BRITPAVE NEWS

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Britpave celebrates 30 years

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The British Cementitious Paving Association

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CHAIRMAN'S WELCOME

Welcome to the Winter 2021 issue of Britpave News.

Britpave is now 30 years old. Established in February 1991 to provide an industry forum for concrete contractors, Britpave's membership has grown to represent all parts of the infrastructure supply chain. Its brief remains the same: to provide an interface between clients and industry, to publish technical and best practice guidance and to forward better, more cost efficient and environmentally sensitive infrastructure options. To celebrate, Britpave held an industry conference and networking event. As one of the first real life events post-Covid, the conference was well attended by those pleased to meet their industry colleagues face-to-face and away from zoom calls. A report on the conference is contained in this issue of Britpave News.

Also in this issue is news covering infrastructure industry developments, Britpave initiatives and plant and projects from our members. These all underline how Britpave has grown to become the industry focal point for cementitious and concrete infrastructure solutions. It has been particularly successful in its involvement with the development of industry specifications, with its dialogue with major construction clients and its publication of technical best practice guidance. This success is due to its wide membership base.

Looking ahead to the next 30 years, Britpave will continue to forward the benefits of cementitious and concrete solutions such as reduced long-term environmental impact, improved long-term performance and best whole life cost for a better UK infrastructure. I hope that Britpave has your continued support to make the next 30 years as successful as the first.

Joe Quirke
Britpave Chairman and Engineering Manager, VolkerFitzpatrick

Britpave, the British In-situ Cementitious Paving Association, promotes the better and greater use of concrete and insitu cementitious infrastructure solutions. Its members include major contractors, specialist equipment and material suppliers, consulting engineers and interested trade associations. Together, they provide a single voice for the insitu concrete paving industry.

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.

Disclaimer: All articles are published in good faith. Britpave will not be held responsible for any errors, misinformation and opinions in articles submitted for this newsletter.

HEAVIER LORRIES WILL NEED A STRONGER ROAD NETWORK

New government proposed trials to allow longer and heavier lorries of up to 48 tonnes on specific routes provide an opportunity to utilise the low carbon, long life benefits which concrete truck lanes can offer.

Following a nine-year trial, the government has determined to allow longer semi-trailers (LSTs) of up to 15.65m to use UK roads from as early as next year. The government is now to trial the potential of heavier lorries to reduce the number of lorry journeys for specific intermodal lorry routes. Currently, the maximum weight of a lorry is 44 tonnes. The number of permitted axles will remain at six in order to mitigate the impact of the increased load by allowing the weight to be more evenly spread.

What is needed is a construction solution that can successfully meet the demands being placed upon it. The way forward is to provide specific truck lanes where the road is specifically constructed to meet the demands of heavy traffic loads. Otherwise, the increased lorry weight could result in the need for more frequent road maintenance and reconstruction and, therefore, more road works and congestion and more CO2 emissions.

Where the main structural component is concrete and where adequate maintenance has been carried out, pavements have been proven to last beyond their design life and can cope with ever-increasing traffic loads. There is also the potential for such truck lanes to have embedded rails that can wirelessly recharge the batteries of electric vehicles. Such roads for lorries are already in use in Sweden.

There are a number of long-term, minimum maintenance concrete road options including continuously reinforced concrete pavement with exposed aggregate and Next Generation Concrete Surface that offers the long-term performance of concrete with significant traffic noise reduction.

In addition, low carbon concretes, 100% recyclability and evidence that concrete rolling resistance can reduce fuel consumption offers the potential for CO2 reduction benefits of concrete roads. This and the superior whole life performance of concrete roads should be more widely recognised and considered by the government.

GOVERNMENT EMPHASIS ON WHOLE LIFE VALUE WELCOMED

Future government construction tenders will place a greater emphasis on whole life value as a way forward to reduce carbon emissions towards achieving net zero.

The recognition of the whole life value as a key element of reducing carbon emissions is an important one for the concrete sector which has long argued that concrete infrastructure solutions offer a better long-term option. Joe Quirke, Britpave chairman explained: "Concrete pavements can last beyond 40 years without having to be replaced and with minimum maintenance compared with the frequent maintenance and re-construction necessary for other road solutions. This means that concrete roads have a reduced CO2 impact over their longer performance life."

Durability and minimum maintenance are key for future roads providing best whole life reduced CO2. It is ironic that concrete roads, often seen as being an environmental problem, could, in fact, be the environmental solution to providing a transport infrastructure that can significantly forward the decarbonising transport agenda.

NEW GUIDE TO NON-DESTRUCTIVE TESTING OF CONCRETE PAVEMENTS

Britpave has published a new guide on the use of nuclear density gauges for the non-destructive testing of concrete pavements. The new guide explains how the use of nuclear density gauges avoids the need to take cored samples from a newly laid concrete pavement for non-intrusive testing of concrete strength and in-situ density. The latest edition of the *Specification for Highway Works* has adopted strength compliance requirements based on cubes and specifies that, with the exception of the trial length, the density of a concrete pavement should be determined by non-destructive methods. It is for the contractor to propose a suitable non-destructive testing method for approval.

The guide outlines the non-destructive testing approach for density and for the nuclear density gauge calibration the pavement concrete mix. It also provides a methodology for nuclear density gauge testing and a series of worked examples.

