Hanson
HEIDELBERGCEMENT Group

Wind farm credentials

Who we are

Hanson UK, a professional partner

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

We produce aggregates (crushed rock, sand and gravel), ready-mixed and precast concrete, asphalt, cement and cement-related materials and a range of building products.

Hanson UK is part of the HeidelbergCement Group, employing 53,000 people across five continents. HeidelbergCement is the global leader in aggregates and a leader in cement, concrete and heavy building products (brick, block and precast concrete).

Hanson UK is split into five business lines – aggregates, concrete, asphalt and contracting, cement and building products – which together operate over 300 manufacturing sites and employ some 5,000 people, allowing us to produce the broadest range of product and service solutions in the UK heavy building products market.

Being part of a global business, Hanson UK shares the best practice and expertise already being used in other parts of HeidelbergCement's global business from nuclear power stations in America, bridge construction in China, tunnelling in Germany to wind farms in Belgium. This understanding is now an essential part of dealing with contracts that often have global clients and contractors.

Within Hanson UK we also have R&D, technical, supply change management, civil engineering and Code assessors to support our customers.

Our operations

We have a comprehensive spread of production sites across the UK, that enable us to supply a wide range of contracts, via road, rail and water, while minimising transport costs.

We operate 191 concrete plants, supported by the largest fleet of site plants across the UK to give comprehensive national and geographic coverage. We also operate 62 sand, gravel and hard rock quarries and a fleet of eight marine dredgers that extract sand and gravel from the sea bed. We are the single largest supplier of Regen (GGBS), a cement substitute for ready-mixed concrete, in the UK market with three grinding plants and three Portland cement plants.

We have 18 factories producing brick, aircrete (Thermalite), aggregate blocks, precast concrete products and paving.

Hanson in the UK

- Customer focused, clear points of contact
- The broadest range of heavy building products in the UK market
- One organisation offering concrete, aggregates, cement, asphalt, brick, block and precast concrete products
- National coverage
- Broad range of delivery and product supply options
- Product and construction offering
- Co-ordinated and easy to do business with
- Global expertise and experience
- Sustainable product and service solutions
- Health and safety and sustainability at the core

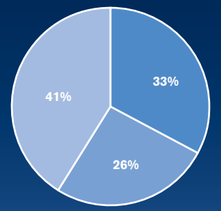
"Sustainability is no longer a 'nice to have' accessory for the business – it is an essential requirement, and is built into all our goals and policies"

Patrick O'Shea
CEO, Hanson UK

HeidelbergCement a global business

- No. 1 in aggregates (No. 2 UK)
- No. 2 in ready-mixed concrete (No. 2 UK)
- No. 3 in cement (No. 1 UK)
- 53,000 employees
- 2,530 locations in 40 countries

Working with global clients, engineers, architects and contractors.



HeidelbergCement Global Turnover 2010 – EUR 11.8 bn

- Europe
- North America
- Asia/Australasia/Africa

What we can do

Hanson UK, a capable business

Four clear business lines offering the broadest range of products and services in the heavy building products market.

Hanson Aggregates produces sand, gravel and crushed rock from over 62 quarries in England and Wales and includes Hanson Aggregates Marine, Europe's largest producer of marine-dredged sand and gravel.

Hanson Concrete is one of the UK's biggest suppliers of ready-mixed concrete from a network of more than 200 fixed and site-based plants.

Hanson Asphalt and Contracting supplies and lays asphalt for road surfacing and provides a range of infrastructure services. Its civil engineering division specialises in the construction of wind farms and waste-to-energy plants.

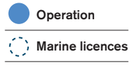
Hanson Cement is a leading manufacturer of Portland cement, both in bulk and in bags, and produces ground granulated blastfurnace slag (GGBS) under the brand name Regen – a cement replacement in ready-mixed and precast concrete – and a range of bagged cementitious and aggregate products.

