Hanson UK is a leading supplier of heavy building materials to the construction industry.

We produce aggregates (crushed rock, sand and gravel), ready-mixed concrete, asphalt, cement and cement-related materials. We are part of the HeidelbergCement Group, which has leading global positions in aggregates, cement and concrete. Hanson UK is split into four business lines – aggregates, concrete, asphalt and contracting and cement – which together operate around 300 manufacturing sites and employ over 3,500 people.

For detailed information on all areas of Hanson and our products visit **hanson.co.uk**

BULK CEMENT

- Regen (GGBS)
- Grey
- White

AGGREGATES

- Sand and gravel
- Crushed rock
- Bulk decorative aggregates
- Agricultural lime
- Rock armour
- Silica sand

CONCRETE

- EcoPlus
- Grey – CEM I, II, III
- Ready-mixed concrete
- Ready-mixed mortar
- Screed
- Coloured concrete – Colourcrete
- Piling concrete – EasyPile
- Watertight concrete
- Sprayed concrete
- Reinforced concrete – Fibrecrete

PACKED PRODUCTS

- Cement
- Ready-to-use mortar
- Ready-to-use concrete
- Asphalt
- Construction aggregates
- Decorative aggregates
- Sands
- Rock salt

CONTRACTING

- Highway maintenance
- Road surfacing

ASPHALT

- Era® – low temperature asphalt
- Durafalt
- Tuffgrip
- Tuffpave

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HS2 CAPABILITIES

ABOUT HANSON UK

Hanson is a leading supplier of heavy building materials to the construction industry. We produce aggregates (crushed rock, sand and gravel), ready-mixed concrete, asphalt, cement and cement-related materials and operate around 300 manufacturing sites, employing over 3,500 people. We are part of the HeidelbergCement Group, which has leading global positions in aggregates, cement and concrete.

We have a comprehensive UK-wide spread of production sites that enable us to supply contracts of all sizes, while minimising transport costs and ensuring the efficient transfer of our materials.

We operate:

- Over 200 static ready-mixed concrete plants and a fleet of mobile plants
- 70 sand, gravel and rock quarries
- 35 asphalt plants
- 3 cement plants
- 2 grinding plants making Regen (ground granulated blast furnace slag)
- A network of rail depots and wharves, supplied by road, rail and sea
- Over 1,200 Hanson-liveried vehicles
- A joint-venture rail company, Mendip Rail

We aim to make the best use of our mineral reserves by using secondary and recycled materials wherever technically feasible and by providing design solutions to minimise waste and improve value. We also monitor, and proactively seek to reduce, energy and water consumption.

WHY WE ARE THE SUSTAINABLE SUPPLIER OF CHOICE

Our national distribution means that we are ideally suited to serve the HS2 project along its entire length, supported by strategically located concrete plants, aggregates quarries and distribution depots along the route.

We have a network of concrete plants in London and are able to transport cement and aggregates to the capital by rail to ensure fast, efficient and sustainable delivery of raw materials.

In addition to our static plants, we also have a fleet of mobile concrete batching-plants. These deliver the material right where it is needed, keeping trucks off the roads and transport costs to a minimum. Our modern site plants are quick to set up and provide highly accurate mixing for quality concrete, batch after batch.

