

Committed to reaching net zero carbon by 2050

Aggregates

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Heidelberg Materials





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A photograph of two workers in safety gear (hard hats and high-visibility jackets) reviewing a clipboard on a construction site. The worker on the right is wearing a white hard hat with the 'Heidelberg Materials' logo and is writing on the clipboard. The worker on the left is also wearing a white hard hat and safety glasses. The background shows a blurred construction site with yellow scaffolding and blue tarping.

Introduction



Heidelberg Materials UK makes essential materials to build our future and reaching net zero carbon by 2050 is a responsibility we take very seriously.

We are committed to fulfilling our role in meeting the UK government's ambitions and our parent company, Heidelberg Materials Group, has signed SBTi's Business Ambition for 1.5°C and joined the UN's Race to Zero campaign.

Our route to decarbonisation has been ongoing for many years and we have made significant headway. We have already reduced our CO₂ emissions in the UK by 50 per cent since 1990 and are investing £55 million by 2025 to help cut this by a further 15%.

We have a roadmap in place, which includes several important areas that will help us achieve net zero. These include:

- Improvements in plant efficiency and processes across our operations.
- Increased use of alternative raw materials and alternative fuels.
- Several industry-leading carbon reduction projects, including carbon capture and storage (CCS) at our Padeswood cement works in Mold, as part of the HyNet North West project, and demonstrating the use of a net zero fuel mix using hydrogen at our Ribblesdale cement works in Lancashire.

CO₂ emissions

reduced by 50%

since 1990

Investing

£55m by 2025

to cut CO₂ emissions by a further 15%



The Heidelberg Materials Group is transforming its business to build a more sustainable future and its strategy and sustainability commitments are shaped by the United Nations Sustainable Development Goals.

Working sustainably is at the heart of everything we do and our 2030 commitments are built around four pillars:

- 1. Net zero:** driving our decarbonisation/producing lower-carbon products
- 2. Safe and inclusive:** placing the health and wellbeing of our employees, communities and suppliers at the core of our operations
- 3. Circular and resilient:** supporting circularity to reduce/reuse materials and natural resources
- 4. Nature positive:** contributing through our biodiversity programmes/sustainable water management