Aggregate dredger Arco Dart

Ketton cement works in Rutland

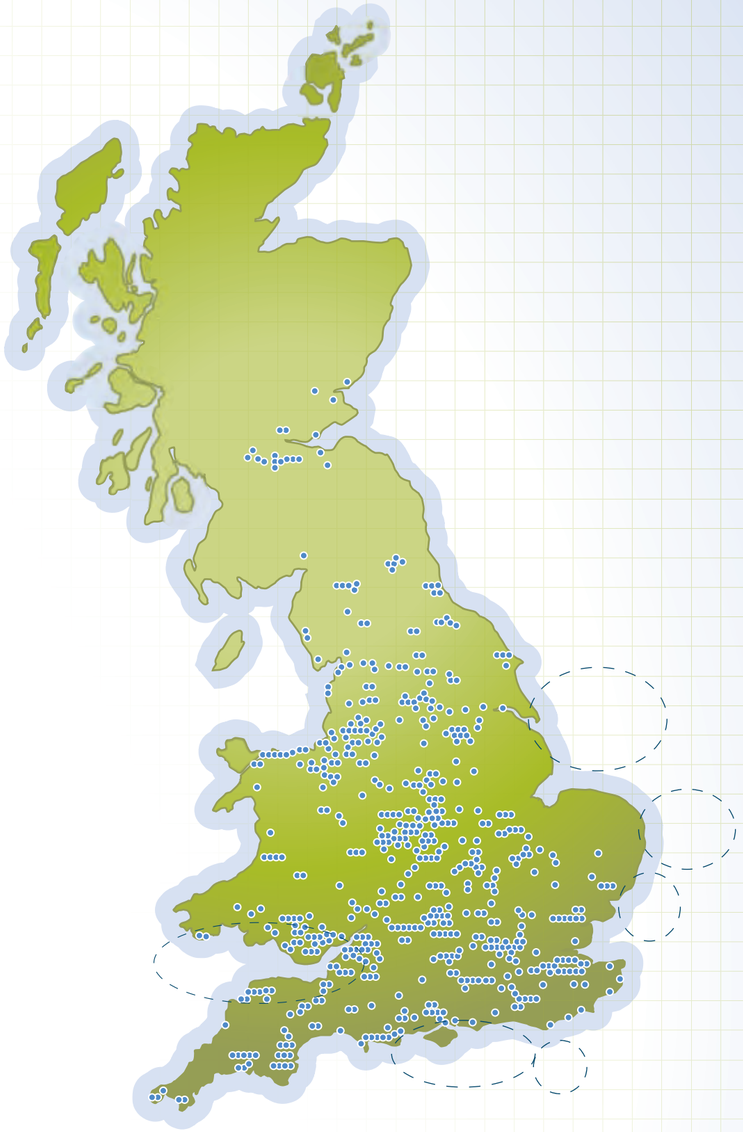
Ready-mixed concrete delivery

Hanson UK production sites



Our UK operations	
Quarries – sand and gravel	32
Quarries – crushed rock	30
Marine dredgers	8
Aggregates depots and wharves	12
Ready-mixed concrete plants	191
Site concrete plants	17
Asphalt plants	36
Recycling/landfill	4
Cement plants	3
Cement depots and wharves	8
Ground granulated blastfurnace slag plants	3
Bagged products plants	14
Precast concrete and flooring plants	3
Brick works	9
Aggregate/aircrete block plants	5
Block paving plants	1
TOTAL	376

All our production sites are certified to ISO 14001 and ISO 9001



Our marine capability

The largest producer of marine aggregates in Europe

Hanson Aggregates Marine is Europe's largest producer of marine-dredged sand and gravel, supplying to a network of wharves in the UK, Belgium, the Netherlands, France and Denmark.

- Largest fleet of marine aggregate dredgers
- Broadest number of aggregate licences around UK waters
- Dredge seven million tonnes of sand and gravel per year
- Nine dredgers from 1,300 to 8,000 tonnes capacity
- Self-discharging fleet, fitted with boom conveyors

Hanson UK's purpose-built trailing suction hopper dredgers extract sand and gravel from the seabed at depths of up to 50 metres. All vessels are fitted with self-discharging systems which can deliver dry material onto wharves at rates of 600 to 2,600 tonnes per hour.

The fleet also includes hydraulic discharge and bottom dump facilities and the company has supplied aggregates to numerous coastal engineering and port development projects.

Our fleet

Hanson UK's fleet of nine aggregate dredgers vary in size from 1,300 to 8,000 gross tonnes with cargo hold volumes of between 750m^3 and 4,800m^3.

Our licences

Hanson UK manages the largest portfolio of licensed marine aggregate resources in the UK. We continue to develop these resources and strive to produce material in an environmentally sustainable way.

Our wharves

Hanson UK and the broader HeidelbergCement Group operate a network of marine aggregates wharves across the UK, Belgium and the Netherlands.

Offshore wind capabilities

Hanson Aggregates Marine has the combined shipping and mineral resources to produce and deliver over eight million tonnes of marine dredged aggregates each year. Within the sphere of offshore wind developments these aggregates can be used in concrete in port developments or gravity bases, directly as ballast for turbine bases and in bags as scour protection.

Hanson UK's fleet is mobile and can discharge dredged aggregates by conveyor into barges at sea, or on a quayside. Our vessel, the Arco Beck also has pump out facilities which can be used to discharge material ashore or into gravity bases as ballast.

With the largest fleet of marine aggregate dredgers and the greatest volume of marine aggregate resource in the UK, Hanson Aggregates Marine has the geographic spread and production capacity to offer a secure and tailored marine aggregates supply to offshore wind farms.

