



LMS | HIGHWAYS

## LMS HIGHWAYS DELIVER FLANGE BEAM REPLACEMENT TO THE A50.

**LMS Highways provides Concrete Repairs to the A35 Dorset and A30 Devon. LMS Highways Replace Damaged Steel Flange Beam on the A50 – the First Beam Replacement of its Kind on the UK Highways Network.**



### **The Challenge: Why the Work Was Needed**

Many years ago, a number of flange beams were installed along the A50. A flange beam is a structural steel beam with projecting flanges that enhance its strength and efficiency. These beams serve as transitional joints between continuously reinforced concrete pavement, commonly known as CRCP and traditional concrete bays.

After decades of service and improper maintenance, the beams have become heavily corroded and reached a state of significant disrepair. At this stage, full replacement was the only viable solution. However, the task had long been considered “impossible” by many designers, fabricators, and contractors across the industry.

Balfour Beatty approached LMS Highways seeking expert guidance from Contracts Manager, Paul Burton, whose 40 years of experience in major civil engineering repairs provided the confidence and technical insight needed. Paul quickly reassured the client that the replacement was indeed achievable and that LMS had the capability, expertise, and innovation to make it happen.

## Delivering Solutions: Scope of Work

As this type of repair had never been undertaken before, Balfour Beatty identified the project as a proof of concept, focusing on the full replacement of a single steel flange beam to answer the key question: “Can it even be done?”

In early September 2025, LMS Highways received the initial enquiry, and within just two weeks – by 19th September, our teams were on site to deliver the complete removal and replacement of the 9-metre-long steel flange beam. The replacement utilised an ‘I’ beam design, chosen for its excellent strength-to-weight ratio and ability to withstand substantial loads.



Although a full three-night, weekend closure of the A50 westbound carriageway had been scheduled to accommodate the works and associated concrete repairs, LMS Highways’ planning, preparation, and experience allowed the entire beam replacement to be completed within a single night shift.



## Choosing Expertise: Why LMS Highways Was Selected

LMS Highways has a long-standing working relationship with Balfour Beatty, who manage the A50 under the DBFO (Design, Build, Finance, and Operate) scheme. LMS was first engaged to deliver concrete maintenance works on the A50 in 2023. Since then, LMS has successfully completed four phases of repairs – delivering over 560m<sup>3</sup> (1,345 tonnes) of high-performance concrete and representing millions of pounds in essential infrastructure improvements to date.

LMS Highways were chosen for this complex and high-risk project due to our proven expertise in urgent repairs and rapid concrete bay

replacements. Our ability to deliver an accelerated program significantly reduces road closure times and minimises disruption for road users – ensuring safety, efficiency and reliability on every project.

Key factors making an accelerated program possible:

- **Meticulous prior planning:** Ensuring a comprehensive understanding of project requirements and constraints.
- **Skilled Workforce:** All staff and subcontractors working for LMS Highways are highly trained and meticulously chosen.
- **Bespoke Equipment:** We utilise bespoke plant and machinery designed for optimal performance.
- **Innovative Materials:** Our award winning, rapid-set, low-carbon concrete mix Premcrete Highways FC Cement, which cures within an impressive 4 hour.

“Despite a late start, the night went exceptionally well. It was exciting to take on the first repair of its kind on the National Highways network and something completely new for LMS Highways. Delivering and executing a solution so quickly really demonstrates the experience and versatility of the LMS team. Now that we’ve proven it’s possible, we can’t wait to return and tackle the remaining replacements.” – **Paul Burton, Contracts Manager for LMS Highways**

## Results That Matter: Project Outcome

LMS Highways successfully replaced the damaged steel flange beam within the carriageway – the first beam replacement of its kind on the UK highways network.

From the initial enquiry to project completion, the entire process took just two weeks. Within this time, Balfour Beatty completed the design, the new steel beam was fabricated, delivered and pre-dressed with miothene by LMS Highways, and site teams engaged and fully prepared for the installation.

On the night of the works,



- The damaged flange beam was removed in just 20 minutes.
- The new beam, supplied by Balfour Beatty, was lifted into position and drilled into the existing substrate through pre-drilled holes placed at 600mm centres throughout the beam. It’s then brought to the correct level using a combination of string lines and carefully adjusting each screw thread until achieving the perfect level. This meticulous installation was completed within an hour and resulted in seamless transition between the flange beam and concrete surface.
- The adjacent rapid set concrete repairs were prepped, poured and cured with less than 4 hours, thanks to our award winning, rapid-set, low-carbon concrete mix Premcrete Highways FC Cement.
- The entire operation, from getting onto site, to site clearance, was completed safely and efficiently within just one 10-hour shift.

This project showcased LMS Highways’ seamless collaboration, precise planning and efficient execution – setting a new industry benchmark for innovation and delivery in highways maintenance.

“LMS Highways demonstrated exemplary professionalism throughout reinstatement of the A50 CRCP termination beam. Their communication was consistently clear and timely, ensuring smooth coordination across all parties throughout design and construction phases.

Pre-works planning was carried out with notable precision, reflecting a thorough understanding of project requirements. Their attention to detail and commitment to quality were evident at every stage.

We particularly commend their innovative and effective approach to levelling the beam, which contributed significantly to the successful completion of the works. Their performance was of a high standard, and we would gladly engage their services on future projects.” – **Filip Mikosz MSc, Associate Pavement Engineer for Atkins**