



Tensar®

**ROADS AND
PLATFORMS**

Tensar's TriAx® geogrid was used to stiffen the unbound capping layer, as an alternative to lime stabilisation and 'dig and replace' solutions.

Stable footing

Using geogrid to mechanically stabilise founding aggregate layers saved an estimated £2m on the A556 improvement scheme.

CLIENT'S CHALLENGE

Principal Contractor Costain needed a cost-effective solution to deal with highly variable and challenging ground, including thick layers of very soft clay, on sections of the A556 Knutsford to Bowden Improvement Scheme.

TENSAR SOLUTION

Tensar's TriAx® geogrid was used to stiffen the unbound capping layer on two sections of the new road, as an alternative to lime stabilisation and 'dig and replace' solutions.

The cost-effective approach complied with Highways England design standards, exceeded bearing capacity requirements and had a beneficial effect on the programme.

A556 improvement scheme

Subgrade stabilisation

📍 Cheshire, UK

BENEFITS

£2m
in construction costs saved

10,000
lorry movements avoided

Time savings

significant time savings compared with alternative solutions

REF TEN365



TriAx delivered a bearing capacity at the top of the granular layer of between 60 and 70MPa, higher than the 50MPa required.

PROJECT BACKGROUND

The A556 Knutsford to Bowden Improvement Scheme involved building a new offline 7.5km dual carriageway between the M6 and M56 in Cheshire to relieve congestion and improve safety.

Designed for a capacity of over 80M Equivalent Standard Axle Loads (ESALs), the road pavement comprised a 250mm thick unbound granular capping layer with two, 150mm thick layers of cement bound granular material (CBGM) above and, finally, 160-180mm of asphalt.

The highly variable ground conditions were challenging, from very dense granular material to thick layers of very soft clay with a CBR of between 1.5% and 2%.

As the road design required a minimum CBR of 2.5%, Principal Contractor Costain needed a way of dealing with the soft clay on two sections. After rejecting lime stabilisation and 'dig and replace' on grounds of cost and timescale, it chose a solution from Tensar to stiffen the unbound capping layer using TriAx geogrid.

The TriAx interlocked with the aggregate under trafficking load, confining lateral movement of the particles to create a mechanically stabilised layer. This reduced rutting and cracking of the asphalt and helped prevent moisture and contaminants entering and weakening the structure, increasing pavement life.

TriAx delivered a bearing capacity at the top of the granular layer of between 60 and 70MPa, higher than the 50MPa required. Further trafficking tests at the top of the first CGBM layer showed bearing capacity far exceeded the required 100MPa, reaching 700MPa. An estimated £2m was saved on material and construction costs, compared with the alternative solutions.

Principal contractor:

Costain

Consultant:

Capita

Independent Quality Verification Team:

Atkins

Client:

Highways England

"We found the TriAx solution to be a faster, more simple and cost-effective alternative to lime stabilisation or dig and replace. The TriAx was easy to lay, with little effect on the construction programme, plus the method was far safer than other options."

Anthony Mackenzie

Senior Engineer

Costain

Tensar International Limited

Units 2-4 Cunningham Court Shadsworth Business Park
Blackburn. United Kingdom BB1 2QX

T. +44(0)1254 262431 | Visit: [tensarinternational.com](https://www.tensarinternational.com)

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