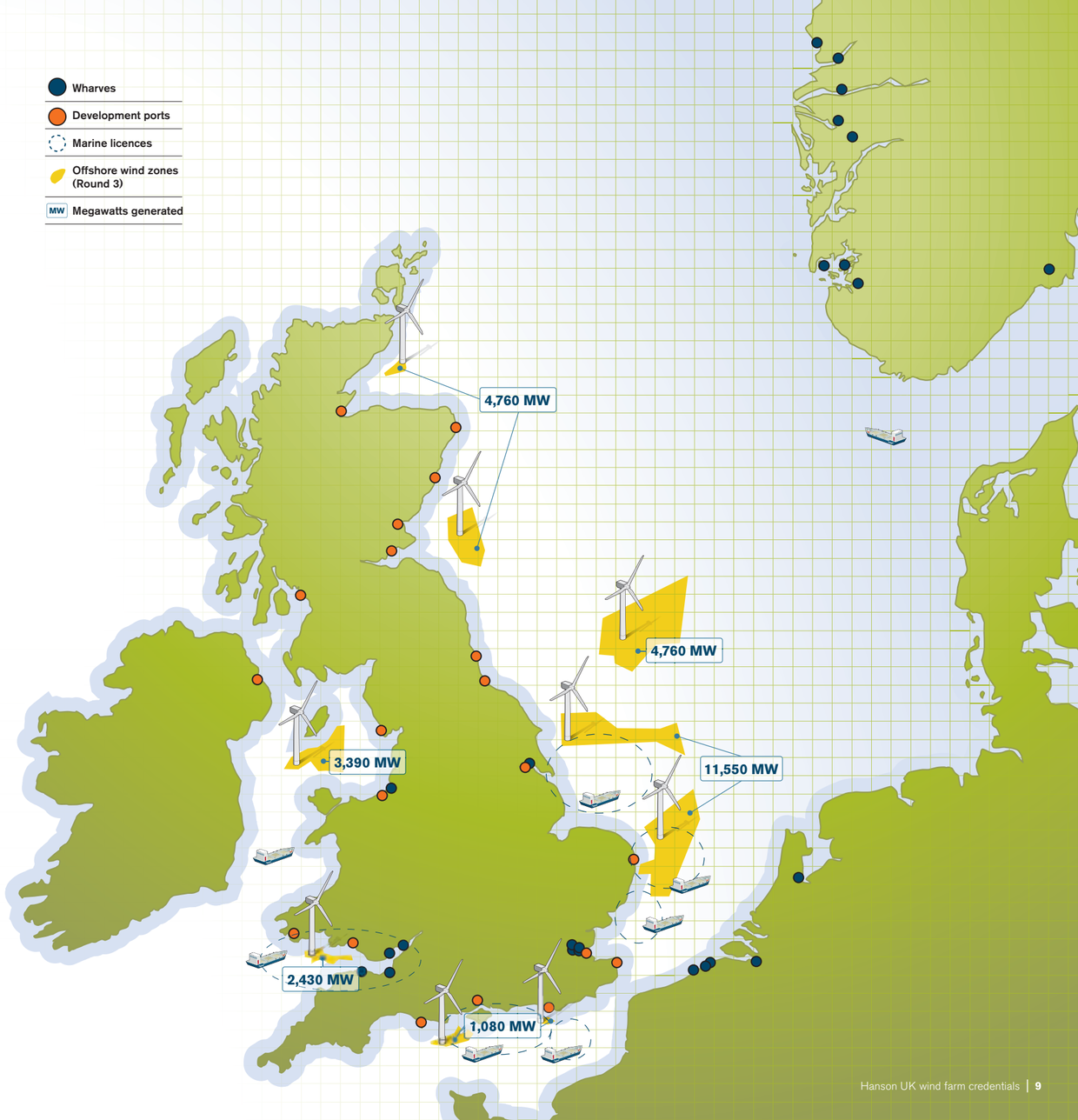
We operate four classes of ship

H-class (8,000 tonnes) x 2 ships

A-class (5,000 tonnes) x 4 ships

B-class (4,600 tonnes) x 1 ship

D-class (1,300 tonnes) x 2 ships



Our cement and Regen (GGBS) capability

Hanson Cement is the largest combined supplier of cement and cement substitutes in the UK. It produces Portland cement from three plants in the UK and Regen, a ground granulated blastfurnace slag (GGBS) from three grinding plants. Hanson Cement is the only UK manufacturer of Regen (GGBS), a cement substitute in ready-mixed and precast concrete. From a national network of depots, wharves and sites cement and Regen can be delivered by road, rail or sea.

Regen (GGBS)

Regen offers many sustainable, durable and aesthetic (lighter colour) qualities in the manufacture of concrete. It is widely used in the energy industry for concrete in nuclear power stations, base construction and mix designs for wind turbine bases, mass concrete in high rises and in aggressive environments such as sea defences.