The new guide: ***'Non-destructive density testing of concrete pavements: A guide to the use of nuclear density gauges with pavement quality concrete'*** is available as a free download from: **www.britpave.org.uk/publications**

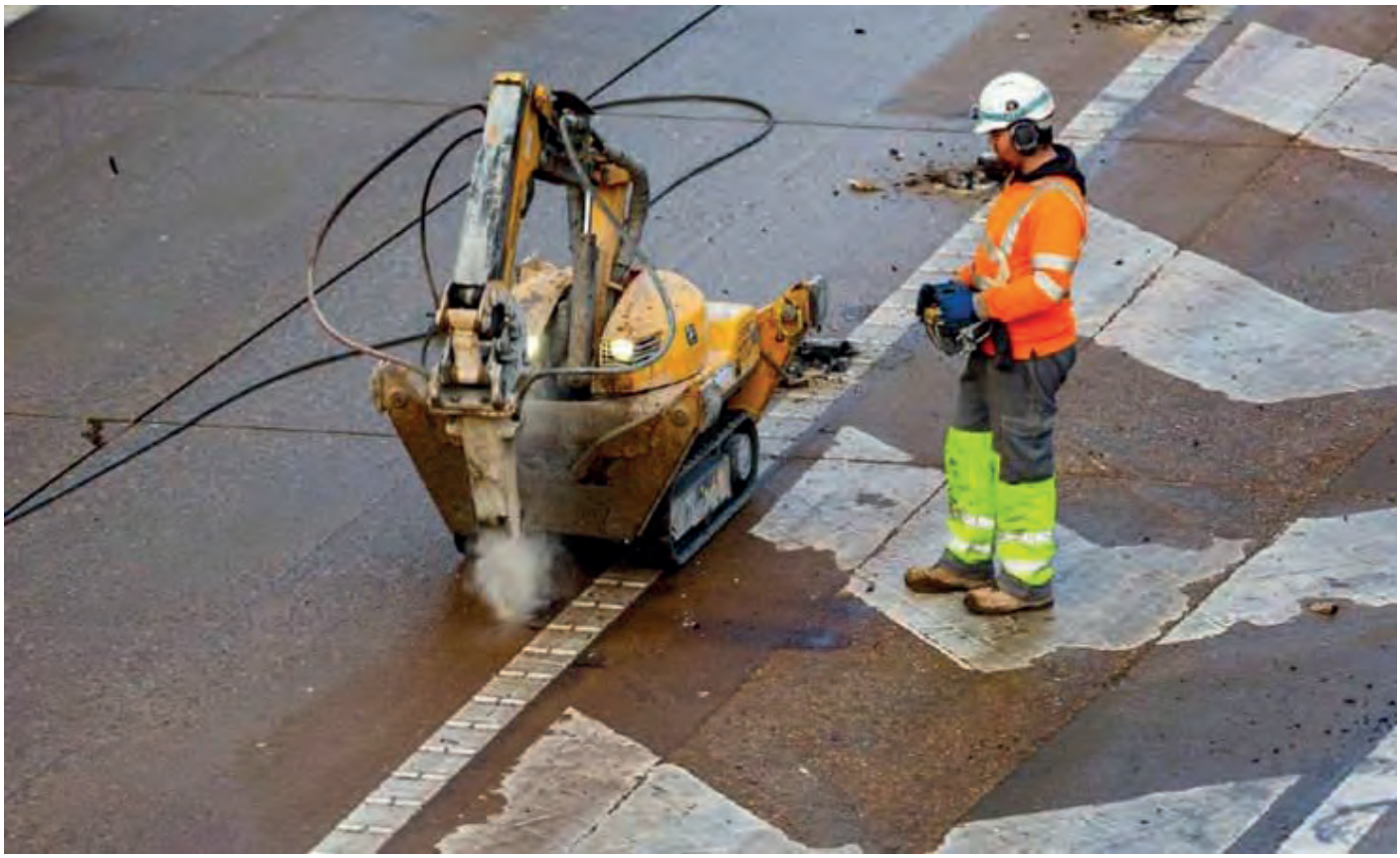
PROVING THE BENEFITS OF SOIL STABILISATION

Believing the idiom 'the proof is in the pudding', Britpave has published a series of case studies that demonstrate the benefits of soil stabilisation.

Soil stabilisation is a well-established technique that treats or strengthens poor or unsuitable soils. It involves the insitu addition of and mixing-in binders to provide an engineered solution that is a sustainable and cost-effective alternative to 'dig-and-dump'. The approach is particularly suited to bringing brownfield land back to positive development use. Particular benefits of soil stabilisation include reduced lorry movements and reduced aggregate importing resulting in significantly reduced environmental impact and reduced programme times and minimised landfill taxes resulting is considerable cost savings.

The new Britpave brochure, ***'Soil improvement and stabilisation: proven benefits'***, highlights how the process calls for more than simply rotovating binders into soil. The key is the correct use of binder and the implementation of good earthworks practice. This includes proper ground investigation, soil sampling and laboratory trials, good site quality control, use of appropriate plant and good onsite health and safety and environmental practices.

"The case studies demonstrate that soil stabilisation offers a wide range of cost and environmental benefits. However, they also underline how the professionalism and experience of the soil stabilisation contractor are central to the delivery of a successful project by ensuring that best industry practice is carried out," said Alastair McDermid, chair of the Britpave Soil Stabilisation Task Group. To download a copy of ***'Soil improvement and stabilisation: proven benefits'*** visit: **www.britpave.org.uk**



THE CONCRETE ROADS PROGRAMME

Britpave members are working with National Highways on its largest ever programme to rebuild and revitalise concrete roads in England.

