

products today

SUMMER 24 ISSUE 27

Moving mountains Britain's materials flow by all means







Under pressure Building stone has a new threat

Clay it again Cement from reclaimed clays

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WELCOME



As we enter the summer months, the UK general election continues to dominate the headlines. Whilst economic markets

have remained subdued as of late, there have been some green shoots of recovery, with announcements such as that from the ONS of the UK economy growing by 0.6% between January and March of this year.

As a sector the mineral products industry must continue to focus on the topics that will build resilience and ensure we are in the best shape to capitalise on future opportunities that will present themselves.

Within our industry, health and safety will always remain a priority and the additional focus on wellbeing and mental health is extremely welcome in a sector where people remain the beating heart of everything we do. The MPA's prestigious Health & Safety awards, will once again recognise the stand-out achievements and practices of all those from across our sector who play such an active role in helping to keep themselves and others safe, day-in, dayout. The awards play a vital role in sharing good practices and ideas that help the whole sector to operate safely. Nominations have now closed for the main categories (The John Crabbe Trophy and Sir Frank Davies entry deadline is 9th September 2024), and I want to wish everyone who has entered this year the very best of luck.

Sustainability is another area in which we can be proud of our achievements as an industry and one that we know we must continue to make clear progress on. The MPA's Restoration & Biodiversity Awards, returning after a 5-year hiatus, are a direct reflection of the fact that our industry is uniquely placed to benefit nature. I am looking forward to seeing the best recent examples from across the industry of how we are helping nature to flourish. Once again, I want to wish all entrants the very best of luck.

Increasing biodiversity is an important part of a multi-layered approach in response to climate change and, alongside continued efforts to decarbonise operational activities across our industry, the MPA has also recently announced a record volume of recycled aggregates being used – an impressive 73.5 million tonnes in 2022.

Whilst great strides have been made, we must continue to accelerate our plans in these and other areas. The MPA will continue its role working with key stakeholders within and outside the industry, including the UK Government and policymakers, to ensure that the unique requirements of our sector, especially on our journey towards net zero, are understood and the right conditions are created, in order that our shared ambitions can be achieved.

Lex Russell, MPA Chair

MPA joins Driving for Better Business

The MPA has partnered with National Highways' Driving for Better Business (DfBB) scheme, reinforcing the industry's ongoing commitments to road safety.

The move means that the MPA – whose members collectively transport more than one million tonnes of construction materials every day – joins a growing number of UK organisations taking the next step towards eliminating roadrelated risk.

DfBB is a free-to-access Governmentbacked National Highways programme, delivered in partnership with leading forum RoadSafe, that aims to improve road safety by promoting good management practices and demonstrating the benefits for organisations, their employees, contractors and other road users.

Mineral Products Association 1st Floor, 297 Euston Road London NW1 3AQ Tel: 020 3978 3400 Email: info@mineralproducts.org Web: www.mineralproducts.org Chairman: Lex Russell Chief Executive: Jon Prichard Driving is one of the highest-risk activities that workers in the mineral products sector undertake, whether they drive a truck, van, company car or make occasional work journeys in their own vehicle.

The DfBB programme has already registered more than 2 million drivers, 1 million company cars, 1 million light commercials vehicles and 200,000 HGVs.

National Highways' Driving for Better Business lead, Anne-Marie Penny said: "Partnering with organisations that share our vision is inspiring and I'm especially pleased to welcome the Mineral Products Association to the Driving for Better Business family to work together promoting good practice in road risk management, among its members, helping everyone to get home safe and well. By becoming a partner, MPA members will have access to a range of free resources, guides and tools. These

Mineral Products Today Managing Editor: Elizabeth Clements Director – Communications Email: elizabeth.clements@mineralproducts.org Editor: Andi Hodgson Communications Consultant Tel: 07972 533728 Email: andi.hodgson@mineralproducts.org will help deliver significant benefits, both for the companies and their employees."

MPA Head of Health and Safety Colin Mew said: "The mineral products industry transports huge volumes of materials to where they are needed in construction and manufacturing, and most of that volume goes by road. Within our Vision Zero strategy, and working with our members, we have already taken major steps to reduce road traffic accidents as one of the six highest consequence hazards known to cause the most serious injuries in our sector.

"Our new partnership with Driving for Better Business is an important step to take the industry to the next level and fulfil our duty of care both within and outside of work – DfBB clearly shares our vision and we're looking forward to working with the team to help our industry to realise it."

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Recycled aggregates volumes hit record high

The amount of construction aggregates from recycled and secondary sources in Britain has reached an all-time high as producers invest in more advanced ways to turn 'waste' into valuable materials.

That's one of the key findings of a new MPA report – which represents firms supplying over 90% of Britain's aggregates – showing the total volume of recycled and secondary materials reached a record 73.5 million tonnes in 2022.

The data confirms that recycling rates in Britain are higher than any other major European economy – further evidence of the industry's long-standing commitment to resource recovery and efficient reuse, in line with circular economy principles.

In 2022 non-primary materials accounted for over 30% of the country's total demand for aggregates (which, at 241.8 million tonnes, is the biggest flow of materials in the economy).

Breaking the figures down further, the report says 60.3 million tonnes of recycled aggregates came from the recovery of construction, demolition and excavation wastes (CDEW) such as concrete and brick rubble, old rail track ballast and earthworks spoil. It also suggests that an estimated 5.8 million tonnes of asphalt planings would have been processed for reuse in roads.

In addition, the increasingly important role played by industrial by-products like china clay waste and incinerator bottom ash (IBA) to make secondary aggregates is also highlighted, with 7.4 million tonnes of these materials produced in Britain in 2022. Even the relatively small amount of soft inert wastes that cannot be turned into aggregate are put to good use in quarry restoration and land remediation.

However, the report also highlights the challenges in accurately tracking progress due to the absence of comprehensive national statistics. Recognising this, the MPA is leading industry efforts to address these data gaps to better inform evidence-based policymaking.

Looking forward, the proposed introduction of a mandatory UK-wide digital waste tracking system in 2025 should also help enhance the availability and quality of the data related to construction and demolition waste.

Despite the record recycling figures the report also demonstrates the significance of primary aggregates (newly quarried or marine dredged) which still make up 70% of the country's aggregate demand. The MPA has long flagged concerns about the shortcomings of a planning and permitting system which means replenishment rates for these materials is at an all-time low.