Sustainable

Regen has very low embodied CO_2 as it is a by-product of iron-making. It therefore offers strong sustainable benefits:

- Produces very low SO_2 and NO_x emissions
- Requires virtually no quarrying or mineral extraction
- Meets client and customer needs for sustainable construction solutions
- Can replace up to 80% of cement

Note: Producing 100m^3 of concrete uses 32 tonnes of cement. Replacing 50% of the cement with Regen saves 13 tonnes of CO_2.

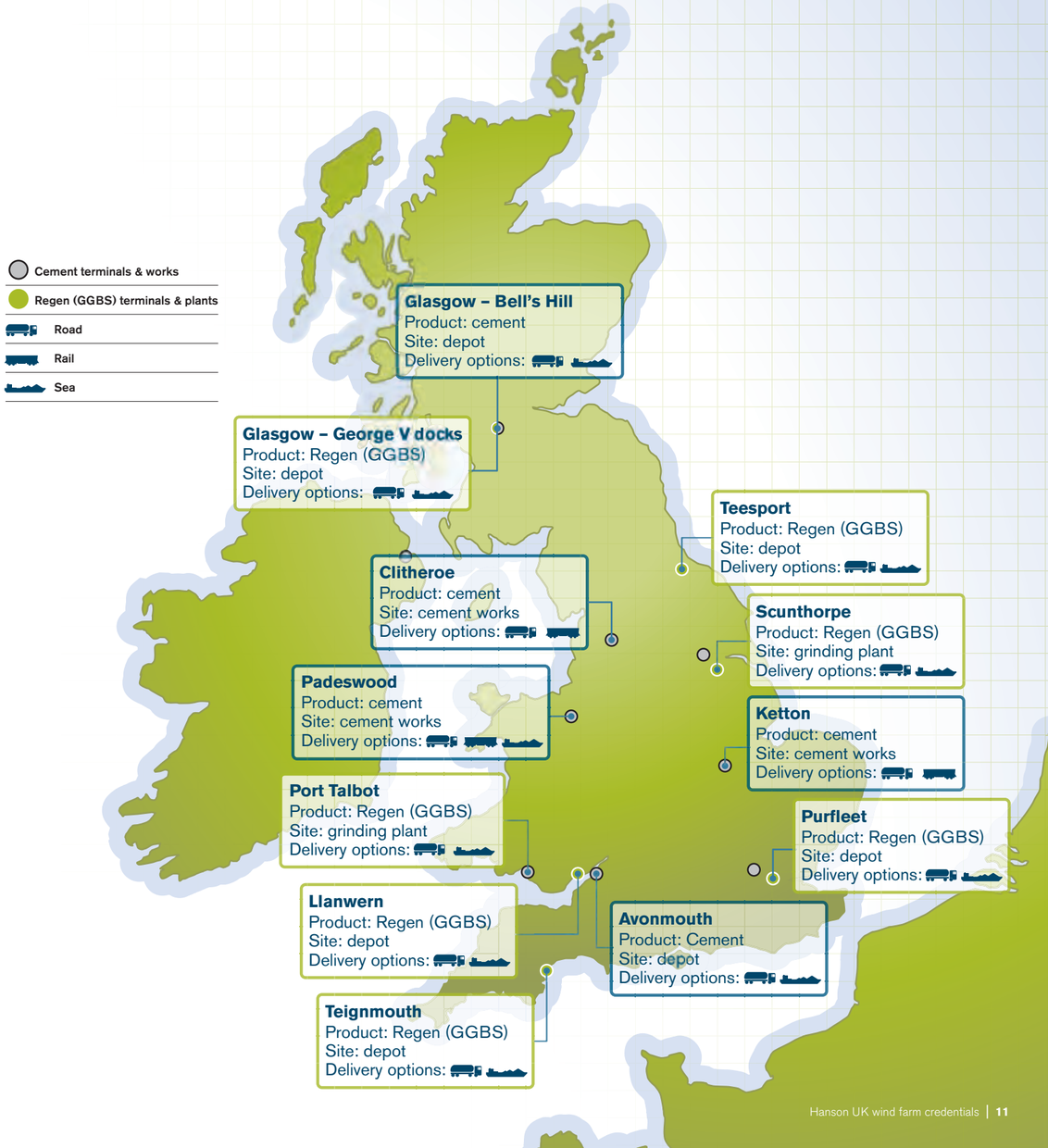
Durable

The increased durability of concrete manufactured using Regen further reduces a project's environmental impact by:

- Reducing repair and maintenance required
- Extending the service-life of concrete structures
- Producing more durable concrete
- Reducing cracking in mass concrete construction
- Resisting deleterious sulfate reactions, chloride attack and ASR

Land-based and offshore wind farm bases

In the production of bases for land-based and offshore wind turbines it is an essential part of the mix to meet environmental requirements set by the client and delivers a concrete mix that is tailored to the structural needs of a concrete wind turbine construction.



