD Otterburn Training Area in Northumberland, again involving flexible road construction with a 50,000 m² area of micro silica, fibre reinforced, coloured, high strength concrete for a tank parking and maintenance facility.

New Chair of Roads Task Group, Richard Betteridge, writes . . .

Since joining Mowlem I have been briefly involved with Britpave. As I have known a number of individual members through my time in contracting, this has resulted in a certain amount of lobbying to take over the chairmanship of the Roads Task Group.

In the Roads Task Group we need to focus on where we can bring benefit to the end user. Currently the construction industry is comfortable with cement bound layers at the lower layers in roads construction. Our aim should be to bring concrete closer to the surface, if not on the surface! Concrete is a versatile material and we need to develop the technology that is available from Europe and overseas in order to maximise its application in the UK markets.

We have the opportunity with the onset of the motorway widening schemes that are in the Government's roads programme to pursue a way forward. As the majority of these projects are under the ECI form of procurement and generally the construction works will not commence for two years, the Roads Task Group has the opportunity to lobby, through our members, both designers and contractors to encourage the use of



concrete pavements on these schemes. To achieve these aims we are commissioning a report on options for motorway widening using concrete; this should lead to a series of design and build guides for the industry. I believe that only by educating all levels from the Government decision makers to the young people joining the construction industry that long term benefits of concrete pavements will be realised.

I would also like to see more constructor and major material suppliers providing input to the Roads Task Group as I believe that concrete is perceived as an expensive alternative compared with other forms of pavement; this can only be changed by bringing the major components together to improve design, buildability and supply chains.

■ Contact details: tel 01344 426 826, Richard.betteridge@mowlem.com



Pathfinder Visit to **Czech Republic**

In December, five Britpave members travelled to the Czech Republic, courtesy of Skanska (CZ), to see a major concrete motorway project. The party visited the job site some 3½ hours drive south east of Prague, near Brno. Temperatures of -3° to -6° meant paving had ceased for the winter break.

The contract, on motorway D1, is 14 km of dual carriageway. The concrete is two layer, jointed, unreinforced with dowel bars placed midway in the 300 mm slab. Lower layer concrete is 230 mm in depth and the upper layer is 70 mm deep. Maximum sized aggregates in these layers are 32 mm and 20 mm respectively. Concrete is batched through a German BHS twin-drum batcher rated at 200 m² per hour.

Skanska have purchased a new Gomaco 4000 set at 10.75 m wide especially for this contract. It features automatic dowel bar insertion and has a Leica wireless control system fitted.

After the site visit, the Britpave group took part in a presentation and discussion in Skanska's Brno head office. As well as senior Skanska staff, there were representatives of the Czech Road Research Laboratory and two members of the Highway Administration who confirmed that they had specified concrete pavement because of its long life, low maintenance characteristics. The technical discussion raised questions of why two layer concrete had been specified, how best to saw joints, whether



The Gomaco 4000 paving machine set at 10.75 m wide for this contract – stood down due to cold weather.

to seal joints and what were the noise, skid resistance and evenness characteristics of the surface.

Britpave would like to express its sincere thanks to Mr Josef Richter, Technical Director, and his team at Skanska (CZ) for their most generous hospitality and for making this visit possible.

Britpave has been invited to visit the contract again when paving resumes. Dates will be announced soon, and members will be informed of developments.



The Britpave party on site near Brno

A letter to the **Daily Telegraph** Motoring section

Rut trap

'There has been a lot of recent comment about motorway driving with particular emphasis on the rights and wrongs of staying in the left hand lane when not overtaking. From my experience on the M3, I'd say the left lane is best avoided because there are so many surface ruts. I presume this is a consequence of the wear and tear inflicted by constant lorry and coach traffic. When a car wheel enters one of these ruts it acts like a tramline and causes the vehicle to meander in a rather unnerving fashion.'

Britpave comment

Britpave has been urging the HA to use CRCP with a thin surfacing in the traffic-intensive 'truck lanes' on our motorways. Public perception of tramlines in the slow lane may explain why many car drivers prefer to stay in the middle lane.