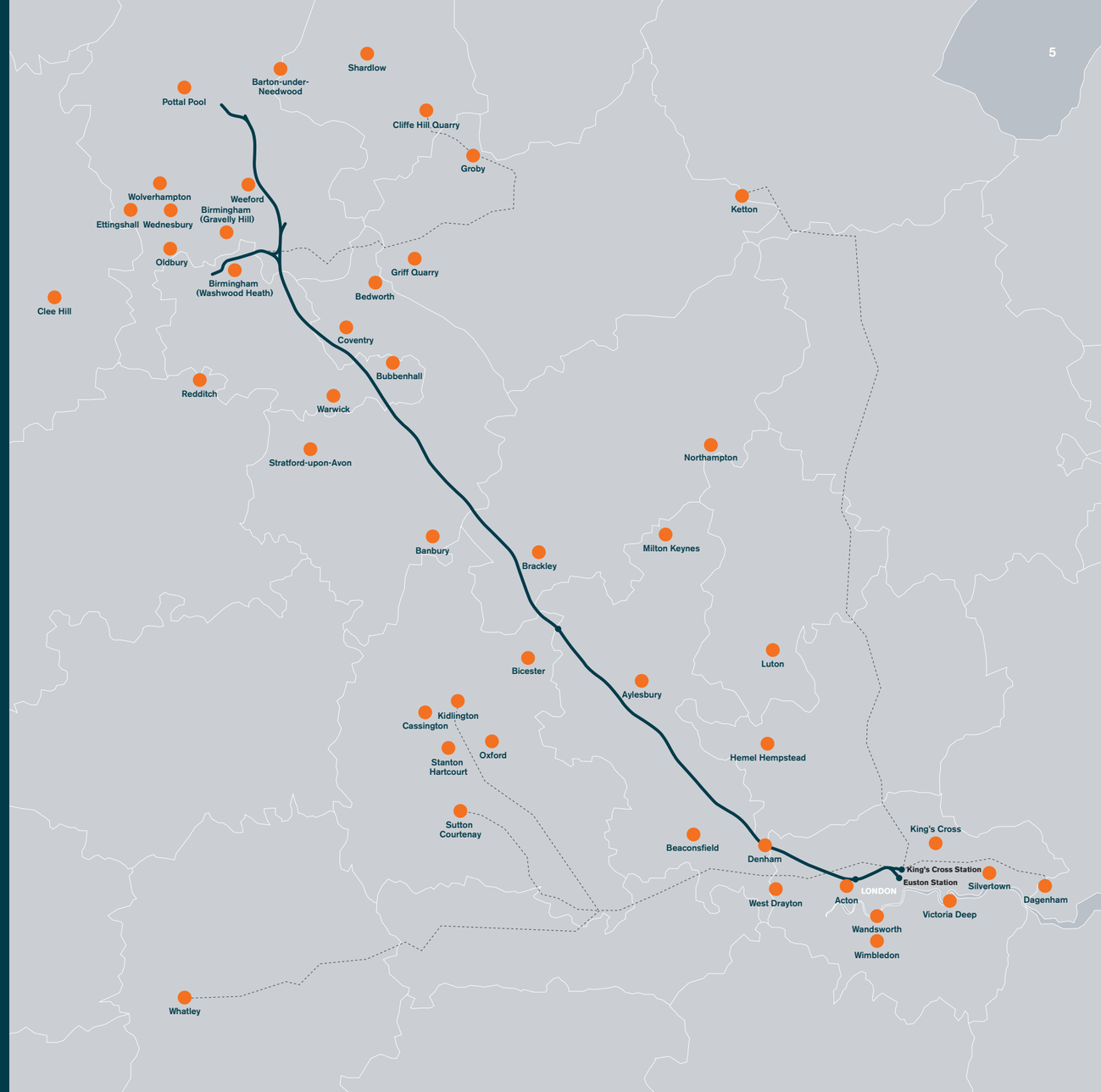
We can supply key materials required for the HS2 project, including low carbon concrete for precast tunnel segments, sleepers and slab track, sprayed concrete, rail ballast and bulk fill aggregates.

We are the leading supplier of ground granulated blast furnace slag (GGBS), marketed under our Regen brand. Regen is a low carbon replacement for Portland cement and can significantly reduce the CO_2 emissions associated with large scale construction projects.

We have supplied our high quality materials to a range of major infrastructure schemes in the UK including Crossrail, Channel Tunnel Rail Link into St Pancras, Canary Wharf, Terminal 5 Heathrow airport and the Thames Gateway. We also have early involvement in the Hinkley Point project.

We enable sustainable construction.

43 sites along the HS2 route



OUR PRODUCTS

© Crossrail Ltd

We supplied

80,000m³

of concrete for tunnel segments on Crossrail

Precast tunnel segments

Hanson has been working with main contractors for many years to provide high specification concrete mixes for the manufacture of precast tunnel segments.