These make up around 400 miles (4%) of England's motorway and long-distance A-road network and are mostly found along the eastern side of England, in the North East, Yorkshire, East Anglia and the South East. There are also some small stretches in the West Midlands, Merseyside and Greater Manchester.

They were built largely in the 1960s and 1970s, when traffic volumes were half of what they are today. The concrete slabs with which they were made have proved tougher and longer lasting than asphalt, and over the years have needed very little maintenance.

Decades of safe use and hundreds of millions of journeys mean these roads are nearing the end of their working lives. They need vital upgrades to ensure they remain safe, dependable and durable. Better surfaces will also boost ride quality and reduce noise for many years to come.

The first part of the programme will see an investment of £400 million between 2020 and 2025, as part of a five-year Strategic Business Plan maintaining and renewing the strategic road network.

In late 2020, work started to extend the lives of some concrete surfaces in the East of England. The next stage of this work started in the summer 2021. Engineering and construction companies Morgan Sindall, John Sisk & Son, Volkerfitzpatrick, Colas, Dyer & Butler and Tarmac Trading began on a long-term programme to repair or replace concrete road surfaces on strategic road network. As part of this programme, some roads will have their lifespan extended for 10 years by repairing potholes and cracks on the road surface. Others will be fully reconstructed, replacing the old surfaces with a new, modern road surface that will last for up to 40 years and will be easier and quicker for us to repair in future.

As part of the programme, Highways England (now National Highways) established a Concrete Roads Centre of Excellence. Repairing and reconstructing concrete roads will require techniques that have emerged since they were first built 40 years ago. The Centre will test new technologies, tools and processes with the potential to increase efficiencies and reduce costs. The Centre will also act as the development centre and knowledge hub for this work for the programme to use as it upgrades the concrete road network over the next 20 to 25 years.

Commenting on the concrete roads programme, Martin Fellows, National Highways Regional Director, said:

"Concrete roads have served the country well since they were first built half a century ago. They have proved tough and durable over the years, helping every day for work journeys and home deliveries, visits to friends and family, holidays, and the movement of the goods and services that we all depend on.

This is the biggest concrete road renewals programme we have ever embarked on and we're pleased to have awarded the final two contracts that will help us deliver the maximum benefits of safe, reliable and smooth journeys for many years to come."

The first of the contracts to revitalise concrete road surfaces was awarded earlier this year to Britpave members AECOM and Atkins. The £39 million Design Framework will see the companies provide design, supervision and project management services. Britpave has provided considerable input to the Framework.

In the past year the performance life short sections of the A11, A12 and A14 have all been successfully extended. and are using the lessons learnt from these projects to inform this new programme. This includes extending the life of more sections of the A12 and A11 during 2021.

SEVERAL BRITPAVE MEMBERS ARE WORKING WITH NATIONAL HIGHWAYS ON THE LATEST CONTRACTS TO DELIVER THE CONCRETE ROADS PROGRAMME. THEIR THOUGHTS ON THE PROGRAMME INCLUDE:

John Cox, managing director of VolkerFitzpatrick's Rail and Infrastructure, said:
We are very pleased to be appointed by Highways England to deliver the Lifecycle Extension Works Framework. Our team will be on hand to deliver specialist repair and improvement works across England's motorways and major A roads.

Simon Smith, managing director of Morgan Sindall Infrastructure, said:
"We are delighted to have been awarded a place on the Reconstruction Framework which continues our long-standing relationship with Highways England. The framework builds upon our existing portfolio of work with them including the Collaborative Delivery Framework, Smart Motorways Alliance Framework and several major schemes."

Paul Fleetham, managing director of Contracting for Tarmac, said:
"We're proud to be awarded a place on the Lifecycle Extension Works Framework which is testament to the expertise of our people, alongside an outstanding track record of technical innovation and efficient project delivery. We look forward to building on our long-standing relationship with Highways England, drawing on our capabilities to deliver high-quality, robust upgrade activity with minimum impact to the travelling public."

Simon White, Highways Director at Dyer & Butler, said:
"Dyer & Butler is delighted to have been awarded multiple Lots on the Lifecycle Extension Works Framework. We look forward to supporting Highways England maintain their national concrete roads asset and improve the journeys of their customers. We will be combining our experience gained on the Highways England Construction Works Frameworks with transferable concrete technologies from our aviation sector to deliver effective repair solutions."

PJ DAVIDSON MAKING EFFICIENT M4 PROGESS

Britpave member PJ Davidson continues to install motorway concrete barriers and associated works for the M4. The improvements to the M4 between junction 3 at Hayes, and junction 12 at Theale, involves upgrading the motorway to a smart motorway, which will provide much needed capacity, supporting the economy and facilitating economic growth within the region. This contract is the longest smart motorway upgrade project in England to date, at 51km or 32 miles.

The contract includes working under narrow lane traffic management that requires tight working envelopes in which to deliver Davidson's Concrete Barrier (DCB) - a CE marked, designed barrier, with a reduced cross-sectional area compared to other supplier and both the central reserve slot drain and hard shoulder slot drains.