Author of the report, Aurelie Delannoy, the MPA's Director of Economic Affairs said: "Whilst the construction industry may well be the country's largest source of waste, MPA members have become proficient in recovering materials arising from build development and processing them so they can be put back to good use elsewhere in construction."

Total aggregates supply (million tonnes) in Great Britain, 2022



Biodiversity awards are back!

MPA members will once again be showcasing their best restoration and nature conservation achievements with the return of the MPA restoration and biodiversity awards.

Held for the first time since 2019, the awards recognise excellence in quarry restoration and have been celebrated for more than 50 years in the UK.

The biodiversity awards series reflects the fact that the mineral extraction industry is uniquely placed to benefit nature, something that's widely recognised by the UK's leading conservation bodies. And the restoration series celebrates the best examples of returning quarried land to other beneficial after-uses.

The judges are currently sifting through the numerous entries from a variety of MPA members and the finalists and winners will be announced in early 2025.

Priorities for Scotland

Scotland's economic development and decarbonisation depend on domestically available mineral products.

That's the key message in a new policy recommendation document from MPA Scotland, recently launched at an industry event in Edinburgh where guest speaker was Kate Forbes MSP.

The publication proposes a series of policy recommendations that will enable the industry to fully play its part in Scotland's future.

Alan MacKenzie, Chair of MPA Scotland, said: "It was great to hear Kate's views on many of the challenges and opportunities we face in Scotland, from the huge potential of floating offshore wind to what we can do to deliver employment and career opportunities, more biodiversity net gain and a globally competitive Scottish economy. I really hope this document lands well with Scottish Government and beyond, as an offer of partnership to help each other deliver for Scotland."

The document Priorities for Scotland is available on the MPA website.





The Victorian era is often hailed as the greatest period for the country's infrastructure, especially the unprecedented expansion of our rail networks to support the industrial revolution and move materials and people efficiently around the country.

Between the 1830s and 1900 there were more than 10,000 Acts of Parliament to create new railways and tram lines. But in this unregulated and entrepreneurial environment there were at least 60 different types of rail beams in use.

As the network developed this became increasingly problematic and the Government of the day recognised the need for legislation to standardise the railways to improve the operating performance of the rail network for users, but also the efficiency of manufacture of rail components that form the track and the rolling stock. Thus we saw the adoption of the first product standards, and the number of different rail beams reduced to just six.

Recognising the huge benefits of agreed standards for the manufacture of goods and services, and how they would speed up production and reduce costs, the Institution of Civil Engineers established the Engineering Standards Committee (ESC) in 1901 to develop a common language and approach, and protect the interests of developers and consumers.

One of ESC's most important early standards was for Portland cement. Such standards have played a crucial role in ensuring infrastructure dating back over 100 years remains in use to this day – arguably the very definition of sustainability.

The ESC received its Royal Charter in 1929 and subsequently became the British Standards Institution (BSI) the organisation tasked with improving quality, safety and wellbeing through standards development at a national, European and global level.

CEO VIEWPOINT

So why is this relevant?

Well, today the MPA nominates technical experts to sit and, in some cases, 'hold the pen' on over 100 BSI and CEN (European Committee for Standardization) committees. These forums represent a mind-boggling array of standards, codes and regulations for everything relating to mineral products, from the innumerable aspects of concrete and the intricacies of road surfacings, to the myriad of ways industrial minerals are used.

This is one of the most important roles carried out by the MPA and yet it's one of the least well known – and even less well understood – aspects of what we do, which is perverse given that standards underpin everything our members do.

Whether it's standards relating to design, products, production activities, transport, the environment, people or anything else, the MPAs presence on standards committees – and in some cases representative partner organisations – both here in the UK and in Europe too is critical to our 'licence to operate' and our 'licence to market'.

"It can take many years for product innovations and technical enhancements to make their way into standards"

Being an active part of these committees not only ensures that standards are realistic and reasonable but also enables the industry to seize opportunities to encourage sustainable development, whether that's helping to increase materials circularity or accelerate decarbonisation, as well as facilitate innovation, minimise risk and ensure safe processes and products.

One of the best recent examples of this is the revision of BS 8500 Concrete, the complementary British Standard to BS EN 206, to allow multi-component cements to be used in concrete – substituting Portland cement with a mix of steel slag, fly ash and limestone fines. This is something our industry has been pushing for years as it will allow engineers and architects to specify a new generation of lower-carbon mixes. Another example is 2021's announcement by Highways England (now National Highways) supporting the use of Warm Mix Asphalt (WMA) as standard on trunk roads, after years of persuasion. WMA reduces the carbon emissions of asphalt and saves time and money, as well as reducing disruption for road users.

Of course the construction industry is known for its relatively conservative (with a small 'c') approach when it comes to accepting new products and practices – it can take many years for product innovations and technical enhancements to make their way into standards, and only then can the slow process of adoption begin.

MPA members go to great lengths, not only to ensure product standards are met, but also produce guidance to help architects and engineers to specify products that will deliver long-term performance.

And this is no small task. Planned updates to existing standards and codes are happening all the time, let alone new waves of legislation to be complied with. The volume and complexity is everincreasing, as is the potential for inconsistency and contradiction. Having a 'seat at the table' of standards committees is critical to help guide decision-making and, crucially, avoid the unintended consequences of wellintentioned but mis-informed revisions.

Standards are there to protect and serve the best interests of the taxpayer and consumer, as such, they must be developed with care and consideration. Standards committees must not succumb to price-led specifications, short-term fixes and greenwashing in place of genuine, long-term sustainable development.

Delivered in the right way, standards will help to ensure that the structures of today, built with modern materials, are still here in hundreds of years' time, just like the Victorian enduring infrastructure that we find around us.

Jon Prichard Chief Executive

MONTAINS

Moving a million tonnes of essential minerals every day – from where they're sourced to where they're needed – is no mean feat. The industry takes this daily achievement in its stride but it's a supply chain success story that's constantly under threat.

Mineral products represent the biggest flow of materials in the economy. The lion's share of those materials are aggregates – crushed rock, sand and gravel, recycled and secondary aggregates – approximately 240 million tonnes of which move around the country every year.