Aggregates



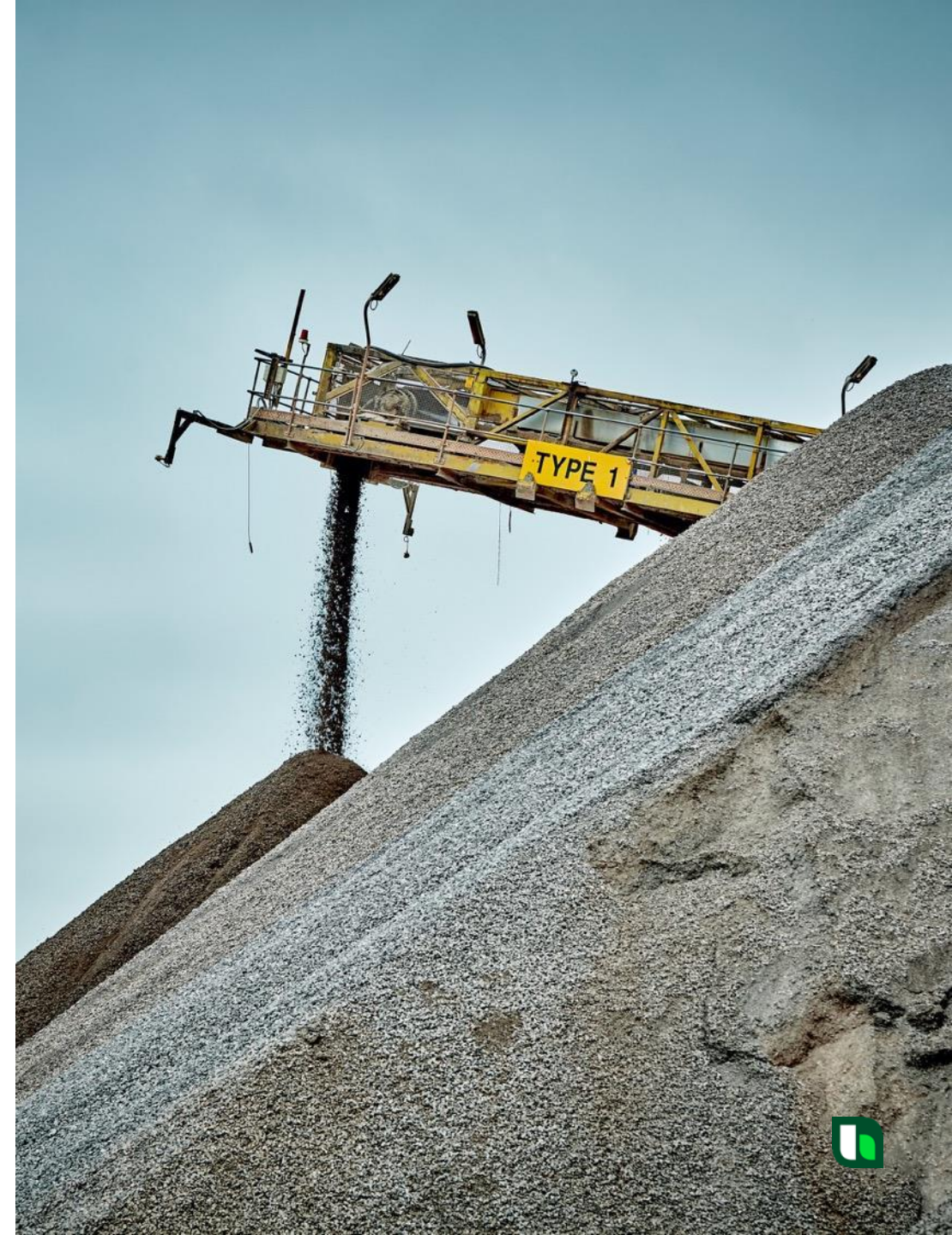
Heidelberg Materials UK produces both primary and secondary aggregates from a network of quarries.

Aggregates (crushed stone, sand and gravel) are produced in hardstone quarries, sand and gravel pits and dredged from the sea floor.

They are used directly as an end-product in their own right, for example as a fill material, or indirectly as a raw material in the manufacture of other vital construction products such as ready-mixed concrete, concrete products, asphalt and mortar.

The main uses of aggregates are in the construction of:

- Roads
- Railways
- Housing
- Other buildings and structures
- Key infrastructure projects such as ports and airports