THE UK TRANSPORT SCENE

Call for **more** motorways



By the end of the decade Britain's motorways will be congested throughout the day because we have failed to keep pace with other European countries in expanding the network. This is the view of the motoring organisations in a study that says that motorway traffic has increased by 36% during the last 10 years, but the network has grown by less than 1%.

The Road Users' Alliance points out that France and Spain have more than three times the length of motorway per person than we have, and Germany and Italy have twice as much.

The study also undermines the claims by environmentalists that the countryside is at risk of being covered by concrete. Britain has one of the lowest proportions of land covered by motorways, with only 15 km for every 1,000 sq km. Among the 15 EU members before the recent enlargement, only Greece, Finland, Sweden and Ireland have lower motorway densities.

The report found that motorists paid £42bn in motoring related taxes during 2002/03, while the Government spent only £6.7bn. on roads. Some £4bn was spent on the railways, but trains were used for

only 6.5% of the total distance travelled compared with 92% on the roads.

The Highways Agency is planning a few major motorway widening schemes, but only the M25 will gain an extra lane in congested sections by the end of the decade. This is in a country that has the most congested road network in Europe, and where traffic is projected to increase by a further 50% over the next 30 years. The proposed toll motorway between Birmingham and Manchester will not open before 2016.

Edmund King, the Director of the RAC Foundation, said 'Even if road improvements are started now, we will still face severe congestion throughout the day by 2010 on much of our motorway network. Compared with our European neighbours we pay the highest taxes, have the most congested roads and the least investment.'

He said that the government was propping up the rail network at the expense of roads. and even if wider road-pricing schemes were introduced this would never be an alternative to increasing the road capacity.

...and for **more** high-speed rail lines

Following increased sales and a 19% growth in passengers, Eurostar has called for more high-speed lines in Britain. During the first six months of 2004, a total of 3.4 million passengers were carried through the Channel Tunnel.

The company is beating the airlines who, according to Eurostar, cannot compete with high-speed rail services like Eurostar,

because they cannot match its good value pricing or high standards of service and punctuality. Added to this are city centre stations and quicker check in times.

Eurostar's Communications Director, Paul Charles, says it's time that more high-speed lines were built in the UK as passengers clearly benefit from faster journey times and superior punctuality.

...meanwhile the airports gear up for larger planes

Recently completed at Glasgow Airport is a £3.4m project by Britpave members, AMEC, to provide two stands for A321-200 and B757-200 aircraft. Using some 15,100 m² of PQ concrete, the layout had to take into account the need for the parked aircraft not to restrict the view from the adjacent air traffic control centre.

At Heathrow, the need to accommodate the giant Airbus 380 from spring 2006 means that major work has to be undertaken to re-align taxiways in order to achieve the required clearances. With its 80 m wingspan, the new plane will be 15 m wider than a B747, and its tail fin is the height of five double decker buses. Stands also have to be widened, and the runways were widened and strengthened during the recent refurbishment programme.

Reconstruction of taxiway at Bournemouth

Another Britpave member, Mowlem, has been busy at Bournemouth International Airport inlaying the central 23 m of the existing taxiway Romeo with PQ concrete. Originally constructed as a 45 m wide runway in blacktop, it has recently been downgraded to taxiway due to its age and low strength.

The new inlay was designed by TPS Consult in association with the airport to accommodate Code E aircraft (Boeing 747-200 max) and consists of 10,000 m² of 350 mm thick concrete on a 150 mm wetlean concrete base.

The decision to inlay with concrete was made on the basis of its superior overall life expectancy, its resistance to impact damage and hydrocarbon attack, and its overall cost benefit compared with an equivalent flexible pavement construction.



Edinburgh **guided bus scheme** opens



Edinburgh's guided busway under construction.