Our site plant capability

We have the largest fleet of site plants in the UK totalling 17, from our unique floating platform in Canary Wharf in London Docklands to a plant on a Scottish mountain producing bases for the largest wind farm in Europe. Hanson UK's site plant fleet has an experienced and dedicated team providing a single point of contact for:

- Project management
- Supply chain
- Materials delivery
- Specialist mix design
- Technical support

All our plants are certified to the Quality Scheme for Ready Mixed Concrete (QSRMC) with a production output ranging from 50-140m^3 per hour. Recycling units with dust and noise reduction measures can be supplied and we have the support and backup of 190 static plants.

Dedicated on-site batching provides a continuity of supply throughout the project. The on-site plant will use trucks from our dedicated fleet of 800 vehicles and can be supplemented to accommodate for peak demands as necessary.

Our site plants are all wet batch operations ensuring excellent quality control and with the capability to produce any concrete. We can formulate bespoke mixes for every type of job from high strength, lightweight and Regen (GGBS) rich mixes to high-flow mixes for pumping.

With our supply chain partners we can also offer a range of admixtures including high range super plasticisers, pump aids, retarders and water proofers.

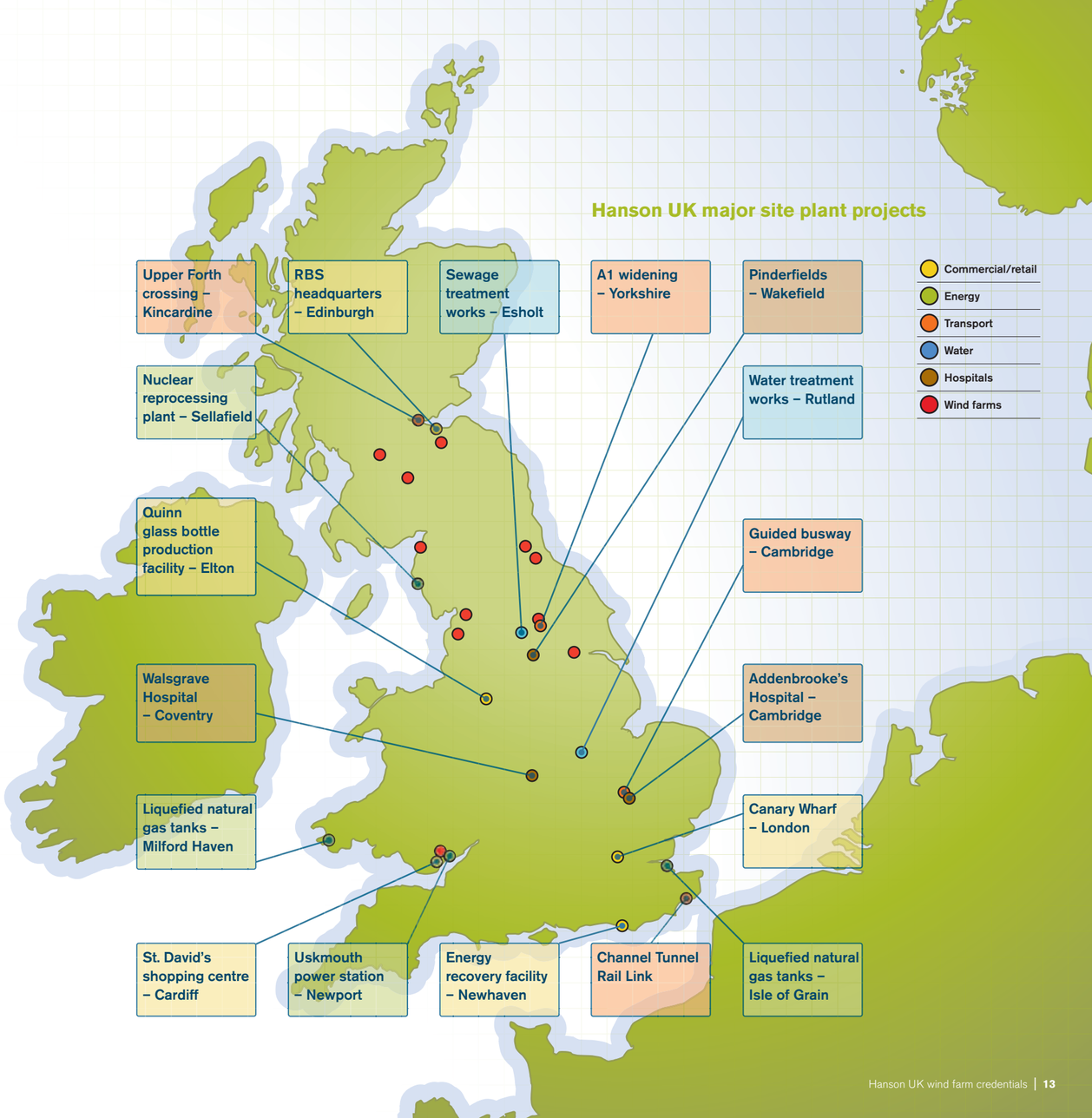
Site plants also help to reduce the overall carbon footprint of a project by reducing truck movements and gain credibility by the use of recycling systems to recover water and aggregate from truck and plant washing.