An intricate network comprising road, rail, river and sea freight connects raw materials sources (mainly quarries and licenced marine dredging areas) with intermediate hubs which allow for intermodal transfer, local material storage and further processing, before onward distribution to construction sites and manufacturing facilities. It's a finely tuned 'system of systems' that has evolved to efficiently meet the country's demand for essential minerals, day in, day out, thanks to an army of people who co-ordinate transport to get the right materials in the right quantities to the right place at the right time.

Whilst transport by rail and water currently have huge advantages over road haulage when it comes to carbon emissions, air quality, congestion and road safety, road transport offers the best flexibility and versatility to get mineral products to their destination. It's the combination of road, rail and marine that enables the demand to be met as efficiently as possible. Mark Russell, the MPA's Executive Director of Planning and Mineral Resources, said: "The mineral products industry is all about meeting the demand for essential materials, ensuring a steady and adequate supply for use in construction, manufacturing and industrial applications.

"Ideally mineral resources would be sourced close to where they are extracted to minimise transport and handling, and the UK's diverse geology means that the vast majority of minerals, especially for construction, are sourced from within the UK.

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MOVING MOUNTAINS

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"But geology also dictates that mineral deposits are often not in the same location as where mineral products are needed, so one of the industry's biggest challenges is getting those materials to where they will be used. And therefore, just like the supply of the materials themselves, freight must not be taken for granted.

"It's no surprise that the biggest demand for construction materials comes from our major cities, and it's obvious that there are very few quarries in our town centres," continued Mark, "but what's less obvious is where those essential mineral products come from, given that cities are made entirely from quarried materials."

To make things more complex, Britain's geology is skewed meaning that accessible sources of hard rock (granite, limestone, etc) tend to be to the west and the north of the country, whilst the biggest demand comes from London and the South East of England. That gives rise to some key materials flows into the South East, which is mainly supplied from the rock quarries of the East Midlands and the South West – plus marine sand and gravel dredged from the sea bed in the English Channel and Southern North Sea.

"Meeting the huge demand for aggregates as efficiently as possible requires the use of all available modes of transport – road, rail, river and sea freight – usually in combination," said Mark. "That means the industry and its freight partners must achieve certain 'economies of scale' to be able to invest in the infrastructure required to process, stock, handle and transfer materials from one mode of transport to another.

"Just like the supply of the materials themselves, freight must not be taken for granted"

"That's the reason it's so important to safeguard rail depots, marine wharves and processing facilities located in urban areas close to where the materials are needed – a point recognised in the National Planning Policy Framework. These city facilities are critical to delivering materials as sustainably as possible with the minimum road vehicle miles and minimum carbon emissions."

Road haulage still accounts for the biggest percentage of aggregates transportation, but movement of materials by rail, river and sea has been steadily increasing in recent decades as producers seek economic efficiencies and improved environmental credentials.

Stifling growth

Whilst there's capacity to move more by rail, Maggie Simpson OBE, Director General of the Rail Freight Group (RFG) which represents rail freight in the UK, says there's a disconnect between rail freight policy and planning policy that's stifling growth. "Railheads are not being protected from the effects other types of development around them, such as residential properties," she explains. "This lack of safeguarding has led to frustrations from aggregates suppliers and rail freight operators who are deterred from making long term investments in sites because of the risk of surrounding incompatible new developments impacting their operational viability."

She refers to the lack of effective implementation of the 'agent of change' principle defined in national planning guidance which mandates that new developments are responsible for mitigating their impact on existing surroundings. That should mean that developers of new homes near an existing railhead are required to take measures to ensure they can coexist alongside existing activities and uses. This not only protects established businesses or residents from new development pressures, but also promotes balanced and sustainable urban growth.

"The operators of a railhead are unlikely to invest if they believe the site could have new restrictions placed on it that could render it unviable or, worse still, threatened with closure. London has lost a quarter of its industrial land, including railheads, in recent decades, the result being more materials having to be moved further by road."

That's a view echoed by Guy Bates, Head of Freight Development at Network Rail (NR) and it's not only London that's impacted: "With many of NR's most



Primary Aggregates Flows into London



active rail facilities in urban areas – serving the very development activity that surrounds them – we need a stronger voice in protecting such critical facilities from inappropriate adjacent development.

"New apartment blocks next to longstanding rail facilities can lead to the imposition of hours of use and noise limitations that impinge on the effective operation of sites. Equally, similar challenges emerge when NR works with operators to try to bring redundant rail sites back into productive use. We welcome working with MPA to advocate for more effective planning zoning that reflects wider national carbon reduction objectives. "

Early intervention

Marine freight typically produces even lower carbon emissions than rail, but waterfront aggregates facilities are impacted in similar ways to railheads when it comes to encroaching residential development.

However, in London, home to the UK's largest inland waterway for the movement of freight and passengers, it was the wholesale redevelopment of the historic docklands – with a surge in residential development next to the water – that led to the statutory safeguarding of London's freight wharves.

Figures from the Port of London Authority (PLA), which is responsible for protecting and promoting freight activity on the tidal Thames, show that more than half the aggregate volumes coming into London are transported by the river thanks to the protection of freight wharves.

Jim Trimmer, the PLA's Director of Planning and Development said: "London enjoys a unique position in terms of safeguarding because all aggregates wharves are protected and inappropriate planning applications can be vetoed by the Mayor of London – that's vital because there's a huge disparity on land values between freight interests and residential development, so the incentive to cash in and build waterfront apartments on wharves is huge.

"The most 'sustainable cities' will be the ones using water and rail for freight"

Besides the river wharves themselves being protected, the 'agent of change' principle, which was first introduced under the London Plan, is applied to new proposals to build on land next to wharves, so developers have to take into account what's there already, including industrial sites used for freight.

"Of course, we understand the importance of built development – it's what aggregates are needed for in the first place – but residential developers must not prejudice the activities that are already located on adjacent land.

"So our aim is to be involved with proposals at the earliest stages and work with developers and planners to help them ensure compatibility with freight uses through good design and measures to mitigate against things like noise, dust, light and visual impact.

"That can include obvious but effective measures such as ensuring habitable living spaces do not directly overlook freight facilities. We have recent examples in places like Greenwich where we have worked together to solve the problem. And if it can be done there it can be done anywhere in the country, with wharves, railheads and other industrial facilities. After all, the most 'sustainable cities' will be the ones using water and rail for freight."