Through early contractor involvement and regular technical and operational consultations with the main contractor Balfour Beatty Vinci, the challenges of working with such demanding restrictions had been managed to deliver the works in the most efficient manner. For example, in order to ensure a high-quality concrete supply to the slipform operations, PJ Davidson's own CEMCO mobile batching plant has been deployed to the project, establishing a BSi accredited concrete source as close as possible to the workface with the capacity to supply all of the contracted works.

BARTON CELEBRATES DIVERSITY

Barton, part of The Bennie Group, has underlined its commitment to diversity and inclusion and has joined Building Equality, an alliance of consultants, engineers, developers, contractors and institutions who are passionate about working together and harnessing their collective power to drive LGBT+ inclusion in the construction, engineering and built-environment industry.

The company has also been distributing stonewall laces and B-Proud badges to all of its staff. Stonewall are a charity that stands for the LGBTQ+ community, organising campaigns and events that support and drive positive change in public attitudes and public policy towards diversity and inclusion. Learn more here: **www.stonewall.org.uk**

BRITPAVE 30TH ANNIVERSARY CONFERENCE REPORT

The Britpave industry conference, 'The Next 30 years' was a first. It was one the first major industry events allowing delegates to meet and network face-to-face after months of isolated teams meetings and zoom calls. It was also a first in allowing delegates to travel in time from the past, to the present and then on to the future.

Ostensibly having the objective to celebrate the 30th anniversary of Britpave which was established in 1991, it was fitting that the first two speakers for the conference were founder members of the Association: David York, Chairman of Blue Phoenix and John Ferguson, Chief Materials Engineer of Balfour Beatty. York explained how Britpave was the brainchild of Brian Walker of the British Cement Association who had a vision to further the use of concrete in transport infrastructure. Initially it was set-up as a contractor organisation with an objective to put their competitiveness aside and work together to forward concrete solutions but it was soon opened up to a broader membership to include consultants and suppliers. This allowed Britpave to establish itself as a source of technical excellence, the success of which is underlined by its impressive technical library available free of charge for the industry, and to set=up a range of sector specific task groups. The success of which is underlined by the development and adoption of the concrete crash barriers. These successes, explained York, shows how Britpave "punches above its weight". The future, York believes, will be dominated by climate change and carbon reduction. Here, concrete has much to offer. Cement production has already reduced CO_2 emissions by 53% since 1990. Increased use of alternative waste aggregates will further enhance cement production's sustainability. Concrete roads offer a range of sustainability benefits that should be fully realised in the future. These include up to 7% reduction in fuel use by HGVs due to reduce rolling resistance, incorporation of TiO2 to absorb traffic pollutants and the use of self-healing concretes. Above all, he pointed to the 50 year life span of concrete roads which means less maintenance and repair so less CO_2. York forwarded his belief that the focus on electric vehicles is a "stop-gap fad" and called upon the development of hydrogen fuel cells as a better solution. He concluded that what ever the future holds the benefits of concrete transport infrastructure are constant. It is for Britpave to ensure that those benefits are recognised.

Ferguson also explained the reasons for the establishment of Britpave focusing on the need for an open forum to allow the sharing of experience and expertise, the provision of impartial advice, and the facilitation of industry networking. In addition to the success of the concrete barrier, he highlighted the success of working with clients and the development of technical guidance for airfields, roller compacted concrete and soil stabilisation. Evidence of the rewards of working with clients include new NNDR low strength in-situ class 3 pavement foundations and resolution of the issue of pavement core strength compliance. Ferguson foretold a number of future changes for the industry including moving towards alliances of working together to share risk and promote innovation, closer working with supply chain partners,

more trust between client and contractor, rapid adoption of digital solutions and increased use of self-certification. All of these will be against a background of skills shortages and reducing carbon emissions. He finished by outlining a number of future challenges for Britpave to address. These included encouraging a younger and more diverse membership, ensuring that it continues to be a centre of valued expertise, lead innovation and facilitate the updating of specifications to adopt those innovations and to increase the understanding and recognition that carbon emissions should be about whole life and not just installation.

The dialogue that Britpave has with major clients was underlined by the next two presenters who were both from National Highways: Lila Tachtsi, Asset Management Director, and Neng Mbah, Senior Adviser.

Tachtsi outlined the priorities for the Second Road Period and the values upon which National Highways are committed to follow. Significant amongst these are addressing and moving forward on the issues of carbon reduction, digital adoption, asset management and the concrete roads programme. Interestingly, she informed delegates that National Highways are already planning the Third and Fourth Road Periods. In terms of values, National Highways will be focused on delivering customer outcomes and on excellence which will be achieved via integrity, commitment, teamwork and collaboration. With reference to carbon reduction, Tachtsi set-out National Highways' net zero targets which are for the organisation to be net zero by 2030, highways construction and maintenance to be net zero by 2040 and road users to be net zero by 2050. She underlined how concrete roads will continue to play an important role and referenced the £400 million Concrete Roads Programme. Of particular interest to the Britpave member attendees was Tachtsi's assertion that in terms carbon reduction and asset management "the best maintenance is no maintenance at all". This is an argument that Britpave has long been forwarding. Tachtsi concluded by emphasising the need for client and industry collaboration to address both present and future challenges.