We will also provide operational and technical advice through the site planning and preparation process, materials advice, mix design, operational control throughout the project and dismantling and putting the site back to good.

Location: Sellafield
Hanson UK supply – All material
Capacity: 100m^3 per hour

Location: Stratford City
Hanson UK supply – All material
Capacity: 140m^3 per hour

Location: Canary Wharf
Hanson UK supply – All material (aggregates by barge)
Capacity: 120m^3 per hour



Our European onshore and offshore capability

Onshore capability

Hanson Contracting has been involved in the construction and management of wind farms for over 15 years. Its civil engineering division, through its Early Stage Involvement (ESI), has offered experience and expertise in:

- Management of the complete supply chain from start to completion
- Site design, planning and investigation
- Site clearance and enabling works
- HSE, RAM assessments and contractor training
- Up rating of sites with 'borrow pits' and controlling silt migration
- Access road design and build
- Structural and bespoke mix design and manufacture
- Construction management
- Base construction
- On-site batching plants and management
- Complete concrete material supply
- Value engineering at all stages
- Site return and biodiversity action planning

This is supported by the development of concrete designed mixes for this sector from our research and development centre in Heidelberg Germany, and our large asset base of concrete plants, site plants, cement and Regen (GGBS) works and aggregate quarries in the UK.

Hanson Contracting meets key health and safety criteria to work in this sector and is part of the Contractors Health and Safety Assessment Scheme (CHAS) and the Safe Contractor approved schemes. Sustainability is an essential part of our working culture and we understand our responsibility on minimising transport movement waste and the use of products that help reduce our impact on the environment such as Regen (GGBS) in our concrete mixes. We are also aware of our social responsibilities and where possible use local suppliers and employees to support the communities in which we operate.

Offshore capability

Hanson UK's offshore capability is built on experience from the work HeidelbergCement carried out at Thornton Bank (Belgium) in 2007, our current involvement in Cuxhaven (Belgium), the work done over the last 20 years in the development in Canary Wharf and our knowledge of concrete mix design and construction through the many major projects we have been involved in the UK and Europe.

The combination of HeidelbergCement and Hanson UK's asset base, material supply and experience means we can offer:

- Gravity base design assistance
- Optimal concrete design mixes for deep water construction (North Sea Oil/Gas)
- Supply of Regen (GGBS):
  - Improves chloride and sulfate resistance
  - Increases durability over time
  - Reduces mass slab cracking
  - Reduces the concrete carbon footprint
- Production of lightweight concrete mixes
- Mix designs made from marine-dredged and land won sand and aggregates
- Delivery of aggregate anywhere in the North Sea using our marine fleet
- Site plants
- Complete material supply

We are working closely with clients, contractors, engineers and association partners to deliver the best solutions for concrete gravity base solutions in water depths over 20 metres.

3. Clyde – Lanarkshire, Scotland

9. Knabs Ridge – Harrogate

10. Rusholme – Newland in Selby, North Yorkshire

Offshore wind farm – Thornton Bank

HeidelbergCement has been involved in the development of prototype offshore wind farm gravity bases since 2007/8, with the construction and development of six concrete bases, weighing 3,000 tonnes with the potential to generate 5kW, for the Thornton Bank wind farm.

Project outline

Thornton Bank is a deep water wind farm, with average water depths of 16 metres. It required engineers to look seriously at alternative designs and materials for base construction. The oil industry had already shown that in deep water placements concrete performed well in delivering strength and durability against other materials. HeidelbergCement, working closely with the company C-Power in Belgium, developed specific concrete mixes and construction methods to produce concrete gravity bases.

From this experience HeidelbergCement is now working with RWE to develop new concrete base prototypes for the Cuxhaven Wind Farm in the lower North Sea (German Bight).