Unfortunately, the effective protections afforded to London's marine wharves aren't always applied to rail and marine freight terminals in other major cities – despite being a requirement in national planning policy.

The MPA has been working with its producer members, freight operators and others to seek to ensure that local implementation of national planning policy is safeguarding those sites that support mineral freight effectively, and that 'agent of change' principles are properly applied nationwide.

Tortuous process

Elsewhere around the country, most waterborne aggregates freight travels by sea, whether that's crushed rock coming from coastal quarries or marine dredged sand and gravel from licensed areas around the English and Welsh coastlines. That's one reason why the UK remains a

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MOVING MOUNTAINS

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net exporter of construction aggregates although the majority of these materials are used domestically.

Yet whilst Britain's ports are recognised for their efficient operation and continue to see investment from operators, they are not immune from the safeguarding, planning and permitting issues that can frustrate the development that's needed for sustainable economic growth.

Richard Ballantyne OBE, Chief Executive of the British Ports Association, which represents 400 port terminals, emphasises the importance of the ports that are rail





Aggregates Dredger - 5000t (equivalent to 250 lorries) linked allowing materials arriving by ship to be landed, processed and transferred onto trains for onward distribution to urban railheads where lorries can complete the final leg of the journey.

"As an island nation our ports are not only critical for moving materials in and out of the country but also around the British Isles, especially into the South East of England, feeding into and complemented by Britain's interior rail and road networks.

"Construction is a huge part of our economy and port operators recognise that – they want to invest to ensure the movement of materials is as smooth and seamless as possible. But while the tried and tested routes for moving aggregates have proved successful, where ports want to develop to expand or alleviate bottlenecks in moving materials, the process can be tortuous. The planning and consenting regime is intense and combining planning for land and marine can be exponentially more complex."

"Authorities must make sure that wharves and rail depots are safeguarded and free to operate"

Besides safeguarding and planning issues, ports are also impacted by post-Brexit legislation and the associated bureaucracy. Since 2019, total tonnages of dry bulk (including aggregates) have gone down by 10%, despite the fact that there is capacity to grow which is not only good for port operators but also for the economy as a whole.

"It's important that we don't further disadvantage domestic trade – we want to see materials coming in and out – but new layers of regulation, or poorly thought-through legislation has a big impact on activity."

Critical infrastructure

"Effective safeguarding of mineral railheads and marine wharves, together with added-value manufacturing facilities such as concrete batching and asphalt plants, is critical to the delivery of Government ambitions in infrastructure, improvement in public services, housing, energy security and our transition to net zero," concluded Mark Russell.

"National and local authorities must make sure that wharves and rail depots are effectively safeguarded and free to operate. The importance of our wharf and rail infrastructure should be recognised in accordance with national policy, and planners and councillors must define and implement safeguarding policy requirements when producing local plans and determining planning applications.

"While appreciating that wharves and rail depots inevitably generate local impacts associated with any industrial activity, operators are adept at managing and mitigating them. We urge planning authorities to make good planning decisions that do not threaten these critical sites."

Hitt

STORIES UNDER PRESSURE

The UK has a long and proud tradition of building with dimension stone. Historic towns and heritage landmarks are made of indigenous rock hewn from quarries, usually local but often further afield. Already under pressure from cheap imports and misguided local planning policies, the UK's building stone industry is now facing a new threat, writes Mark North.

The diversity of the UK's geology means the country is blessed with a variety of stone for building which has been used in a multitude of ways over the centuries and continues to be used to this day. This geological diversity has been vital in forming the varied and particular style of rich built heritage that surrounds us across the UK. It defines both the urban and rural landscapes that give us a 'sense of place', something that's often taken for granted. This is evidenced by places such as the villages and towns of the Cotswolds, Yorkshire and the Lake District, and our major cities the length and breadth of the country.

The 18th and 19th centuries saw accelerated development of the built environment, underpinned by a significant and geographically spread industry of stone supply comprising thousands of usually small quarries that supported a very large manual workforce. As shipping developed, and with the arrival of the railways, these quarries started producing massive quantities of hard stone setts, kerbs, steps, walling stone, fine dressed masonry, roofing stone, and more, representing everything that the UK's diverse geology could provide.

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The award-winning 8 Finsbury Circus in the heart of London's financial district, reconstructed in 2016 using Portland stone for both the internal and external stonework. (Image: Albion Stone)



Portland stone being cut from the face underground. (Image: Albion Stone)

This variety of geology allowed a highly skilled workforce across the UK to provide that absolute sense of place... the 'granite city' of Aberdeen, the rich red sandstones of Glasgow and Liverpool, the sandstone city of Edinburgh's Craigleith led New Town, and the magnificent Portland Stone of London, not to mention a host of sandstones imported to the capital as well.

"UK stone suppliers continue to see buying specifications broken at late stages of contract awards in favour of marginally cheaper imported options"

Today, more than one million tonnes of building stone – also known as dimension stone – is extracted and manufactured in the UK each year. And whilst a great deal of the country's built heritage survives today, the building stone sector that made it possible is coming under increasing pressure for a number of reasons. Indeed, those who cherish the use of natural stone in heritage projects, new builds and refurbishments would be unwise to assume its supply.

The threat from imports raises a number of issues. First, we have the carbon emissions, an issue which buyers are increasingly looking at when sourcing materials, but one where the playing field is far from level between imported stone and indigenous stone. The problem is that the carbon produced by stone imported from overseas is not counted until the material reaches land in the UK. This is because the carbon resulting from production, handling and transport belongs to the exporting country until the product reaches the UK border. For example, under current carbon accounting rules stone imported from China has a lower carbon footprint score than stone produced at a UK quarry just a few miles from where it's going to be used. This is clearly a nonsense.

Furthermore, to exacerbate the wider sustainability calculation, the lower cost of imported stone does not reflect the fair wage rates and working conditions that are supported in the UK. Nor does it consider the costs of our world leading health and safety practices, robust mineral planning process and internationally recognised quarry restoration that delivers significant biodiversity gain – all these are givens of operating within the high UK standards. Both public and private sector organisations have spent time focusing guite rightly on procurement policies that acknowledge sustainability, ethical sourcing, skills retention and the benefits of spending in the local economy, together with supporting the inclusion of the indigenous options. And yet despite this, UK suppliers continue to see buying specifications broken at late stages of contract awards in favour of marginally cheaper imported options. In reality, these options do not reflect the whole lifecycle costs, nor the real environmental, social and financial impacts of cheaper imports.