Vision and objectives need specifications and standards to ensure their correct delivery. Neng presented on the review and updates of three major National Highways specifications: MCHW Series 1000; DMRB CD 227 and the Concrete Pavement Maintenance Manual. She highlighted the new clauses to be incorporated into the Series 1000 that have particular reference to early strength concrete and polymeric materials. The old clauses that have been separated or refined were also highlighted. Importantly, Neng explained that the specification is "open to discussions around material and process innovations." The new updates of the DMRB and the Concrete Pavement Maintenance Manual were also discussed. Neng explained that both sets of requirements are updated to "reflect the development and improved experience and knowledge of concrete roads". As such both documents, which had full input and collaboration from Britpave, support the delivery of the concrete roads programme.

With the past and present both visited, the conference moved on to the future and the next 30 years. Mike Ayres, President of Global Pavements, present on the development of a new life cycle analysis tool that will allow meaningful comparison between pavement types. He explained how life cycle cost analysis (LCCA) has been employed with great success in the U.S. to promote the use of concrete pavements. Britpave's Joe Quirke and Rory Keogh have been working with Ayres to develop similar tool for the UK that provides both cost and carbon comparison analysis of different pavement types. The tool will allow the input of all construction, maintenance and rehabilitation cost components and so enable a true comparison on even terms. It will also account for the traffic loads and number of required maintenance interventions. Ayres gave a detailed example comparing continuously reinforcement concrete, jointed plain concrete and asphalt pavements. In terms of cost, due to their long-life performance life and lack of regular maintenance or rehabilitation, both pavement options proved to be cheaper than asphalt. However, it with the whole life carbon emissions where the difference was most stark with asphalt being responsible for 3 times the amount of CO_2 emissions. Over the analysis period, CRP was responsible for 7.7 million tonnes, JPC for 8.4 million tonnes and asphalt for 24 million tonnes. It is hoped that the new tool will be made available to clients and industry early next year. Its availability will prove the long-term whole life reduced cost and CO_2 benefits of concrete roads.

One of the major CO_2 contributors to concrete construction is cement manufacture. Indeed, globally cement manufacture is responsible for 5 – 8% of carbon emissions. Steve Crompton, Director of Quality and Product Technology of Cemex, examined how future developments such as ternary cements, use of alternative fuels, geopolymers and carbon capture can significantly lower the embodied CO_2 in cement. All of these developments support the road map of commitments developed by the cement industry to reduce CO_2. Short term to 2030 these include replacing fossil fuels and natural gas with industrial waste – indeed some cement plants already have 80% alternative fuel use – and hydrogen. The increased use lower temperature clinkers and alternative clinkers also has a role to play. To meet CO_2 reduction targets by 2050, Crompton highlighted how carbon capture could make a real difference explaining that: "Carbon capture is the biggest lever for hitting net zero targets." However, he cautioned that carbon capture is an emerging technology and will need significant

investment. Also having considerable potential is the development and use of geopolymer concrete. This has a lower embodied CO_2 than conventional concrete: typically, 75kgCO_2eq/m3 compared to 200kgCO_2eq/m^3. Current restrictions to their adoption is 50% higher cost and their not being covered by national standards. He concluded by underlining how the development and adoption of new technology is the way forward for the cement industry to net zero by 2050.

The challenge and potential of new future technology was also explored by David Wilson, Business Development Manager at Tarmac Cement and Lime Ltd. He started off by stating that cement and lime manufacture are both carbon intensive both in terms of fuel and process and for the industry to achieve bet zero by 2050 a fundamental shift from current CO_2 practices is needed for although the use of low or zero carbon fuels may help, they will not fully address the high proportion of CO_2 resulting from the calcination process. He forwarded the potential of carbon storage permanently stored deep at sea at a number of UK coastal hubs. Tarmac is a member of the Peak Cluster collaboration with other companies in the Peak District to collectively find solutions to decarbonise their processes. They are working on a shared pipeline to link into Net Zero North West Hynet carbon storage project. In addition to this, is the continued realisation of the carbon reduction potential of alternative fuels. Since 2015 Tarmac Cement has replaced 500,000 tonnes of coal with alternative fuels thereby saving 35,000 tonnes of CO_2. Alternative fuels include wood waste, processed sewage pellets, solid recovered fuel and tyre derived fuel. Tarmac are also actively examining the potential of hydrogen to replace the use of natural gas. An important future development is carbon capture. Tarmac has signed a Memorandum of Understanding with Australian firm Calix to conduct a Front End Engineering Design (FEED) study for kiln development incorporating a lime calciner that can produce lime and capture all process CO_2 emissions. The technology is being developed. Funding is a challenge but the potential rewards are considerable.

David Wilson in his presentation touched upon the potential of lime manufacture achieving the Holy Grail' of becoming carbon net negative. Rebecca Hooper, Director at the British Lime Association, explained how this potential can become a reality. She explained that whilst lime manufacturing is highly efficient it is energy and carbon intensive. However, there are carbon benefits of using lime. For example, the CO_2 savings due to on-site lime stabilisation of poor soils without the CO_2 emissions and environmental impact of dig-and-dump plus the natural carbonation of lime that captures up to 33% of CO_2 process emissions. These mean that there is distinct pathway to making lime manufacture CO_2 net negative. Hooper referred to a solid base of evidence that proves if you combine the CO_2 reduction of using zero carbon fuels with the potential of developing carbon capture processes you can then reduce lime manufacture to net zero. Add the naturally occurring and thermodynamically stable benefits of lime carbonation used civil engineering projects and you have a situation where the use of lime absorbs more CO_2 than is emitted. An exciting and achievable future prospect.

