

Eastern Way, Carlisle

Product

Heidelberg Materials Tufflayer

196 tonnes

Client

Cumbria County Council

Project overview

Heidelberg Materials Tufflayer asphalt has been used as an alternative to geogrid asphalt to extend the life of the Eastern Way in Carlisle.



Project description

Tufflayer high-performance asphalt stress absorbing membrane interlayer (SAMI) offers an alternative to geogrid asphalt, reinforcing layers by providing a highly polymerised crack relief interlay solution.

It incorporates Shell Cariphalte Dense Mixture bitumen to achieve optimal flexibility, enhancing fatigue resistance by significantly delaying the effects of reflective cracking. Heidelberg Materials completed a two-phase scheme on the C1045 Eastern Way, Carlisle, using Tufflayer as an alternative to geogrid for the first time in the North West of England.

The scheme consisted of planing out approximately 120mm of existing surfacing down to an existing concrete slab construction. On top of this Heidelberg Materials installed a 25mm layer of Tufflayer, then 50mm of AC20 HDM binder, with a 45mm layer of HRA 35/14 and pre-coated chippings for the surface course.

Laid by conventional paving equipment Tufflayer absorbs any movement in the lower structural layers of the road, resulting in significant delays in reflective cracking. It also creates an impermeable layer, protecting the structure of the road from water ingress.

The Tufflayer design is produced from locally sourced suitable crushed rock fines, limestone filler and has a high bitumen content. The unique design has relatively low surface texture and a very low void content, making it an ideal choice for concrete overlay or applications where reflective cracking may be an issue.

Tufflayer is a cost-effective alternative to geogrids as a thinner layer can be used, reducing cooling time and allowing more work to be completed in one shift, saving time and money. Using the product as a replacement for geogrids provides a superior design solution at a reduced whole life cost.

“Tufflayer doesn’t require a specialist installation team or equipment,” said Keith Field, technical adviser, Cumbria County Council. “It also has the added benefit of not being a ridged integrated system, which could be damaged in future excavations into the carriageway by maintenance and utility operations, practically on the urban road network.”

“We will be closely monitoring the performance of this product as it is hoped it will provide an ideal solution for maintaining roads with concrete foundations across the county.”

Eastern Way, Carlisle



Benefits of Tufflayer

- High levels of flexibility
- Significant delays in reflective cracking
- Protects lower pavement from water ingress
- Cost effective over the whole life
- Laid with conventional paving equipment
- Recyclable

Technical Data

- Target thickness 25mm
- Minimum overlay thickness 35-40mm
- Typical laying temperature 160-175°C
- In-situ voids 0.5-2.0%
- Resistance to deformation Class 2 60°C (CI 943 requirement)
- Fatigue life up to 25 times higher when compared to a conventional bitumen solution