The second issue of concern in relation to imports is that of geographical indicators applied to natural stone (or, in the case of the UK, the lack thereof). Geographic Indication (GI) schemes are familiar and well-established mechanisms that protect identifiable products in food and agriculture, where location is an important part of their designation (from Cornish pasties to Scotch whisky).

So why would that not also apply to products that come from the ground? The MPA represents producers who extract and refine high quality natural products that are geologically unique, such as natural dimension stone. MPA members who produce dimension stone – most of them independent, small and medium enterprises (SMEs) – have raised concerns that their products are facing unfair competition from lesser quality options that are being passed off as originating from specific locations across the UK, leading to substantial loss of business for UK companies.

For example, Portland Stone, which can only be produced on the Isle of Portland in Dorset, is as geographically specific as a Melton Mowbray pork pie and it should be afforded similar protection against cheap, poor quality imports being missold using its name. The argument for natural products such as stone is identical to that for food and the protection afforded by the GI scheme is entirely appropriate for natural stone. Whereas a trademark protects intellectual property and applies to a manufacturer who is able to distinguish their product from others in the market, this cannot be applied to a natural product that may be offered by more than one producer in a geographically defined area.

Unfortunately, the UK Government currently believes that trademarking is sufficient, unlike the EU where new rules, agreed by the European Parliament in May 2023, extend protection to locally renowned non-food products across the EU and globally, such as lace, glass, jewellery, porcelain and, yes, natural stone. The first batch of European stone going through the GI process will soon effectively have the same level of protection that Champagne currently enjoys!

The goal of this regulation is to harmonise differing national systems, increase consumer awareness and enhance the competitiveness of producers. So now natural stone producers such as Carrara Marble from Italy, which has seen Chinese imports misusing its name, are protected. With this protection in the EU, the UK market has become an increasingly appealing target for companies outside Europe seeking to import cheap imitations.

Closer to home, the Town and Country Planning system is a third threat to the sustainable economic future of the natural stone sector in the UK. While building stone represents a fraction of the total mineral products market, its million-tonnes-a-year output is still significant. Yet for too long there has been perception that this is a 'smallscale' cottage industry that only exists to supply the heritage market – an ingrained impression that's stifling the development and competitiveness of British building stone. One of the reasons for this derives from the National Planning Policy Framework (NPPF) which is the high-level planning policy document for England.

"Under current carbon accounting rules, stone imported from China has a lower carbon footprint than UK stone from a few miles down the road. This is clearly a nonsense"

The NPPF says that building stone quarries are often 'small-scale' and basically implies they only exist to supply material for repairs to local heritage assets. As 'smallscale' has not been clearly defined, many mineral planning authorities, when developing their mineral development



"European stone going through the GI process will soon have the same level of geographical identity protection as Champagne!"



New housing in Corbridge, Northumberland built with local Bearl Sandstone. (Image: Dunhouse)

plans and policies, are misinterpreting it in a way which frequently and inadvertently restricts growth and threatens the viability of the sector.

Effectively, building stone is being treated differently from the rest of the mineral extraction industry. Consequently, over the years this 'small-scale' perception has been used to restrict proposals which have prevented building stone producers from growing their businesses to meet the healthy local and national demand. This has left the door open for stone to be imported from elsewhere in the world resulting, as explained above, not only in a larger carbon footprint from transportation, but also the stone often coming from countries which have inadequate health and safety, welfare and environmental controls.

As one might imagine, these circumstances are extremely frustrating for stone producers, but they also skew things for those seeking to use authentic, locally sourced building stone. These are the reasons why those in the heritage sector should not assume a supply of stone and the MPA is urging representatives from across the industry to support the need for change.

Looking ahead, the UK building stone sector will not survive on just supplying the heritage sector alone, and needs the new build market to allow it an economically viable future. It is more important than ever to get this message to all stakeholders who have an interest in a secure supply of indigenous building stone – not only for heritage reasons, but also for new developments that also have a role in maintaining a sense of place and relevant context and setting for historic stone-built buildings.

Mark North is the MPA's Director of Planning for Aggregates, Production & Dimension Stone

Mineral Manifesto

All political parties make election pledges that rely on millions of tonnes of mineral products. Whoever is in Government after the general election will do themselves – and the country as a whole – a big favour if they work in partnership with the mineral products industry to deliver their goals, writes Robert McIlveen.

It's natural that every part of the construction supply chain is contemplating what impact an election, and the prospect of change – one way or another – might have.

For members of the MPA, the impact of change is likely to be felt at both ends – Government is the setter of policy, legislation and regulation for quarrying and the mineral products that come from quarries. And Government is also a major client, with some 40% of construction in the public sector, and up to half of the 400 million tonnes of aggregates, concrete and asphalt produced in the UK each year going to Government funded projects.

Ours is an essential industry supplying foundation materials (quite literally) that are usually used at the start of the construction process. But the mineral products sector is an economic actor in its own right, not only because the vast majority of our products are domestically sourced, but also the sheer scale of demand means the industry represents by far the biggest flow of materials in the UK economy. And it's worth mentioning that same scale is what makes our industry one of the biggest contributors to biodiversity gain, transforming restored quarry sites into wildlife havens.

Cast your mind back to 2019, when 'Levelling Up' was a major priority for Boris Johnson. While covid and the political chaos of 2022 have led to much less progress than promised, it's worth remembering that our industry creates high-productivity jobs in all parts of the UK. In the UK the mineral products sector employs around 80,000 people, each generates £99,000 GVA per year, well above the UK average.

With planned investments in net zero technology and infrastructure, such as the growing demand for offshore wind energy – which will require huge volumes of mineral products – our sector is a great bet for the future, even more so if the right policies and legislation are put in place (and stuck to).

As the representative voice for the industry, the MPA articulates what matters most to our members and our document Priorities for the Next Government sets out the top themes and policy recommendations. Politicians, from ministers to parliamentary candidates, and the people who influence them, would do well to take note.