We've recently supplied concrete for precast tunnel segments for Crossrail and the Channel Tunnel Rail Link and are currently working with the main Hinkley Point contractors. By working with the main contractor and the specialist tunnel segment manufacturer, we are able to ensure our customers are supported throughout the project with excellent technical know-how.

Our parent company, HeidelbergCement Group, has also developed more than 50 different grout variants, through its specialist technical centre, for tunnel applications across Europe. It works with engineers and contractors to deliver tailored solutions for individual projects where geological, logistical and formulation issues need to be considered.

CROSSRAIL CASE STUDY

Royal Oak to Farringdon (Contract C300)

The western tunnels contract, one of Crossrail's largest, included two 6.2m internal diameter bored tunnels, each 6.5km long, between Royal Oak and Farringdon station.

The tunnels were lined with precast, fibre reinforced, concrete segments manufactured in a purpose-built manufacturing facility at Old Oak Common. Hanson established a batching plant facility to supply the concrete for up to 200 tunnel segments a day.

We developed a specialist concrete mix design to achieve both the tensile and compressive strengths required and supplied 80,000m³ to the project. Each segment produced was individually coded allowing every section of every ring to be traced to its location within the tunnel lining as well as the individual batch of concrete it was produced from.

© Crossrail Ltd

No.1 supplier of sprayed concrete

Sprayed concrete

Hanson UK is the market leader in the manufacture and supply of sprayed concrete.

We have developed a strong technical and product capability that has been proven in tunnelling projects throughout the country. Our Ketton works manufactures unique cement, which is particularly suitable for use in sprayed concrete tunnel linings. The stable cement is combined with our aggregates and admixtures to produce a mix for the base, primary and secondary coats that:

- Reduces bounce-back
- Creates minimal waste
- Saves time
- Ensures rapid and successful adhesion
- Provides consistent high quality

Hanson sprayed concrete can also allow for given proportions of micro silica, polypropylene or steel fibres as required by the specification. Our expertise in this area gives us an understanding of in situ testing and performance to ensure that our mix designs are compliant.

> CROSSRAIL CASE STUDIES

Western running tunnels (Contract C410)

The western running tunnels project, which runs from Royal Oak to Farringdon, is one of Crossrail's biggest contracts. Hanson has supplied the sprayed concrete lining (SCL) for station tunnels at Bond Street (BOS) and Tottenham Court Road (TCR) and the Fisher Street (FS) crossover tunnel, including ticket hall shaft construction at TCR.

In total we supplied over 80,000m^3 of sprayed concrete for this contract, with the material being supplied 24/7 from our King's Cross and Victoria Deep concrete plants. We ensured continuity of supply for the contract by also delivering from a combination of static concrete plants and site plants, as well as supplying raw materials to third parties.

Eastern running tunnels (Contract C305)

The eastern running tunnels project is Crossrail's biggest design-bid-build construction contract. It includes tunnels from Limmo Peninsula to Farringdon, Limmo Peninsula to Victoria Dock and Stepney Green to Pudding Mill Lane, as well as launch shafts and sprayed concrete lined launch adits for the tunnel boring machines (TBMs) at Limmo Peninsula.

The Stepney Green caverns are one of the largest mined caverns in Europe using a sprayed concrete lining. The eastbound cavern is where Crossrail trains will branch towards Stratford or Woolwich and is 50m long, 13.4m wide and 16.6m high. Its construction involved removing 7,500m^3 of material and applying 2,500m^3 of Hanson's sprayed concrete to the walls.

We supply

40% **of rail ballast in the UK**

Aggregates
Rail ballast and bulk fill

Hanson is the UK's largest supplier of bulk construction aggregates for a range of applications, including rail ballast and bulk fill.

Our rail ballast is clean and angular with a high resistance to abrasion. We supply durable igneous rock, such as granite, in large (40-50mm) angular pieces that lock together. Due to the way igneous rock is formed, it is highly resistant to pressure and does not break easily. It is produced in accordance with BS EN 13450 (Aggregates for Railway Ballast) and backed up by rigorous quality control testing by our technical team.