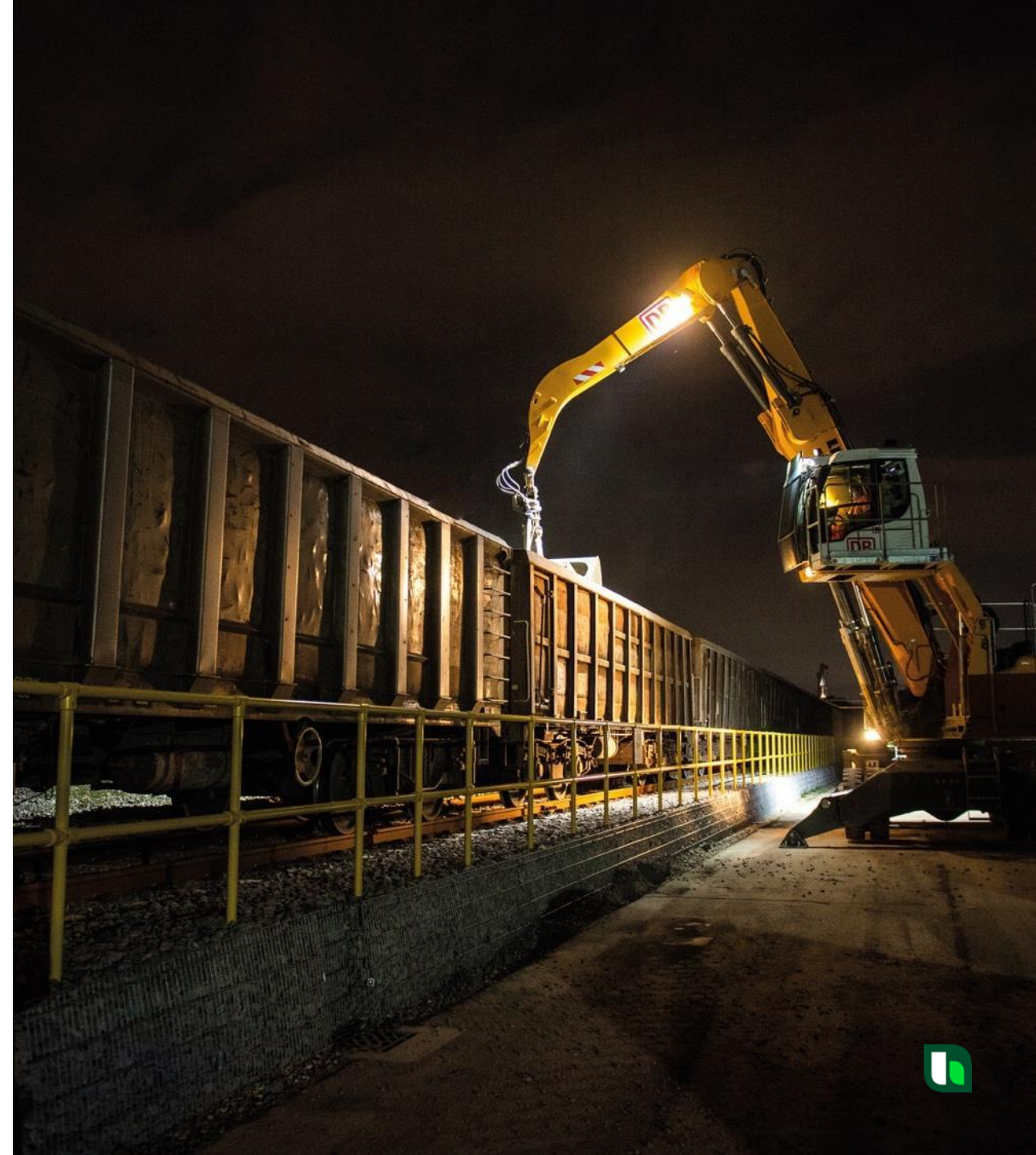


The UK consumes around 180 million tonnes of primary aggregates each year, about 90% of which is used by the construction industry.

Recycled aggregates are an alternative to primary aggregates and are suitable for use in a range of applications.

They are the product of processing inert construction and demolition waste, utilities arisings, asphalt planings and used railway ballasts into material that can be reused in new construction projects.

Like primary aggregates, these materials are processed to conform with European aggregate standards and national specifications and make a key contribution to total aggregates supply.



Heidelberg Materials, one of the largest aggregates companies in the UK, produces and distributes material from a network of quarries, depots, and wharves.

Several of our larger quarries are rail connected, feeding around 20 downstream depots. This division also includes our marine-dredged sand and gravel operation, which is one of the largest in Europe.

We are increasingly active in the recycled aggregates market and have strengthened our position through the acquisition of A1 Services (based in Manchester) as part of our strategy to conserve the use of natural resources and our commitment to the circular economy.