Britpave member Balfour Beatty (main contractor) and Extrudakerb (paving subcontractor) played a major role in this project. Described as 'Britain's biggest and best', the £10.5m project was opened in Edinburgh in December. The busway covers 1.5 km across two lanes, and should cut 15 minutes off peak time journeys between South Gyle centre and Princess Street.

Meanwhile, in **Cambridgeshire**, the cost estimates of £86m for its guided busway were described as 'robust' at a public enquiry into the scheme held last year.

And in **Liverpool**, Merseytravel plans to start construction in April of a new 18 km tramway from the King's Waterfront to Kirkby town centre. Described as one of the country's most deprived areas, Kirkby is set to gain from clear transportation, regeneration and socio-economic benefits, said Transport Minister, David Jamieson.

New transport infrastructure spending for Wales



The 15 year transport infrastructure plan for Wales was announced in the Welsh Assembly in December. It involves spending £7bn on new transport infrastructure, including local air services, and a relief toll road to take pressure off the M4.

This toll road would be the most important single project, costing £350m. Modelled on the M6 Toll, it would relieve the M4 serving Swansea, Bridgend, Cardiff, Newport and Bristol.

2nd TOLL ROAD PROPOSED FOR M6

As an alternative to widening the existing M6 between Manchester and Birmingham, Transport Secretary, Alistair Darling has proposed the M6 Expressway. Speaking in September 2004, he said this would provide motorists with a choice, and speed the journeys on both the new and old routes. It would also provide more road capacity at a lower cost, as widening the existing motorway would cost 10% more than the new route but only provide one more lane. In addition, widening the M6 would mean disruption to the traffic and could take eight years to complete.

The route has been chosen because it carries a significant amount of long distance traffic and it is one of the busiest and most economically important in the country.

The launch of the consultation paper about the M6 Expressway was made at the same time as the first three-month analysis of traffic on the M6 Toll, which

showed that traffic on the current M6 had fallen by 10%, with improved journey times. Mr Darling said that the success of the M6 Toll meant that it was now right to look at building a new Expressway to run parallel to the M6 to give drivers more choice.

■ Another measure to combat congestion has also been announced. This is a car pool lane on motorways to encourage drivers to share transport. Dedicated lanes for vehicles carrying two or more passengers could be created by using the hard shoulder or by widening roads to create an extra lane.

The Highways Agency is looking at four possible trial sites:

- M62, junctions 25 – 27
- M3, junctions 3 – 2
- M1, junctions 13 – 7
- M61, junctions 6 – 3.

Road noise Questions raised in the house

The topic of road noise has been aired in the House of Commons via two sets of Parliamentary questions. In early November, the answer given by The Secretary of State for Transport indicated that the total cost of resurfacing concrete trunk roads to provide quieter surfaces amounted to £141.6m, mainly incurred during the period 2002 to 2004.

In another written answer provided in mid December, the Secretary of State said that so far 27% of the trunk road network had been resurfaced. A list of 17 schemes completed since 1988 showed that only two roads achieved a decrease in noise level below that predicted at the public enquiry or consultation – the rest showed an increase. One of these was the 3.6 km stretch of the A50, the Foston-Hatton-Hilton Bypass where whisper concrete had been used.

Britpave Director, David Jones comments: "Despite being used on only a handful of projects, whisper concrete has proved to be a durable, low noise running surface. We hope those stretches on the network will not be unnecessarily resurfaced in asphalt."



SOIL STABILISATION MATTERS

Case study: Soil stabilisation at Flixborough

Driven by increasing changes in European legislation regarding waste disposal, North Lincolnshire County Council identified a need for a composting facility at Flixborough. The selected site had difficult geological conditions, comprising alluvium overlying peat, and was not capable of supporting the bearing requirements of the composting facility.

A traditional solution, using a system of piles capped by a reinforced concrete slab designed to carry the traffic and the compost, was considered not viable for this project.

An alternative design was proposed that utilised a flexible pavement type construction. A restrictive aspect of the design was that no fluids were to be permitted to contaminate the groundwater regime. A rigid pavement design was considered inappropriate as the calculated settlement, of 250 mm, would crack the slab and/or displace construction joints.