Given that MPs, candidates and the people drafting the manifestos are incredibly busy (it is an election year after all) and have inboxes that are constantly bombarded, we have worked hard to produce something short enough to be read over a few tube stops or in the back of the car between appointments. In just



two pages we set out our top three priority themes and what we would like Government to do about them. These three priorities are (i) competitive industrial decarbonisation, (ii) planning to support economic growth and (iii) better delivery of major infrastructure projects.

Competitive industrial decarbonisation

The first major theme, competitive industrial decarbonisation, is critical for the future of the UK cement, concrete and lime industries. Cement and lime are key sectors for decarbonising, because of the carbon emissions produced from the chemical reaction making them. They are also energy-intensive, so tackling the UK's high cost of electricity for industrial users, compared to other European countries, and levelling the playing field on carbon costs through a Carbon Border Adjustment Mechanism from 2026 is essential to ensure they are competing fairly.

The UK has amazing natural assets for carbon capture and storage (CCS), and our industry is well placed to deliver net negative emissions, but to attract the investment needed requires the right policy framework, which isn't all in place yet. The UK also needs to be competitive compared to European economic peers, and with those beyond Europe who do not yet have to face a carbon price.

Planning for growth

Planning is the second theme. It can take up to 15 years to open a quarry, in large part because the planning system lacks the capacity and expertise to perform as it should. Factor in the environmental permitting system and the resultant slow, unpredictable decision process can make future investment challenging and in some cases impossible.

"With planned investments in net zero technology and infrastructure, the mineral products sector is a great bet for the future"

The upshot of these factors is that over the last decade for every 100 tonnes of sand and gravel sold, the industry is granted permission for only 63 tonnes of new reserves; the equivalent figure for crushed rock is 52 tonnes, albeit from a higher base. This is unsustainable in the medium term, and the next Government must resolve it, or we will be facing a real problem of material shortages in the coming years.

Better infrastructure delivery

Finally, delivery of major projects has been poor over recent years. From roads and rail to energy and climate resilience, we have seen de-scoping, delay and cancellation. Given the scale of investment and planning needed by the supply chain, the Government's incessant chopping and changing of recent years has been deeply unhelpful.

Improving delivery will be critical for the UK's future success, especially looking ahead to the push for offshore energy projects and the infrastructure needed to support them. We suggest some short and long-term policies to improve matters, including Material and Resource Supply Audits to go with Waste Audits for major projects, and improvements to the National Infrastructure Pipeline.

Ultimately, one thing is certain: all political parties will be making election manifesto pledges that will rely heavily on mineral products – new railway lines and road resurfacing and upgrades, water systems and flood defences, nuclear and renewable power, schools and hospitals, urban regeneration and hundreds of thousands of new homes.

These all require millions and millions of tonnes of our members' products. The problem is that no-one thinks about this or if they do they just assume materials will, well, materialise. Whoever is in Government after the election will do themselves – and the country as a whole – a big favour if they work in partnership with the mineral products industry to deliver their goals.

Robert McIlveen is the MPA's Director of Public Affairs



BREAKING DOINT

More than half of the local road network in England and Wales could fail in the next 15 years as the amount needed to fix the backlog of repairs reaches a record high of £16.3 billion.

The shock findings are revealed in the results of this year's ALARM (Annual Local Authority Road Maintenance) survey report conducted by the Asphalt Industry Alliance, a partnership between MPA and Eurobitume, the voice of the European bitumen industry.



2M POTHOLES FILLED

One every 16 seconds

Now in its 29th year, ALARM is respected throughout industry and local and national government as the most authoritative and comprehensive study into local road maintenance funding and condition. Published in March of 2024, this year's report highlights the scale of the challenge that faces local authority highway teams who don't have the funds to keep our roads in good shape.

Poor local road conditions impact everyday lives, from the cost and inconvenience of damage to vehicles, to potentially causing accidents that can prove fatal for vulnerable road users such as cyclists. They are the number one complaint in local politicians' post bags, yet highway teams don't get enough funding to fix them.



The record £16.3 billion backlog is the amount that would be needed – as a oneoff catch-up cost – to bring the road network up to condition that would allow it to be managed cost-effectively and sustainably going forward as part of a proactive asset management approach.

"Local authorities have a bit more money to spend this year but the impact of rising costs due to inflation means they have actually been able to do less with it," says Rick Green, Chair of the Asphalt Industry Alliance. "Couple this with the effects of the extreme weather we are increasingly facing, and the result is that the rate at which local roads are suffering is accelerating towards breaking point."

England and Wales now have more than 107,000 miles of local roads that could need to practically be rebuilt within the next 15 years while surface conditions have also declined, despite spending nearly £140 million filling in two million potholes over the last 12 months.

A One-time Catch-up would take 10 years to Complete

and Cost

£16.3bn

Rick Green added: "There's still a mountain to climb when it comes to fixing our local roads and while it's great that English local authorities should be getting more money from the Government through its Network North funding, it's clearly not going to be enough to halt the decline.

"This sounds like a lot, but not when you consider that there are already more than 34,000 miles identified as structurally poor, with less than 5 years' life remaining.

"We need to get to the point where local authority highway engineers can plan and proactively carry out repairs and preventative works in the most timely and efficient way to the greatest benefit of all road users – rather than just having enough money to address immediate and urgent needs."

107k miles

of local roads with less than 15 years' structural life left



The ALARM survey relates to roads maintained by local authorities and excludes the Strategic Road Network (SRN) managed by National Highways.

The 2024 ALARM survey was completed by 72% of authorities responsible for roads in England, London and Wales and was carried out between December 2023 and February 2024.

The survey includes the findings of both quantitative and qualitative research and the results have been independently analysed by a registered member of the Royal Statistical Society.

> Authorities reporting a BUDGET CUT or FREEZE 45%

The full ALARM survey report can be accessed at www.asphaltuk.org

CLAY IT AGAIN!

Using cementitious industrial by-products as a supplement for Portland cement is a well-established way to make efficient use of resources and reduce net carbon emissions. And new research led by the MPA has revealed another potential source that could deliver even better carbon savings, writes Dr Diana Casey.

The UK has a long tradition of using what's known as supplementary cementitious materials. The use of GGBS (ground granulated blast-furnace slag) from the steel industry dates back to the early 1900s whilst PFA (pulverised fuel ash or fly ash) from coal power generation gained acceptance in the 1980s.

