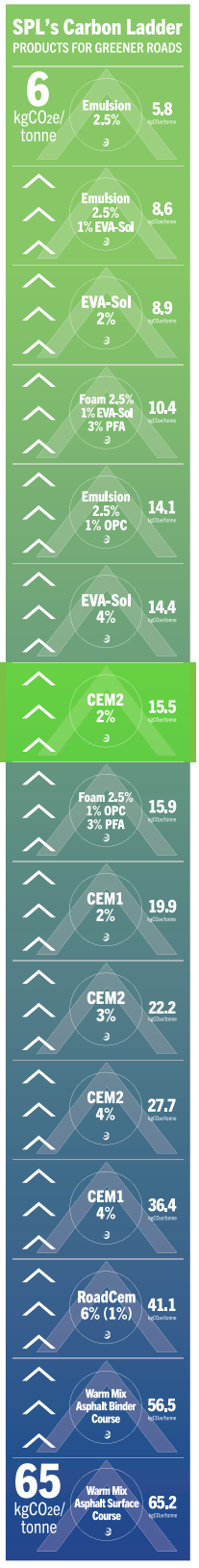
CASE STUDY

Sustainable Road Rehabilitation - Kings Delph Drove



Scheme:	Sustainable Road Rehabilitation at Kings Delph Drove, Cambridgeshire
Client:	Cambridgeshire County Council and their Term Service Contractor M Group
Date:	March 2025
Area:	6,056 m²
In-Situ Process:	Grid installation below REGEN
Construction Depth:	350mm
Surfacing:	Double Surface Dressing (10 & 6mm Stone)
CO_2 Saving:	96 tonnes (49%)

Cambridgeshire County Council

M GROUP

As part of its commitment to sustainable road maintenance, Cambridgeshire County Council and their Term Maintenance Contractor, M Group, commissioned specialist contractor Stabilised Pavements Ltd (SPL) to deliver an innovative In Situ Recycling solution at Kings Delph Drove.

The 6,000m² scheme was completed within just six days, demonstrating the efficiency and sustainability of modern pavement rehabilitation techniques. Recycling the existing carriageway provides a valuable opportunity to re-shape the carriageway removing the characteristic deformation in Cambridgeshire's Droves.

This improved profile not only reduces the dynamic loadings making the road less susceptible to failure in the future, but also provides local economic and social benefits through better access to and for farms and local communities.

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Innovative Process and Engineering Excellence

The project involved the installation of a **Tensar HX165 Geogrid**, strategically positioned **300mm below the road surface** to enhance pavement stability. This was executed using SPL's **380 Cold Recycler**, which efficiently pulverised existing road layers while simultaneously dispensing the geogrid in a seamless **"one-pass" operation**.

Following grid installation, approximately **650 tonnes of tar-bound planings** were imported and spread at a compacted thickness of 50mm before being shaped. SPL then **recycled the top 150mm of the carriageway**, incorporating **2% blended cement (CEM 2 OPC/PFA)** to form a durable **cementitious bound structural layer**.

To further reinforce the surface and enhance longevity, SPL deployed its **SECMAR Combination Units** to apply a high-performance **Surface Dressing**. This included a **10mm stone application with a premium binder**, followed by a **6mm stone overlay**, ensuring robust protection against heavy agricultural traffic. Additionally, **asphalt patching** was carried out at high-stress areas, such as the entrance to a busy farmyard, while verge strengthening work supported vulnerable road edges.

Environmental & Commercial Benefits

Low-Carbon, Sustainable Construction

By **recycling over 2000 tonnes of existing materials in place**, SPL significantly reduced the need for quarrying and transportation of new aggregates, **cutting CO_2 emissions and reducing the project's carbon footprint**.

In this case the CO_2 Saving of the 150mm REGEN recycling and dressing element of the work was 72% over conventional asphalt or 96 tonnes of CO_2 which is a significant amount of greenhouse gas emissions, roughly equivalent to the annual emissions of about 320 average homes or the emissions from driving 23,000 miles in an average car.
The process also diverted substantial amounts of waste from landfill, contributing to a more **circular economy**.

Extended Pavement Life & Structural Stability

The combination of the Tensar geogrid, cementitious bound material, and advanced surface dressing has **enhanced pavement strength and durability**, mitigating the impact of **historical shallow clay layers**. This **minimises maintenance costs** and extends the service life of the road, providing long-term savings for the client.

Efficient & Cost-Effective Delivery

The **one-pass grid installation and recycling process** accelerated project completion, reducing both labour and material costs. The ability to **reuse tar-bound planings** also helped to **avoid costly hazardous waste disposal**, offering significant financial savings.

Improved Ride Quality & Reduced Maintenance

By reshaping the uneven surface and reinforcing the foundation, the new pavement provides a **smoother, more resilient road profile**, reducing the impact of **dynamic loadings** from heavy vehicles and **minimising future repair requirements**.

Conclusion

The Kings Delph Drove project highlights the **commercial viability and environmental advantages of In Situ Recycling**. By leveraging innovative techniques and sustainable materials, SPL has delivered a **cost-effective, low-carbon, and highly durable solution** that ensures Cambridgeshire's Road network remains resilient for years to come.

For more information on SPL's sustainable road solutions, contact: **j.osborne@stabilisedpavements.co.uk**