Main contractor for the works, Clugston Construction, appointed the specialist contractor, Con-Form Contracting, who proposed the flexible pavement design.

The design process identified that the loadings from construction traffic would exceed those of the final works and that using a CEM-1 mix was not appropriate as it could be damaged by site traffic.

The ground engineering solution applied by Con-Form utilised the pozzolanic reaction between lime and pulverised fuel ash (PFA), similar to the concept used in constructing road subbase fly ash bound mixtures (FABM). Trial mixes and tests were carried out successfully using a lime/PFA blend as the slower rate of strength gain and the ability to autogenously heal, overcame the problems of rapid setting.

The PFA/lime reaction utilises the pozzolanic properties of PFA. If sheared, the cracks autogenously heal as the pozzolanic reaction continues over an extended period; this overcame the issue of damage by construction plant. The use of PFA from the Drax power station provided Con-Form and Clugston with a cost effective solution to the geotechnical problems encountered on this site.

The final wearing surface was of Macro-Pave, developed by Con-Form as a semi-flexible, joint free, pavement solution.



Incorporating PFA into the soil.

Success for Soil Stabilisation Seminar

In December over 100 delegates attended a half-day seminar on Soil Stabilisation held at the Institution of Civil Engineers. The event, entitled 'Recycle and Remediate with Lime and Cement – the Zero Landfill Option' was sponsored by the Concrete Centre in conjunction with Britpave and the British Lime Association.

Able chaired by Steve Biczysko of Atkins, topics included an introduction to stabilisation techniques by Hedley Greaves of Buxton Lime. This was followed by a case history of the Commonwealth Games Stadium, Manchester, presented by Geofirma's Jonathan Smith. Ian Walsh of Babbie then gave a paper on the stabilisation of road foundations, followed by Steve Biczysko in his role of presenter as well as Chairman, who provided a session on recycling roads using stabilisation techniques. After coffee, the audience heard from Wyn Lloyd of Highways Agency on the New Versatile Road Design. The morning concluded with Mike Southall of Castle Cement giving a presentation of stabilisation and solidification of brown land.

Soil stabilisation/solidification, a technique well known to Britpave members, is a civil engineering based remediation technique in which problem soil is mixed with cementitious materials in order to improve its engineering properties and immobilise the contaminants. The dual action means that the technique is suitable for land of poor engineering properties and also land affected by contamination, and is noted for its cost effectiveness.

The advantages of treating the soil on site were made clear at the seminar:

- Swift redevelopment of problem sites, protecting greenfield sites.
- A reduction in the volume of soil dumped in landfill sites.
- Elimination of the lorry journeys taking contaminated soil to landfill sites and importing new soil.

The EU Landfill Directive 1999, now incorporated into domestic legislation, requires a major change in current UK landfill practices and brings the use of technologies such as S/S to the forefront of best practice; that's why the Environment Agency is a strong supporter of the technique.

As Mike Southall said, 'The increasing costs and constraints of using landfill and the growing knowledge of S/S, the longevity and durability of the process, the mechanisms that allow it to work and predictive methods for the long-term performance of treated waste means that in the future solidification and stabilisation will become a mainstream technique within the UK'.

The success of the event was such that two further seminars are planned for 2005. The first is to be held in Manchester on 12 May and the second in Falkirk on 21 June. For more information contact the Concrete Centre on 0800 4 500 500.

■ For details of the BCA/British Lime Association publication that formed the basis of the event, see page 7.



NEW FROM BRITPAVE

Guided busway: design handbook

These guidelines for the design of kerb-guided busway infrastructure in the UK set out best practice based on recent experience. Developed for Britpave by Arup with assistance from Britpave members, this 44 page publication covers relevant design standards and gives examples of existing schemes, providing guidance for the geometric design of the guideway, stops and pedestrian crossings. Other topics dealt with are loading to the guideway and structures, pavement design and safety issues.