However, in recent years the UK's ambition to reach net zero carbon

emissions has resulted in the closure of coal-fired power stations and announcements that steel blast-furnaces will be replaced with electric arc furnaces.

The resulting decline in the availability of GGBS and fly ash has forced the cement industry to look more closely at other local alternatives to meet the growing demand for lower carbon cements and the concretes made with them. One such alternative is 'calcined' clay, a material that has been gathering interest in Europe in the past few years, with the continent's first calcined clay manufacturing site recently opening in France. Such cements rely on high-value virgin materials including high-kaolinite content clays, which are already in demand in other markets such as ceramics and paints.



One kaolinic clay product, Limestone Calcined Clay Cement (or LC3 for short) has gained particular attention, with claims it can reduce embodied carbon dioxide by up to 40% compared to Portland cement (CEM I) without the need for capital intensive modifications to existing production processes. Yet while kaolinic clays are well known to enhance certain properties of cement, less is understood about lower value clays, such as those from clay quarry overburden and waste from brick manufacture.

> "Calcined clays perform similarly to mainstream supplementary cementitious materials and in some cases better"

This prompted the MPA to kickstart a comprehensive research project aimed at determining if these lower value materials – both raw clays and pre-fired brick waste – could be used as a cement alternative in concrete.

Part-funded by the Government's Industrial Strategy Challenge Fund, the project involved a consortium of the MPA itself, MPA member companies Heidelberg Materials, Tarmac, Imerys and Forterra, along with the University of Dundee and University College London.

The project looked at different types of unused raw clay from UK quarries. These clays were then calcined, a process designed to bring about thermal decomposition. This enabled researchers to identify the right temperature (around 800°C) for the optimum pozzolanic (or cementitious) reactivity of the resulting calcined clay. Also under test were two types of finely ground brick waste, clay which has already been through a firing process.

The performance of the resulting calcined clays as the active cementitious ingredient in concrete was extensively tested, with promising results across the board. Both the low-value reclaimed clays from quarries and the finely ground waste bricks demonstrated significant potential as supplementary cementitious materials.

The concretes produced with these materials have properties that may differ slightly from reference mixes using other supplementary cementitious materials but the studies show these can be addressed with relative ease. Longer term durability tests are ongoing.

Some minor revisions to the standard specification for pozzolanic materials for use with Portland cement (BS 8615:2019) will be necessary, but the calcined clays "The findings of this study underscore the significant potential of reclaimed clays and finely ground bricks as cement substitute"

performed exceptionally well in both standard concretes and self-compacting concrete mixes.

The results of the MPA-led research provide the cement and concrete industry with the necessary confidence that calcined clays perform similarly to mainstream supplementary cementitious materials and in some cases better.

The findings of this study underscore the significant potential of reclaimed clays and finely ground bricks as cement substitutes, offering a new set of sustainable solutions for the construction industry while contributing to the circular economy objectives of the UK.

Dr Diana Casey is the MPA's Executive Director for Energy and Climate Change, Cement and Lime.

Healing the cracks

Through the addition of bacteria, researchers are formulating new self-healing, anti-corrosion concretes and pushing them to their limit in the laboratory.

At the University of East London's concrete lab, Dr Ali Abbas is inflicting highly controlled damage on cubes and cylinders of concrete (pictured). The cracks his machines create are less than 1mm wide, similar to those that first appear in old or distressed concrete. "We then monitor the cracks to see how our new concrete formulation is performing," says Dr Abbas. "All being well, the cracks repair themselves."

Self-healing concrete relies on a biochemical phenomenon known as microbially induced calcite precipitation (MICP). Originally developed in Holland, it has since been progressed by a number of British universities. "Bacterial spores are added to the mix and then remain dormant until cracks appear," explains Dr Abbas. "When they do, the bacteria are exposed to water and oxygen, and begin to precipitate calcite which seals the crack."

If you can seal cracks at an early stage, he says, this stops them getting wider, protects rebar from moisture ingress, reduces corrosion, and results in longerlasting structures. "This not only saves the cost of maintenance or replacement – it saves the carbon associated with having to produce new concrete."

But getting innovation out of the laboratory and on to real world building sites is not straightforward, he adds. "It requires the sort of research we are doing here. If we are to decarbonise concrete and make an impact in the outside world, this kind of work is absolutely vital."

A structural engineer by training, Dr Abbas completed his PhD (modelling cracks in concrete) at Imperial College London. He then spent four years working in Atkins' R&D department: "We were concerned with heavy-duty infrastructure: the nuclear industry and also London Underground. I realised that we had to find ways to make this stuff last longer as replacing it is so costly, economically and environmentally."

The close study of the corrosion resistance of healed cracks is a good example of UEL's real-world focus: "Most testing of MICP to date has been carried out on unreinforced concrete" says Abbas. "Sealing cracks with MICP should protect rebar – but does it? To find out if it really works we have cylinders with a length of rebar down the middle, and we pass a current through that to accelerate any corrosion that might occur."

In fact, the mix currently being tested involves a little more than just MICP: "We've also added calcium nitrate which is known to have an anti-corrosion effect, helping rebar last longer. So if we combine this with MICP, we should get an extremely resilient and long- lasting concrete. But, again, we have to check. Do the mixes work well together? In addition, the mix includes GGBS to lower its carbon content, so once again we have to check these ingredients perform as they should when all are present."

Results so far are encouraging. "The good news is that the calcium nitrate admixture (sold as NitCal) does not kill the bacteria – in fact it seems to help it perform better," says Abbas. "Setting times are, if anything, reduced and there is no reduction in either compressive or tensile strength. It may even be that, over time, strength is improved."

And the effect on corrosion? "Depending on the dosage, concrete containing NitCal lasted 6-8 times longer before becoming corroded – and the severity of corrosion was reduced by 30-50%. Concrete that also contained the crackhealing admixture showed a crackhealing efficiency of 90% with a further significant reduction in corrosion."

Abbas stresses that research like this must keep a steady eye on real-world applications: "This work has been funded by Innovate UK and carried out with industry partners including JP Concrete and Sensicon. They are incorporating our findings into their product ranges, so hopefully we will soon be able to test how these formulations perform in actual structures."