Specific concrete mixes

- Jump form construction required the use of specialist concrete technology
- Development of lightweight concrete mixes to minimise the gravity base load
- Produced up to 70 per cent Regen (GGBS) to reduce curing heat, resistance to sulfate and chlorine attack and reduce CO_2 impact
- The mix designs conformed to standards laid down in the oil industry for the use of concrete in offshore conditions EN 234
- Each base used over 5,000m^3 of concrete

European capability

- Group supplies of land-based cement, aggregates and concrete from Hanson UK, Belgium, Scandinavia and sea-based aggregates from English Channel
- Jointly developed bespoke high strength mix designs through HeidelbergCement Technology Centre and country R&D facilities
- Technical support and experience available from Hanson UK and HeidelbergCement

Onshore wind farm – Hellrigg

Hanson Contracting has been involved with wind farm construction for the last 15 years. Since 2010 we have built the foundations for over 101 wind turbines and provided 59km of access road, five sub stations and five control rooms with a total power generation output of 207MW – enough electricity to power 116,000 households. The Hellrigg Wind Farm at Silloth in Cumbria presented some unique challenges for the client, RWEnpower, NEC ECC Design and Build and Hanson Contracting.

Project outline

The project consisted of four 2.3MW wind turbines, construction of a control building and approx 2.5km of floating access roads, piling platforms and crane hard standings.

Due to the site ground conditions all four turbine bases had piled foundations.

One turbine base had to be constructed by installing a 24-metre diameter cofferdam driven in to a 6-metre depth through 10,000 year old peat, in order to prepare a competent piling formation.

One of the crane hard standings was among one of the first in the UK to have piled foundations; the remainder were the first to be built with a floating crane pad.

Hanson UK capability

- Principle contractor for the BOP (Balance Of Plant) section of the project liaising with all sub contractors and turbine manufacturers to deliver the project
- Carried out a ground investigation report and ecological survey with the client
- Developed and managed the programme of works including:
  - Providing design solutions (e.g. cofferdam foundation for the rig and construction of the turbine base)
  - Keeping to agreed timetable to fit with turbine delivery and installation
  - Laying geo textile membrane, stone access road and constructing the control building
- Supplied cement, aggregates and concrete for piling and wind turbine bases
- This experience is now carried forward into other projects.

Our port capability

Hanson UK has been involved in a number of port and quay construction projects and ongoing maintenance. Two examples of these are the Southampton Container Port (2009) and currently the London Gateway project:

Southampton container terminal

Hanson UK were chosen to supply the concrete for a new container storage area of 23 acres at the Southampton container terminal.

Project outline
The high grade, steel fibre reinforced concrete was developed with admixture supplier Sika, and delivered from a site plant installed with double loading plant, and a capacity of 90m^3 per hour, delivering 1,100m^3 a week. The total supply of concrete by the end of the work was 26,000m^3.

Specialist Concrete design
- High flexural and compressive strength
- Good freeze/thaw resistance
- High abrasion qualities
- Aggressive marine environment capability
- 40% Regen (GGBS) incorporated into the mix to make it more durable and sustainable
- Durable – having to withstand continual vehicle and container movement

London Gateway

Hanson UK is involved in the development of the largest port extension in the UK at London Gateway Port.

Project management
Hanson UK is supplying and managing the first stage of the port extension with the delivery of aggregates, cement, Regen (GGBS) and over 200m^3 of concrete over an 18-month period, to two ELBA II00 site plants, producing 100m^3 per hour, 24 hours a day, five days a week.

Specialist concrete design
- Working with the main contractor, Hanson UK developed 'value engineered', technical mixes for piling application
- Using experience gained at Sellafield, Hanson UK created mixes that dealt with sulfate and chlorine attack and reduced heat generation in the mass concrete pour, by using mixes with up to 70 per cent Regen (GGBS)
- Developed 'flowing' concrete mixes for the diaphragm wall (DW) piling to place concrete at the bottom of the 40-metre piles

Our sustainability and health and safety credentials

Hanson UK reports annually on its sustainability performance. Our Key Performance Indicators (KPIs) are based on those of the concrete industry's sustainable construction strategy and some specific requirements of our parent company HeidelbergCement. Our current sustainability policy and performance report can be found at www.hanson.com/uk/sustainability.
In 2010 Hanson UK again moved forward in embedding sustainability within the business.

HeidelbergCement regards climate protection and the securing of resources as the principal foundation for future development. Efficient production processes and the increasing use of alternative fuels and raw materials make an important contribution to this vision. Group-wide standards for environmental protection and occupational health and safety help ensure ambitious goals are implemented worldwide. Quarries from which raw materials are extracted are returned to a natural state or put to agricultural use. We are increasingly opting for restoration to nature conservation, thus helping to preserve biological and species diversity.

Our publication 'Sustainability Ambitions 2020' clearly defines the long-term nature of our commitment. We have integrated sustainability and social responsibility into our corporate strategy as a vital pillar. Responsible economic activity is the basis of our long-term success.

You can read more about HeidelbergCement's sustainability strategy and ambitions for 2020 on the Group website at:
www.heidelbergcement.com

Measham brick works received a major commendation in the environmental leadership category of the BCE awards for our Building Products division.