Ref BP/010, price £60

Available from www.concretebookshop.com



Stabilised soils as subbase or base for roads and other pavements

After setting out the benefits of soil stabilisation, this Technical Data Sheet gives specification guidance for treating cohesive soils, covering the requirements for long-term structural performance, traffickability, frost resistance and volume stability. It goes on to deal with site investigation, mixture design, construction and control testing.

Ref BP/08

From Britpave office, info@britpave.org.uk



New concrete step barrier (CD and datasheet)

This datasheet and accompanying CD explain how the new step barrier contains the costs of construction and maintenance, and provides lowest whole life costs while cutting accidents, congestion, vehicle damage and risk to the workforce. The CD also provides Highways Agency approved drawings and specification.

Ref leaflet BP/11, CD BP/12

From Britpave office, info@britpave.org.uk



Slab track development: Guidance on relevant standards and sources of information

Prepared by Arup with assistance from Britpave members, this report summarises the findings of a study into available standards and guidance for slab track. It found that existing European and infrastructure owner standards provided sufficient general guidance but that these had been prepared within the context of ballasted track, and did not address the characteristics of slab track. Aspects specific to slab track, such as design, transition zones, testing, and commission and decommissioning are not covered by the available standards.

Ref BP/009

From Britpave office, info@britpave.org.uk



Coming soon

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.

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.

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.

....and more on airfields, motorway widening, guided bus and rail.

From the BCA

The essential guide to stabilisation/solidification for the remediation of brownfield land using cement and lime

This definitive guide to the remediation of brownfield land deals with every aspect of remediation using cement and lime. It offers guidance on the initial assessment, assists with planning and implementing the correct treatment and provides information on the monitoring and validation of the completed project.

Produced by an industry group led by the British Cement Association and The British Lime Association, it is available from The Concrete Bookshop.



Telephone 01276 608 778 or visit www.concretebookshop.com



WELCOME to new members

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

Combined Stabilisation

Tel: 01254 888818

www.combined-stabilisation.co.uk

Principal contact: Andrew Thorpe

Con-Form Contracting Limited

Tel: 01621 843938

www.con-form.co.uk

Principal contact: Andrew Armstrong

Independent Stabilising Company Ltd

Tel: 01246 859422

www.independentstabilising.com

Principal contact: John Bateman

Stabilised Pavements Ltd

Tel: 01858 880499

www.roadrecycling.co.uk

Principal contact: Stuart Mance

RMC Materials UK

Tel: 01492 535318

www.rmc.co.uk

Principal contact: Mark Owen

22nd International Traffic Engineering, Road Safety, Parking & Highway Maintenance Exhibition

Britpave will be exhibiting at Traffex, to be held at the NEC, Birmingham on 19 – 21 April. We have also applied to showcase the concrete step barrier and kerb guided bus in presentations in the theatre.

For information visit www.traffex.com

Concrete roads symposium 2006

This extensive symposium will be held over four days at the Brussels Expo Auditorium, with time split equally between technical visits and presentations. The visits will extend to five locations in Belgium, and cover a variety of applications at different stages of execution.

The main themes are

- Concrete roads and sustainable development
- Urban pavements and rural roads
- Special topics

The call for papers will go out on 1 March this year, with papers to be submitted by March 2006.

BRITPAVE Cup Winners 2004



Pictured after the Dinner on 27 September are the winners of the Britpave Golf Cup. John Donegan (left) and Adrian Erwee being presented with the cup by David Gillham.

Blackpool for Britpave's 2005 Seminar



This year, Britpave will hold its Annual Dinner and Seminar in Blackpool on 26 & 27 September.

All areas of Britpave activities will be covered and, as has been the custom in recent years, there will be international presentations.

The hotel chosen is the Imperial, on the North Promenade. It boasts spectacular sea views, comfortable rooms and many local attractions. There is also a full range of health and fitness facilities, and golf within easy reach.

Britpave is hoping to arrange a private tram ride along the front with the opportunity to view the famous illuminations.

■ For further information, visit the website www.britpave.org.uk



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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