The original version of this was published in Concrete Quarterly, the magazine of MPA The Concrete Centre. Interview: Tony Whitehead Photo: Paul Burroughs



MEMBERS A snapshot of recent news stories from MPA members

Materials for Eastern infrastructure

A new marine wharf in East Anglia will allow aggregates to be brought into the region from Scotland by sea.

Aggregate Industries has opened a high-capacity wharf in Great Yarmouth that will

receive granite by ship from its coastal quarry at Glensanda near Oban. With growing energy and infrastructure plans in the East of England, unprecedented demand volumes for crushed rock are forecast. Each 55,000 tonne shipment arriving into port via the North Sea reduces carbon emissions by 165 tonnes compared to the equivalent road transport.



Marine expertise

Marine dredging expertise has been put to use to keep one of the UK's most important ports running smoothly.

Cemex has completed essential dredging at the Port of Tilbury to ensure the berths along the River Thames are maintained to their designated depths to allow the largest vessels to access the quayside. In just five days, the company's 130-metrelong hopper dredger extracted over 20,000 cubic metres of sand and silt from the berth, disposing of it at an approved site 40 miles outside of the Thames estuary.

Carbon capture

A new carbon capture trial has been launched at a cement works in Rutland.

Heidelberg Materials' Ketton cement works is hosting the pilot scheme as part of C-Capture's national XLR8 CCS project to show how a low-cost carbon capture solution can be used in hardto-abate industries such as cement. C-Capture's technology uses a solvent to capture carbon dioxide, which can then be compressed and sent for storage in safe, geological reserves or used in other industries such as the fertiliser, oil and gas. The process requires 40 per cent less energy than other carbon capture technologies.

Ashes to aggregates

A new facility to produce aggregates from incinerator bottom ash (IBA) has opened in Wellingborough, supplying construction projects in the Midlands.

The Northamptonshire plant will transform around 200,000 tonnes per year of inert IBA left over from the energy-from-waste (EfW) process into a high-quality, low carbon sustainable aggregate blend. The plant was formally opened at an event organised by the plant's joint owners – Day Aggregates and energy-from-waste business Encyclis – supported by aggregates trading firm GRS Group, the contracted distributor for the area.

Clean energy

Hydrogen generators are being trialled as an alternative to red diesel power units at quarry sites operated by Brett Aggregates.

The firm is working with hydrogen power specialists AFC Energy to trial more sustainable 'flex fuel' fuel cell systems to provide clean electricity at remote parts of quarry sites which are off-grid. The project is supported by a grant from the Government's red diesel replacement programme (RDR), aims at accelerating the use of innovative clean energy technologies.

Marsh milestone

An internationally important nature reserve in Kent has been gifted to Kent Wildlife Trust (KWT) by Tarmac.

The company's Oare Marshes site near Faversham has been managed by KWT since 1984. Now the transfer of deeds has made the wildlife trust the proud new owner of the 69 hectares of rare wildlife habitat.

Oare Marshes is one of the few grazing marshes left in Kent and an estimated 250 species of migratory, overwintering and breeding wetland birds can be found there.



Funding finds

Well-preserved remains of a bronze age settlement have been found close to a clay quarry near Peterborough.

Brick producer Forterra has been a major contributor to the £1.1 million archaeological project excavation of Must Farm over the past decade. Backed by Historic England the work was carried out by a team from Cambridge Archaeological Unit who uncovered the remains of 200 wooden artefacts, 150 fibre and textile items, 128 pottery vessels and 90 pieces of metalwork.

This project follows a series of discoveries of bronze age and prehistoric artefacts in the area, including a plesiosaur reptile found in Forterra's Kings Dyke clay quarry in 2014.

#RESPECTTHE WATER

The MPA's long-running Stay Safe campaign to raise awareness of the hazards associated with quarries has been rejuvenated thanks to collaboration with drowning prevention organisations.

Despite the industry's efforts over many years, people are still putting themselves at risk by going into active and disused quarries for leisure, especially over the summer months.

Analysis of tragic quarry deaths involving members of the public highlights that most are water related, involve young males and occur at disused sites – most of which are not under the control of MPA members.

The peak time for incidents is predictably in June, July and August, especially during heatwaves when many are tempted to 'cool off' in the inviting waters of a quarry lake.

"'Float to Live' a simple technique that has already saved many lives"

Although it's not a new issue, covid travel restrictions, growth in open water swimming and paddleboarding, plus a higher level of dog ownership, have all contributed to increasing the public's interest in inland water sites as leisure amenities.

In addition, restored quarry sites that have become nature reserves and country parks are designed to be attractive and enjoyable places to visit, but few are appropriately set up and safe enough for water-based activities.

MPA Director of Communications Elizabeth Clements said: "Over many years, MPA has worked with its members to support their community and school engagement programmes and help raise awareness of the potential hazards associated with active and disused quarries.

"Guidelines and good practices have been shared, together with resources and annual campaigns ahead of the school holidays when members of the public, and in particular, young males, are most likely to put themselves at risk."

In 2013, over a three-month period, eight young men drowned in quarry lakes. These tragic deaths were the catalyst for MPA to hold a summit involving a variety of organisations with an interest in public safety. This included the emergency services, safety organisations, water utilities, sports associations and nature conservation bodies.

"It soon become clear that drowning prevention was a much wider issue that these organisations were already working collaboratively to address," continued Elizabeth. "This was a turning point for MPA and since then we have worked closely with RNLI, RoSPA, the Fire and Rescue Services and the Royal Life Saving Society to support a strategic approach to drowning prevention and promote national campaigns to raise public awareness.

MPA officers are active participants in both national and regional water safety forums throughout the UK and provide input to the creation of national safety campaigns.

"If you see someone in trouble in the water the message is 'Call-Tell-Throw'"

"Emphasis in recent years has been placed on raising awareness of 'cold water shock' and the debilitating impact cold water has on the ability to swim. Ensuring that people understand what to do if they either find themselves in difficulty, or see others struggling in the water, is absolutely key. For those in the water to 'Float to Live' a simple technique that has already saved many lives. If you see others in trouble, resist the temptation to enter the water – the message is 'Call-Tell-Throw'.

MPA has developed resources for its members to help communicate these messages to their employees, families, and the numerous communities within which they operate. These are available on Mineralproducts.org

"One of the key values of MPA's Vision Zero health and safety strategy is that we are all 'safer by sharing' and the water safety forums we engage with reflect this principle in action."