Our Midland Quarry Products business (MQP) is the nearest source of bulk rail ballast to the HS2 route and we supply around 40 per cent of all rail ballast in the UK – as well as being Network Rail's largest supplier.

We also supply a wide range of aggregates which are suitable for use as bulk fill material in a variety of construction applications such as highway embankments, embankment dams and foundations for buildings. An important element of their use is the way they are laid to ensure adequate compaction.

> NETWORK RAIL CASE STUDIES

East to west rail upgrade

Hanson supplied more than 300,000 tonnes of aggregates to a major refurbishment programme between Oxford and Bicester. The project included transporting limestone from Whatley Quarry in Somerset by rail direct to our depot at Kidlington, which also has to be moved 100 metres up the line to make room for a new train station at Long Eaton.

At the height of our involvement we were supplying over 3,000 tonnes of aggregate a day to the scheme which involved building a new 1km section of railway, widening the existing track bed, extending a park and ride facility and upgrading stations.

Supply agreement

Midland Quarry Products, part of Hanson UK, has been working closely with Network Rail on the supply of rail ballast since 1999. It provides between 750,000 and 975,000 tonnes of rail ballast a year from Cliffe Hill Quarry in Leicestershire, which is rail linked to a number of Network Rail local distribution centres (LDCs) including Bescot (Walsall), Eastleigh, Westbury and Toton (Nottingham). The material is then available for use by Network Rail for a variety of engineering schemes completed on the main lines under possession orders.

MQP rail ballast was delivered in large quantities to the Westbury LDC for use on the recent Bathampton Junction major works. Within this MQP also provided rail ballast for road deliveries, which was collected via the Network Rail/DHL logistics operation. MQP and Network Rail have worked together to increase the range of products that are loaded onto the trains at Cliffe Hill. Major investment has also been made at MQP to improve the cleanliness of the product by reducing the amount of silica dust.

No.1 supplier of GGBS for soil stabilisation

Slipform concrete

Hanson is the market leader for the supply of high specification concrete for slipform paving applications. For many years we have supplied leading slipform contractors in the highways, airfields and tunnelling sectors with bespoke concrete mixes for each paving application, including central reservation barriers, pavements and rail track beds.

Slab track

Our quality assured concrete is used to create high performance slab track systems. Here, the ballast used to create traditional ballasted track is replaced by a concrete slab which transfers the load and provides stability.

On the HS2 project, our technical team will work with the slab track manufacturers to ensure the highest technical performance through the supply of materials, production processes and systems. We have experience of large infrastructure projects and work with our construction partners to utilise our vast land holdings to maximise production efficiency to key delivery points.

Precast concrete sleepers

We supply high quality concrete for the manufacture of precast concrete sleepers, working with manufacturers, designers and clients to ensure the correct specification. This ensures the sleepers are durable and resistant to abrasion, extreme weather and chemicals.

Soil stabilisation

Stabilisation of soil with cementitious binders is widely used in road, rail and foundation construction to improve the engineering properties of the soil. It is an established and cost-effective method of construction and can be used on virtually any soil found on site. The addition of binders can increase the strength and bearing capacity, improve stability by controlling the swell-shrink caused by moisture changes, and can increase the resistance to erosion, weathering and traffic loading.

Stabilisation of the existing soil is usually a much more sustainable solution than importing aggregate and the use of Regen (see page 14) and lime, offers significant advantages as it can inhibit the harmful expansion that can occur with clays containing sulfates.

› CASE STUDY

Energy from waste facility

Hanson supplied Regen (GGBS) to stabilise the ground for a new energy from waste facility within the London Sustainable Industries Park in Dagenham, Essex. The 8.5 acre site is being developed by contractor VolkerFitzpatrick.

The design for the new plant wanted to minimise the environmental impact of the construction process by stabilising the existing ground, minimising excavation and removal of material from site and reducing the need to import capping material.

The ground contained sulfates, which can lead to expansion and heave where soil stabilisation is carried out with lime or Portland cement, so GGBS was specified by VolkerFitzpatrick and supplied to specialist contractor Lancaster Earthmoving as it is resistant to sulfate expansion.