Addressing old challenges often needs new ways of thinking that replace the dispiriting adage "we have always done it this way". That was the premise of Matt Bolle's, National Sales Engineer at Danley Ltd, presentation. He started by outlining the common failures of concrete hardstandings which are often based around the deterioration of concrete slabs occurring at the joints. Danley uses a new approach which moves away from traditional mesh reinforcement and provides project time,

cost and CO_2 savings. The Strategic Reinforcement Design approach eliminates all mid-panel reinforcement. The result is superior long-term joint stability with minimised joint spalling and reduced out-of-joint panel cracks. Used at the new Next Plc Distribution Centre at South Elmsall, West Yorkshire the design approach resulted in 17.5% less concrete by volume resulting in reduced costs and CO_2. The 80% reduction in steel-by-eight further reduced carbon emissions. Bolle called upon the construction industry to "be bolder and don't be afraid of doing something different" if it is to really innovate and meet the challenges of the future.

Doing things differently for a better result is exactly the approach taken at the Gifford Lea Inspired Village Group retirement village in Tattenhall, Cheshire, which as Stefan Stansfield, Director of Combined Soil Stabilisation Ltd, explained is a project of two firsts: the first documented successful use of lime to improve soils for a residential development and the first such project to receive a comprehensive industry warranty. The material excavated for Phase 1 of the project had been stockpiled to the north and west of the Phase 3 site. The stockpiled soils were found to be significantly more heterogeneous than anticipated. They comprised very soft through to stiff sandy gravelly clays with frequent concrete boulders, gravelly sands and concrete gravel. Furthermore, the trial pitting suggested that a significant thickness of made-ground was present below the stockpiles, with several trial pits unable to locate natural ground, and encountering significant perched groundwater inflows. Where observed, the natural ground predominantly comprised a stiff clay with areas of very gravelly sand (both of glacial origin). All this called for a different approach than that taken for Phase 1 and 2 and CSSL proposed using lime modified soil stabilisation for the subgrade to the structures, parking area and access roads.

Although widely used for logistics and distribution projects, lime stabilisation is not the norm for residential projects but the successful outcome for the treated soils proved that the approach was right one for this project. This was further underline following discussions with the project and building warranty provider Premium Guarantee. Stansfield concluded that: "The ground works at Tattenhall showed that by adopting different techniques supported by robust performance specification and validation requirements you can provide a robust, cost-effective soil stabilisation solution for residential developments that can be fully warranted." Underlining the fact that 'we have always done it this way' is not always the right way.

Summarising the conference, Joe Quirke, Britpave Chairman, thanked the speakers and the attendees for their time. He highlighted the main themes highlighted by the conference that led the Britpave being formed 30 years and that continue to be key to Britpave and its members today and will be required to the meet the challenges of the next 30 years: Collaboration; Innovation; Trust.

All of the presentations are available as live recordings on the Britpave Youtube channel

CEMEX DEPLOYS GROUNDBREAKING HYDROGEN TECHNOLOGY

CEMEX has successfully introduced ground-breaking hydrogen technology as part of its fuel mix in all of its cement plants in Europe.

With an estimated US$40 million investment program, CEMEX moving quickly to extend this technology to the rest of its operations around the world, including Mexico, the USA, South, Central America and the Caribbean, Africa, and Asia.

The innovative technology uses hydrogen, which emits zero CO2 from combustion, to enable further reduction of fossil fuels and improve energy efficiency. The company executed initial trials of this technology at the Alicante Cement Plant in Spain in July 2019 and quickly confirmed its potential as a lever to significantly reduce CO2 emissions. The technology was installed in 2020 in all cement plants in Europe. In 2021, CEMEX will roll this out to substantially all its global operations. With this new technology, hydrogen enhances the cement kiln's combustion process, adding another relevant tool in the company's 2030 roadmap to reduce CO2 emissions in the short term.

"The fast adoption of this new hydrogen-based technology is a clear example of CEMEX's innovation efforts and its strong commitment to decarbonize the cement production process," said Roberto Ponguta, CEMEX Vice-president of Global Operations, Technical and Energy. "We continue to identify and deploy existing technologies which have a high potential to contribute to our sustainability goals, and hydrogen is a key lever."

In 2020, CEMEX announced its Climate Action strategy, defining a global target of a 35% reduction of CO2 emissions per ton of cementitious products by 2030. For its operations in Europe, CEMEX also defined a 55% reduction target, in line with what the European Commission set as a new goal for all its member states. To complement this strategy with a longer-term vision, CEMEX has also established an ambition to deliver net-zero CO2 concrete to all its customers globally by 2050.

NEW HANSON RAIL DEPOT

Britpave member Hanson has developed a new aggregates rail depot near Tuebrook, Liverpool. The move part of the company's strategy to improve its network of rail-connected depots, which reduce the number of vehicle movements and associated CO2 emissions. The Tuebrook depot is less than four miles from the Liverpool Waterfront so is well placed to support plans for redevelopment in the area, including the new Everton Football Club stadium.

"This is an exciting new venture for us in conjunction with GB Railfreight (GBRf) and is part of our plan to grow our UK network of depots," said James Whitelaw, Hanson Aggregates managing director. "We expect to supply around 200,000 tonnes of aggregates into the local Liverpool construction market from the Tuebrook depot, which will save around 250,000 truck miles each year.