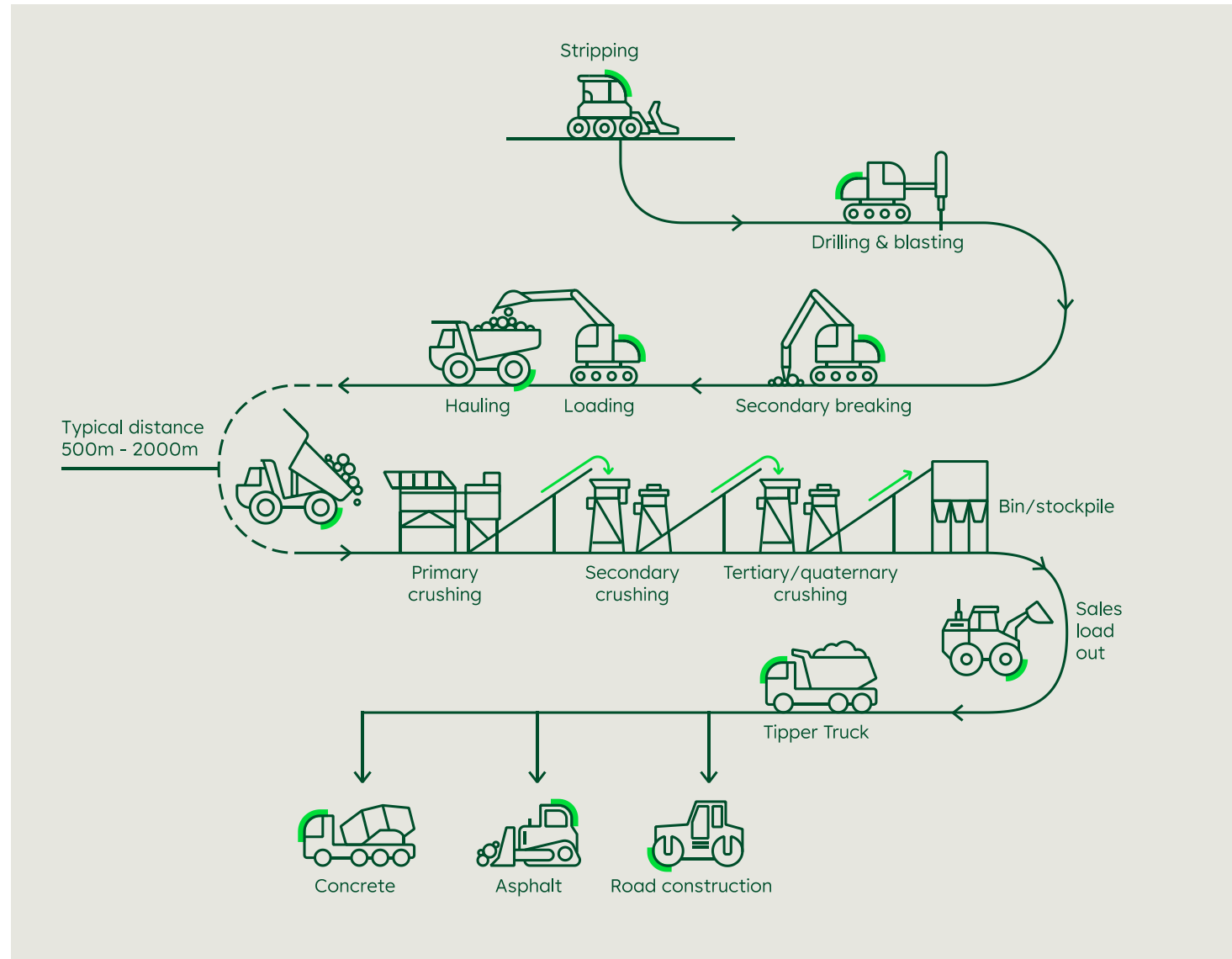


The aggregates production process has three main sources of CO₂ emissions:

- **Scope 1:** Production emissions, own transport emissions.
- **Scope 2:** Emissions from electricity consumption.
- **Scope 3:** Emissions from purchased goods and services.

On land, aggregates are extracted from a quarry or sand and gravel pit. Overlying material is stripped away before the aggregates are blasted (if required), extracted and, generally, transferred via conveyors and/or dumpers to the primary and secondary crushers.

The material is then screened, washed (if required) and separated by size onto different stockpiles or into bins. Finally, it is transported to the end customer via trucks, trains, ships and barges.