Regen: The strength behind sustainable concrete

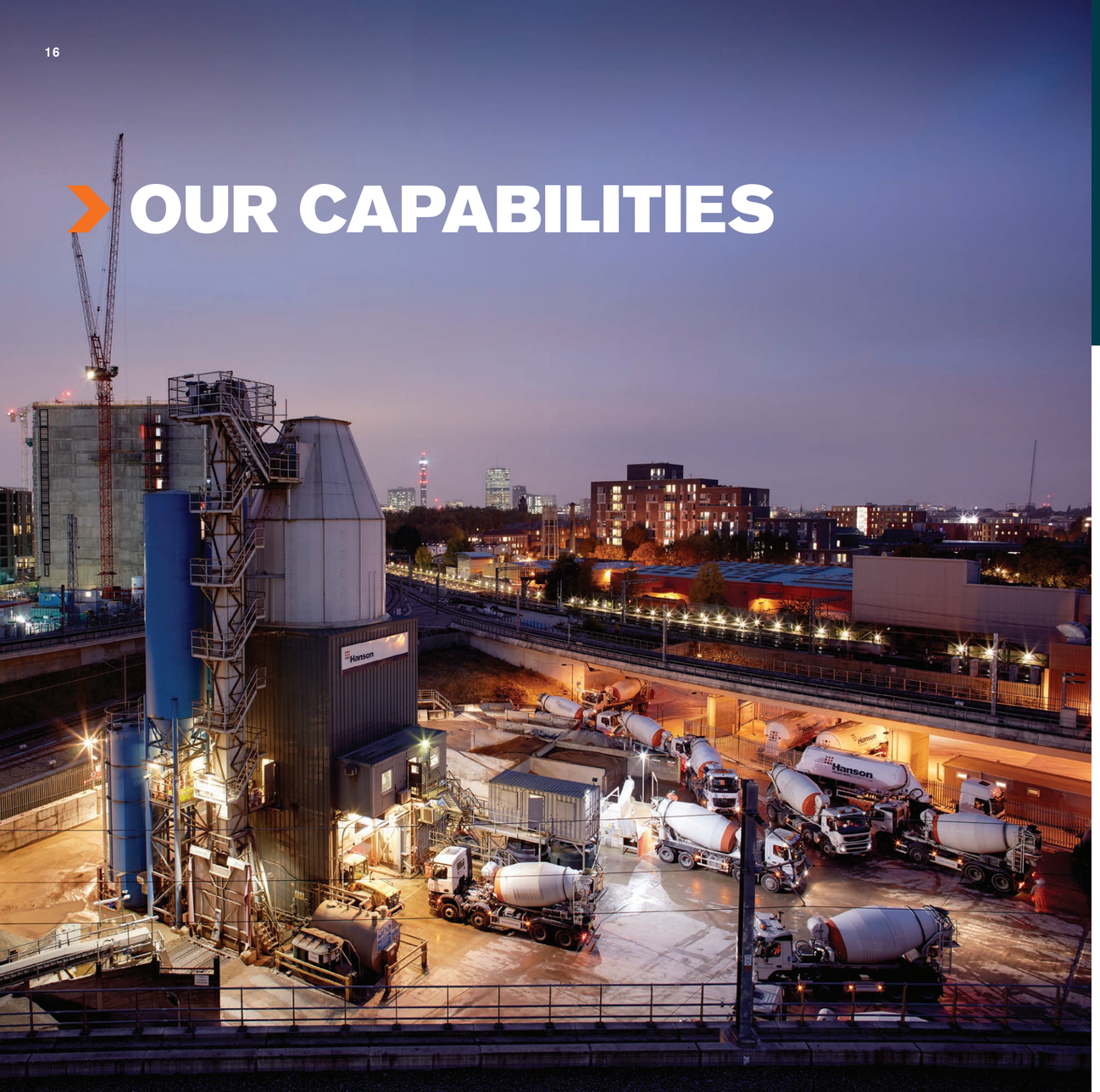
Concrete is generally regarded as a high emissions product but using Regen (ground granulated blast furnace slag), a cement replacement, can significantly reduce its energy use and carbon emissions.