GBRf will operate an average of two trains a week, each carrying approximately 1,800 tonnes of material, to the new depot, which has been developed from under-utilised rail land at the Merseyside site. The two-year deal builds on our existing successful partnership with GBRf, which sees the movement of aggregates from Shap quarry to our site at Ashton in Makerfield, Greater Manchester."

TARMAC AND FORTH PORTS SIGN LONG-TERM AGREEMENT

Tarmac has committed to a 25-year partnership with the Port of Tilbury, London's fastest-growing port, to build the UK's largest construction materials aggregates terminal.

The long-term agreement follows a £250 million pound investment made by Forth Ports at Tilbury2, the UK's newest port. The facility is a purpose-built aggregate processing and manufacturing facility, strategically located to serve London and the South East, with multimodal connectivity.

The terminal will use the very latest technology and be capable of discharging the world's largest deep-sea vessels. The riverside location combined with a dedicated railhead means efficient delivery of construction materials into Central London without the use of heavy road haulage, supporting Tarmac's commitment to reducing emissions and creating a safer environment for other road users.

Peter Buckley, senior vice president, Tarmac, said: "Construction materials have a critical role to play in helping deliver the major infrastructure and construction projects which are supporting the UK's economic recovery and long-term development. Our agreement with Forth Ports underlines a continued focus by Tarmac to develop industry-leading facilities which will support these schemes, with the Build Back Better agenda and a clear commitment to driving sustainability and enhanced efficiencies."

Mark Wood, regional managing director, materials south at Tarmac, said: "We're delighted to have established a long-term partnership with Forth Ports. Using the Thames and local rail network as a means of transporting vital materials to support the region's infrastructure ambitions, not only removes vehicles from already congested roads around the capital but supports our customers with the delivery of a more sustainable built environment.

Charles Hammond, Chief Executive of Forth Ports, owners of the Port of Tilbury, said: "This is an exciting time for Tilbury2 as we sign a significant, long-term agreement with Tarmac to create the UK's largest construction materials terminal. This facility will be a game-changer in the coronavirus economic recovery campaign to Build Back Better and is a good example of high productivity investment adding value to raw materials. I am pleased that the signing of this agreement comes at the same time as we have been awarded Freeport status, which will bring further investment and jobs to the area."

Tarmac®

AGGREGATE INDUSTRIES OPENS NEW COLESHILL RMX PLANT

As part of ongoing plans to expand its concrete offering across the West Midlands, Aggregate Industries has opened a new ready mix concrete plant in Coleshill, Warwickshire.

One of the materials supplier's largest plants to date, the new state-of-the-art facility has the capacity to produce 110m3/h and has been built with sustainability in mind. For instance, to avoid demolition waste, the pioneering plant has been incorporated into the existing site ensuring the majority of the yard and stock bays could be retained.

The Coleshill plant uses a recycled water system – enabling it to reprocess most of the water used during concrete production. The facility will also produce ECOPact, Aggregate Industries' new flagship range of sustainable concrete.

The launch of the new ready-mix plant is part of Aggregate Industries' strategy to bolster its footprint across the West Midlands, as the region embarks on several high-profile commercial and infrastructure construction projects.

David Porter, Area Manager for RMX Midlands at Aggregate Industries, said: "The West Midlands is fast-becoming the centre of construction with infrastructure projects such as HS2, and the Commonwealth Games. Hence to expand our concrete offering across the region, we've opened a fantastic new ready-mix plant in Coleshill, complete with state-of-the-art technology which not only ensures the quality and consistency of our concrete solutions is the highest it's ever been but the production process is now more sustainable."

In addition to its green credentials, Aggregate Industries has also invested in the latest technology to improve the consistency of the concrete mix during production including a camera in the mixer which allows the team to have greater control over the batch.

Other ground-breaking features include the use of Wet Batch technology, which produces less water and dust while increasing the quality of concrete production. Meanwhile, the plant also comes with a hot water system for concrete production during cold weather – ensuring customers get a year-round supply.

Barry Hope, Managing Director of Readymix at Aggregate Industries, adds: "With demand for our ready-mix solutions rising in the West Midlands, we're committed to expanding our concrete services regionally in a responsible way. Our new Coleshill plant is a great example of this, we've invested in the latest advancements in quality production and greener, more efficient processing so that customers get the best of both worlds."

AGGREGATE INDUSTRIES

BBMV DELIVERS

Following the successful delivery by Balfour Beatty, Morgan Sindall Infrastructure and VINCI Construction (BBMV), Crossrail has handed over the Whitechapel Elizabeth Line station to Transport for London. In addition, the joint venture successfully delivered the tunnelling works at both Whitechapel Elizabeth line and Liverpool Street stations; delving beneath the ground to excavate 60,000m³ of material.

Whitechapel Elizabeth line station is acknowledged as one of the most complex and challenging stations on the Crossrail project. The new station concourse was constructed on a bridge consisting of 2,800 tonnes of structural steelwork, above the existing station and two operational railway lines – the London Overground and London Underground.

Steve O'Sullivan, BBMV Project Director, said: "As I reflect on this incredible feat of engineering, I have never been more proud of what our incredible team have delivered. We look forward to watching as the station plays a role in transforming travel across London, whilst also supporting wider regeneration in the local area through job creation and opportunities for local businesses."

Passengers will access the new station through the sensitively restored original entrance on Whitechapel High Street, opened in 1876. The new station has nine lifts and three escalators and will, for the first time, provide step-free access to improve accessibility for those visiting the renowned Royal London Hospital and the surrounding area.