Judith Hackitt, right, chair of the Health and Safety Executive, presents the TUC trophy to Hanson Cement.

2010 highlights

- Reportable and lost time injuries fell by **53 per cent**
- More than 500 energy-saving ideas were introduced during the year, reducing carbon emissions and saving more than **£1.5 million** a year in energy costs
- Over **300 managers** and supervisors received training in sustainability and responsible sourcing
- Use of both mains and controlled water has **fallen**
- Environmental complaints fell by **42 per cent**
- Use of Regen (GGBS) as a cement replacement in our concrete remained at a high level of **35 per cent**
- We invested more than **£10 million** in a new business system for our aggregates, concrete and asphalt operations to improve efficiency and customer service
- The number of biodiversity and geodiversity action plans in place increased by **12**
- All our production sites are now certified to **ISO 14001** and **ISO 9001** systems
- We have exceeded our 2009 target of a **10 per cent** reduction in waste to landfill
- We are the largest building materials company to receive the **Carbon Trust Standard**

Hanson UK sustainability industry firsts

1998	Began creation of Europe's biggest man-made reed bed at Needingworth in partnership with the RSPB
2000	Built floating concrete platform for Canary Wharf
2000	Signed memorandum of understanding with English Nature (Natural England) and Countryside Council of Wales
2000	Became UK Habitat Champion for reed bed and fen
2001	Castle Cement gained ISO 14001 and ISO 18001
2005	Joint BAP and GAP action plan for all quarries
2006	Purchase of Civil & Marine, the only UK manufacturer of Regen (GGBS)
2007	Carbon Trust Certification awarded to building products division for energy management and planning
2007	All Hanson UK production sites gained ISO 14001
2009	Awarded responsible sourcing accreditation for concrete and aggregates business lines
2009/11	Achieved BES 6001 Responsible sourcing of materials for ready-mixed concrete and aggregates, asphalt, brick, block, precast concrete and cement. The combination of these gave us the broadest range of products covered by BES 6001 in the heavy building products industry covering over 360 sites
2010	Largest heavy building materials company to receive the Carbon Trust Standard
2010	Launched the first low energy asphalt – Hanson era
2010	Gained first Site of Special Scientific Interest (SSSI) status for a translocation site from Natural England

Other useful sources of information

The Concrete Centre
www.concretecentre.com

ARUP
www.arup.com

The Crown Estate
www.thecrownestate.co.uk

HeidelbergCement
www.heidelbergcement.com

Hanson UK
www.hanson.co.uk

mpa
essential materials
sustainable solutions

Advantages of concrete gravity bases

Concrete solutions are low cost, low carbon, long lasting and maximise the use of local materials and local industry.

They meet the needs of deep water solutions required for the Round 3 offshore wind programme. This generation of wind farms is larger and stands in up to 60 metres of water with 100-metre towers.

The innate robustness of concrete makes it best suited to this harsh marine environment.

The mass of the structures ensure a low operating noise transmission to surrounding sea areas and gravity solutions minimise disturbance to sea mammals during installation.

Health and safety benefits are achieved as proposed gravity solutions use proven concrete technology and construction techniques from the oil and gas offshore industry.

There are a number of 'turn-key' solutions for the design, construction and installation of gravity foundations. Also labour with requisite skills for concrete construction is readily available.

Low Cost

- The market for concrete gravity solutions is competitive
- Gravity solutions are relatively simple to install and achieve a low cost of installation
- Gravity solutions minimise the amount of offshore work and minimise diving operations

Low Carbon

- Concrete for gravity solutions can use cement alternatives and this significantly reduces the embodied carbon
- Concrete gravity solutions are fully removable at the end of their life cycle

Long lasting

- Developers are considering leases of up to 50 years and durability of foundations is a key requirement met by concrete
- Durability has been proven in the oil and gas offshore industry

Local

- Gravity solutions can be readily built in the UK, maximising use of local materials and providing local, long-term employment opportunities
- Concrete is a responsibly sourced product, available with accreditation to BES 6001

UK supply chain for gravity bases

Hanson UK is part of an interest group established to provide a focus for all those involved in the design, construction and delivery of concrete gravity base solutions. The group, set up by MPA The Concrete Centre, co-ordinates efforts to ensure the applicability and benefits of concrete gravity bases are better understood by all stakeholders whilst providing a network so that all those involved in the supply chain can access the expertise for gravity base solutions.

MPA The Concrete Centre

Our aim is to enable all those involved in the design, use and performance of concrete to realise the full potential of concrete. For more information visit www.concretecentre.com

The Concrete Centre is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, lime, mortar and silica sand industries.

SMARTPHONE SCAN CODE

Hanson UK
14 Castle Hill, Maidenhead SL6 4JJ T: 01628 774 100 E: enquiries@hanson.com W: **www.hanson.co.uk**

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