Regen is a by-product of iron-making and its manufacture requires much less energy and produces around one tenth of the CO_2 emissions of Portland cement. As a result, replacing one tonne of Portland cement with one tonne of Regen in concrete reduces the embodied CO_2 by around 850kg.

Producing 100m^3 of concrete uses 32 tonnes of cement. Replacing 50 per cent of the cement with Regen saves 12.96 tonnes of CO_2, which is equivalent to taking 42 cars off the road for one year – or 41 years of electricity usage in the average home.

37% **of cementitious material used in our concrete mixes is a low carbon substitute**

OUR CAPABILITIES



We deliver around

750,000

tonnes of aggregates, asphalt and cement every week

Logistics

Hanson operates a national logistics division that supports all four UK business lines. It is managed locally by four regional transport teams that control the daily activities of our fully integrated road logistics fleet of around 1,200 Hanson-liveried vehicles.

Hanson Marine division operates a significant marine logistics fleet supplying materials to a number of marine wharves nationally. Mendip Rail, our joint venture rail business, manages deliveries from key supply units into rail depots on a national level. Hanson Cement also delivers bulk powder by rail from a number of cement plants into depots throughout the UK.

Our combined logistics fleet delivers an average of 750,000 tonnes of aggregates, asphalt, cement and 80,000m^3 of ready-mixed concrete per week from over 300 strategically located supply units nationwide.

We recognise that logistics is more than simply product distribution. It encompasses customer service, getting the right product at the right quality to the right place, on time, every time and with the best and most sustainable use of transport. This large-scale use of rail and water for transporting our raw materials allows us to optimise logistics and ensure the lowest cost and highest sustainability balance.

Product quality

Hanson UK has a long track record in supplying high quality construction materials for major infrastructure projects. We also have third-party accredited quality systems in place for all our products, backed by comprehensive research and development facilities. We adopt a systematic and integrated approach to all aspects of our business and are committed to complying to OHAS18001, ISO 9001, ISO 14001, ISO 50001, BES 6001 and the CE certification marking schemes relevant to our products.

Sustainability

Our aim is to be a leading sustainable business, trusted and respected by our stakeholders for the ethics we adopt and the products we supply. Our approach is built around five themes, which underpin our sustainability policy and performance indicators and together make up our over-arching theme of enabling sustainable construction. They are:

- **People** – creating sustainable communities
- **Carbon** – climate change and energy
- **Waste and raw materials** – sustainable consumption and production
- **Water and biodiversity** – natural resources and enhancing the environment
- **Systems** – management systems for continual improvement

Each year we publish a report on the previous year's performance following the guidelines of the Global Reporting Initiative (GRI), which can be found at **hanson-sustainability.co.uk**

Health and safety

From senior directors to the factory floor, Hanson's workforce is committed to achieving the highest standards of health, safety and welfare for our colleagues, customers and the general public. Right through the business, health and safety is a top priority and our target is zero harm.

To underpin this effort, a comprehensive health and safety management system is in place across all our operations. Essentially, it is a system of responsibilities, rules, procedures and safe working practices which provide the backbone of effective health and safety management.

Major project support

We have a strong, experienced major projects team, who have worked on, and help deliver, some of the UK's largest infrastructure projects including Crossrail, Thames Gateway and the Olympic Park.

This, coupled with our strong asset base, makes us an ideal partner for supplying a range of construction materials for HS2. At the same time, we can meet the key sustainability criteria of responsible sourcing, appropriate use of secondary materials and low-carbon solutions.

Early involvement with design teams and contractors is imperative. We like to work with contractors and clients at the project concept stage to ensure correct product and build methods are specified to simplify designs, maximise project targets, reduce waste, meet sustainability targets and generate value.

We recognise that partnering relationships can bring significant mutual benefits by providing an open, honest communications platform to the ultimate benefit of the end client. Our existing agreements are characterised by efficiency, openness, co-operation and continuous improvement.

Major projects team

Ian Innes	major projects director	**+44 7966 499 323**
Sean Hunter	major projects manager	**+44 7977 251 057**
Neil Spence	general manager	**+44 7977 251 114**