DEMOBOT INNOVATION TRIALLED BY DYER & BUTLER

Demonstrating its commitment to innovation and health and safety excellence, Dyer & Butler, part of M Group Services, has trialled a remote-control breaker to excavate around an unidentified cable discovered during excavation work at Heathrow Airport.

A section of the uncharted pot ended cable joint was discovered by Dyer & Butler maintenance teams investigating the cause of a potable water leak in the Central Terminal Area. However, breaking up the surrounding layers of asphalt and concrete to further expose and identify the potentially 'live' cable presented a significant safety risk, as the Central Terminal Area is congested with identified buried services including 'High Temperature Hot Water' pipes, electrical feeds to structures, street furniture and traffic loops.

Using line-of-sight and a remote control, the team was able to navigate the Demobot, designed for unstable, confined or hazardous areas, at a safe distance from any potential hazards posed by exposure or potential damage to the cable.

Once the cable was further exposed, it was traced back to the service pit and confirmed as redundant and, consequently, safe for removal. This enabled the site team to safely investigate and repair the potable main leak, before backfilling and reinstating the area back to operational status.

MEMBERS' NEWS

ATKINS APPOINTS NEW DIGITAL LEAD FOR TRANSPORTATION

Atkins – a member of the SNC-Lavalin Group – has appointed Kelly Burdall as Digital Programme Director for its Transportation division, responsible for improving the way technology and data is harnessed to increase the predictability of project delivery.

Kelly joins Atkins from Connect Plus Services – the Balfour Beatty, Atkins, Egis joint venture that operates and maintains the M25 – where, as Head of Performance and Quality, she drove business improvement with a focus on lean management and digital transformation. Prior to this, Kelly held management roles at Atkins and Mouchel.

COSTAIN APPOINTS NEW INTEGRATED TRANSPORT DIRECTOR

Costain has appointed Andy Clarke as integrated transport director. The creation of this new role reflects the importance placed by the business on working collaboratively with a range of partners to transform the customer experience of transport – helping to catalyse the green transport revolution.

Clarke said: "At Costain, we see integrated multi-modal transport solutions as critical to our efforts to enable healthier, happier and better-connected communities. By leveraging new technologies and even more collaborative ways of working, we can enable seamless, cleaner and more active journeys for customers. This is essential if we are to provide a compelling journey experience which encourages customers to opt for blended journeys, which help to reduce our carbon footprint."

MICK GEORGE REGIONAL DIRECTOR APPOINTMENT

Following the acquisition of Frimstone Ltd in 2018, the Mick George Group has established itself as a construction industry leading supplier to the within the Eastern counties and are seeking further expansion in the area. Existing employee Adam Smith has subsequently been appointed Regional Director. He was previously the Eastern Sales Manager. Smith will be tasked wirt challenged delivering some impressive growth targets across the multitude of construction services offered by the Mick George Group.

BRITPAVE MEMBERS

As the focal point for in situ concrete and cementitious infrastructure solutions, Britpave offers its members a recognised industry voice, market sector development and beneficial industry networking opportunities. Britpave members include clients, consultants and engineers, contractors, material and plant suppliers and academia.

AECOM Ltd - www.aecom.com

Aggregate Industries - www.aggregate.com

Atkins Ltd - www.atkinsglobal.com

Balfour Beatty Ltd - www.balfourbeatty.com

Ballast Phoenix Ltd - www.ballastphoenix.co.uk

Barton Plant Ltd - www.barton-plant.co.uk

British Lime Association - www.britishlime.org

Cambrian-UK – www.cambrian-uk.com

CEMEX UK - www.cemex.co.uk

Combined Soil Stabilisation Ltd - www.combinedssl.co.uk

Complete Design Partnership Ltd - www.cdpbroms.co.uk

Costain Ltd - www.costain.com

Danley Ltd – www.danley.co.uk

Dyer & Butler – www.dyerandbutler.co.uk

Geofirma Soil Engineering Ltd - www.geofirma.co.uk

Gill Civil Engineering Ltd - www.gillgrouphouse.com

Gomaco International Ltd - www.gomaco.com

Hanson UK Ltd - www.hanson.biz

Jacobs - www.jacobs.com

Lagan Aviation and Infrastructure - www.laganaviation.com

Mick George Ltd - www.mickgeorge.co.uk

Morgan Sindall Construction and Infrastructure Ltd - www.morgansindall.com

Mott Macdonad – www.mottmac.com

Norder Design Associates Ltd - www.norder.co.uk

PJ Davidson (UK) Ltd - www.pjd.uk.net

Power Better Soil Solutions – www.powerbetter.biz

RJT Excavations Ltd - www.rjtexcavations.co.uk

Roadgrip Ltd - www.roadgrip.co.uk

Roocroft Road Restraints Systems – www.roocroftfencing.com

SGE - www.sgeworks.co.uk

Smith Construction (Heckington) Ltd - www.smithsportscivils.co.uk

TAG Construction – www.tagconstructionltd.co.uk

Tarmac Ltd - www.tarmac.com

Tata Steel Shapfell - www.tatasteeleurope.com

Techjoint Ltd www.techjoint.co.uk

TKL Earthworks - www.thetklgroup.co.uk

TR Stabilisation - www.trstabilisation.co.uk

VolkerFitzpatrick Ltd - www.volkerfitzpatrick.co.uk