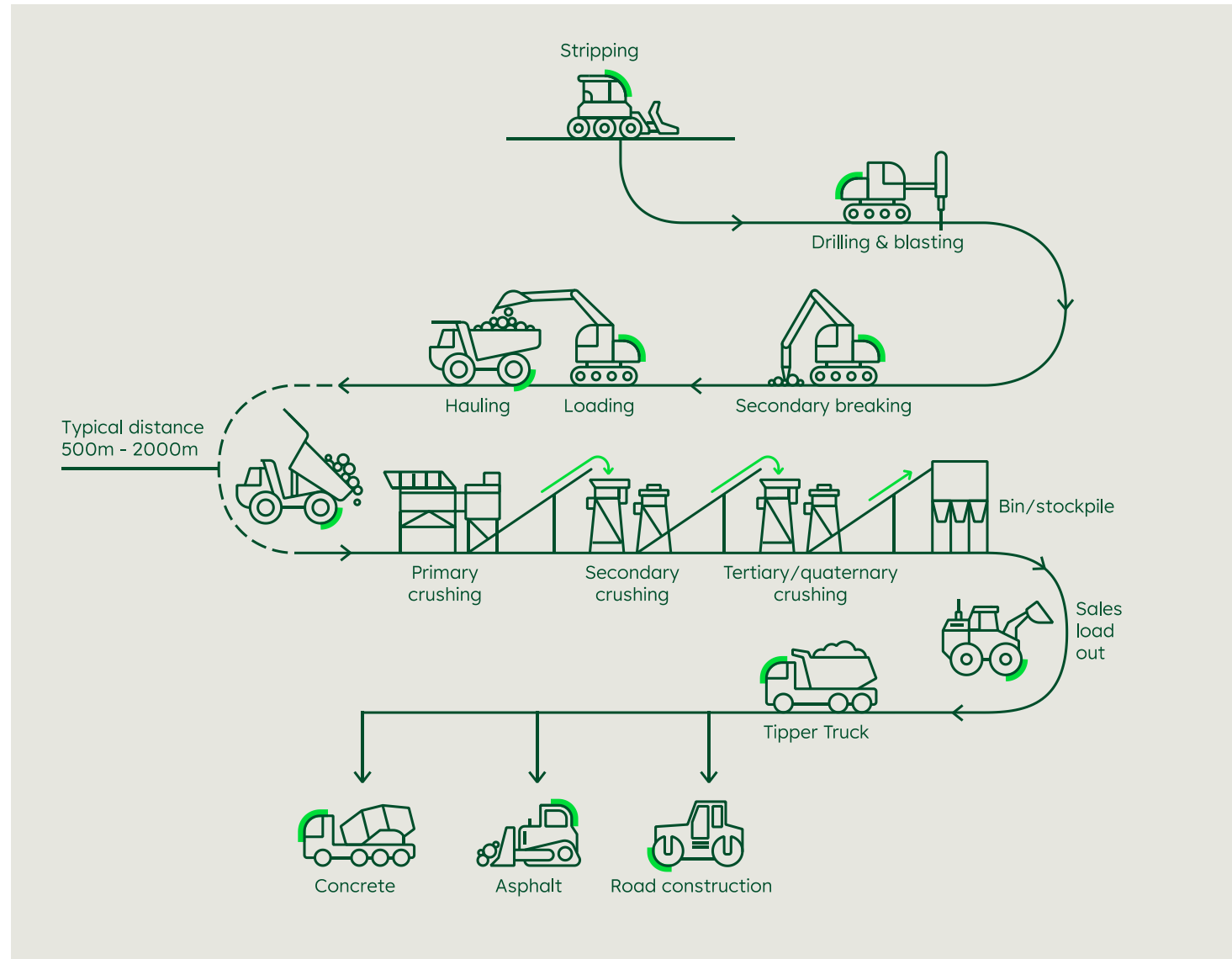
The aggregates production process has three main sources of CO₂ emissions:

Sand and gravel can also be dredged from the sea floor using marine dredgers.

The production of aggregates is less CO₂ intensive than cement or asphalt and the overall CO₂ emission share of our aggregates business line is around 2.4%.

Crushers and conveyors are normally powered by electricity while only mobile plant equipment such as dumpers or 360 excavators and some mobile crushing units use diesel.

