Asphalt Reinforcement Trial on B6454 Musselburgh

Musselburgh, Scotland



TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Asphalt Pavement Reinforcement	**2009**	**East Lothian Council**	**East Lothian Council**	**East Lothian Council**

PROD. RELATED

Challenge

The B6454 Pinkie Road in Musselburgh, East Lothian, experienced consistently heavy traffic volumes, making it a prime candidate for evaluating asphalt pavement reinforcement solutions under real-world conditions. High traffic loading often accelerates pavement deterioration, leading to rutting, fatigue cracking, and surface deformation. To address these challenges and identify a long-term solution for road durability and maintenance reduction, East Lothian Council initiated a site trial in autumn 2009. The objective was to assess the performance of Road Mesh™ asphalt reinforcement compared with alternative systems and unreinforced pavement sections.



The site is located on a busy bus route


Transverse cracking apparent on unreinforced section

Solution

To solve this problem, Road Mesh™ steel mesh reinforcement was installed within asphalt overlays of both 100 mm and 250 mm thicknesses. For performance benchmarking, an adjacent section was constructed using a 250 mm overlay reinforced with a glass fibre geogrid, alongside unreinforced control sections. This comparative approach enabled engineers to evaluate key performance indicators such as resistance to reflective cracking, rutting, and pavement fatigue. Two years after installation, all reinforced sections demonstrated strong performance, confirming the effectiveness of pavement reinforcement in extending service life and improving structural integrity.

This trial highlights Maccaferri's comprehensive range of pavement reinforcement systems, including extruded polymer geogrids, MacGrid AR glass fibre reinforcement, and Road Mesh™ steel mesh. While glass fibre geogrids are effective in reducing reflective cracking in asphalt layers, Road Mesh™ provides structural pavement reinforcement, delivering enhanced load distribution and significantly reducing rutting, shoving, and fatigue-related damage. This makes it particularly suitable for high-traffic roads and heavy load applications.

Road Mesh™ is manufactured from hexagonal woven steel wire mesh, with transverse steel bars integrated every 160 mm to ensure stability and mechanical interlock. The steel is heavily galvanised in accordance with BS EN 10244-2 Class A, offering a design life exceeding 60 years, making it a durable and cost-effective solution for long-term infrastructure performance. Its open mesh design allows optimal bonding between the existing pavement and the asphalt overlay, ensuring that the reinforcement layer does not compromise adhesion.

Ongoing monitoring of the B6454 trial continues to provide valuable insights into the long-term performance of asphalt reinforcement technologies, supporting engineers and asset managers in selecting the most effective solutions for road construction, rehabilitation, and maintenance strategies.

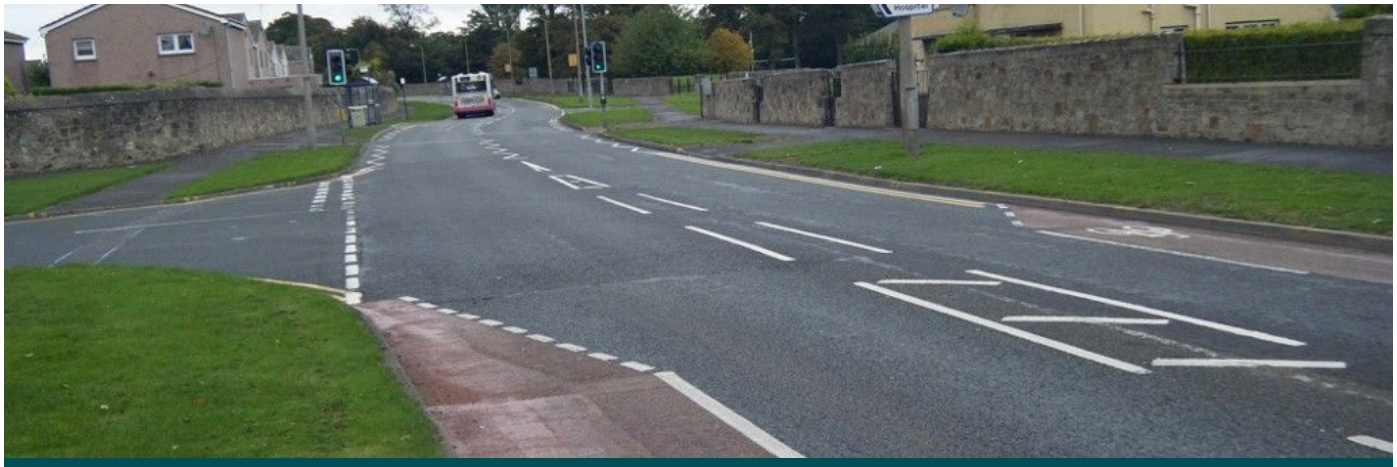
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The trial site uses both Road Mesh™ and geogrid



Road Mesh was installed in two different overlay thickness



Prior to overlay, the pavement required constant maintenance

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