Additional CO₂ emissions occur when the aggregates are transported from the production site to the customer.



We have a number of levers that will help reduce the CO₂ emissions associated with the production of aggregates. They are:



Investment in plant efficiency and processes

Optimising our plant set up, including state of the art production assets, increasing digitalisation and sharing best practice to further improve energy management, carbon reduction and reduce wastage. For example, investment in a new marine aggregate dredger has provided increased payload and efficiency, reducing CO₂ emissions by about 10%.



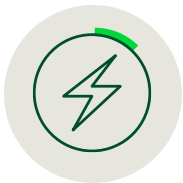
Fuel source

We are working on finding alternative fuels for our mobile plant fleet. The use of biofuels such as hydrotreated vegetable oil (HVO) has the potential to reduce CO₂ emissions in the short term before hydrogen technology becomes widely available.



Recycled aggregates

Quarries are generally located outside of major urban areas so increasing the use of recycled aggregates generated from construction waste can reduce the carbon emissions associated with transportation of materials.



Electricity

Sourcing electricity from low carbon sources and/or renewables can substantially reduce emissions. We purchase electricity rated as a zero carbon product, thereby almost eliminating our scope 2 CO₂ emissions.



Waste reduction

In general, a quarry produces many different sized aggregates. It is critical to ensure that all produced aggregates are utilised to prevent stock build up and the emission of CO₂ for products that are not used. Implementing an efficient product process that minimises waste and tailoring sales to the output of the quarry are effective ways to achieve pit balance.



Haulage

The delivery of aggregates to our customers is normally made via truck and/or rail. Decarbonising truck deliveries is challenging as there are no viable hybrid or hydrogen truck options at present although we are investigating the use of biofuels. We are investing heavily in our network of rail connected quarries and depots in order to increase the amount of aggregates moved by rail, reducing vehicle movements and cutting CO₂ emissions.



Electrification

We aim to change the energy source for all our mobile crushing equipment from diesel to electricity over the coming years, reducing our CO₂ emissions by 100% once all equipment has been changed over.



Case study: **Cliffe Hill quarry and asphalt plant**



Developing a detailed
net zero road map
specialist consultancy at Cliffe Hill

We have successfully applied for funds under the Government's Industry of Future Competition, which supports industrial sites to decarbonise as quickly as possible.

As a result, we will be working with a specialist consultancy on site at one of our largest quarry and asphalt operations, Cliffe Hill in Leicestershire, to develop a detailed net zero road map.

The programme will also allow us to evaluate various carbon reduction options and to potentially test their effectiveness in a live environment. We expect many of the findings to be implemented across all of our sites as part of our ongoing carbon reduction journey.



Our actions today and what Heidelberg Materials UK has planned

2020s:

Scope 1

- All diesel fuelled mobile crusher units have been phased out
- Pit balances have been optimised across all sites, minimising waste
- Deliveries made by rail are increased significantly from the current level of 20%
- Grow recycled aggregates offering

Scope 2

- All purchased electricity is from carbon neutral sources

Scope 3

- Emissions are measured and action plans are in place to achieve reductions

2030s:

Scope 1

- Majority of mobile plants and delivery trucks run on biofuels, green electricity or hydrogen
- Recycled aggregates are offered nationwide alongside primary aggregates

Scope 3

- Significant CO₂ emission reductions have been achieved

2040s:

Scope 1 and 3

- All mobile plants and delivery trucks are carbon neutral

Scope 3

- Input materials are carbon neutral
- **The aggregate business achieves net zero**

Committed to reaching
net zero carbon
by 2050

2020

2030

2040





Our aggregates business has a key role to play in helping us achieve our 2050 net zero carbon ambition. We are looking at every area of our operation including plant efficiency, the use of alternative fuels, switching to electric vehicles and the development and production of low carbon aggregate products.

Brian Charleton

Aggregates Managing Director

Get in touch

Visit our website for more information and to find out how we can help you with your own carbon reduction aims.

[heidelbergmaterials.co.uk](https://www.heidelbergmaterials.co.uk)



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