



Tensor®

**WALLS
AND SLOPES**

TensorTech® TW1-ME Wall System does not require heavy lifting equipment, minimising disruption to road users

Structurally sound, aesthetically appealing

A part of the CPEC (China-Pakistan Economic Corridor) programme, the Karachi-Hyderabad (M9) 4 lane super-highway required conversion to 8 lanes, as well as re-surfacing of the existing lanes.

CLIENT'S CHALLENGE

Several important design requirements had to be included in this key project, for example a small footprint was necessary due to its location within an urban area and for the same reason, pedestrian access was accommodated within the design. Another key element was that the retaining structures should be aesthetically appealing, due to their proximity to the local population. It was also important that utilities such as water, fibre optics, gas, telephone networks remained accessible.

TENSAR SOLUTION

The TensorTech® TW1-ME Wall System was proposed by TerraStructures, Tensor's partner in Pakistan. This was accepted by the client due to its aesthetically appealing look, structural durability and cost effectiveness. Reinforced soil steps for pedestrian access were incorporated in the design and customised solutions were designed to accommodate the utilities.

M9 Karachi - Hyderabad Motorway

Earth Retaining Walls

📍 Karachi, Pakistan

BENEFITS

33% cost savings

using TensorTech® TW1-ME Wall System

Aesthetically pleasing

using modular blocks for pedestrian access

75,000 modular concrete blocks

were installed successfully

REF TEN416



Modular concrete blocks were installed to form narrow curves around the bridge abutments and pedestrian access

PROJECT BACKGROUND

The Port of Karachi is one of South Asia's largest and busiest deep-water seaports, handling about 60% of the nation's cargo. This is transported to the rest of the country, mainly via the Motorway M9, making it one of the busiest motorways in Pakistan.

The design and installation of the TensarTech® TW1-ME reinforced soil retaining wall system played a key role in converting the M9 to 8 lanes (6 traffic lanes + 2 shoulder lanes).

3-D modelling techniques using AutoCAD® allowed visualisation of the TensarTech® TW1-ME Wall System at an early stage. All detailed design work was carried out by TerraStructures' expert engineers in the United Kingdom.

After approval from all stakeholders, more than 1 km of TensarTech® TW1-ME walls were installed successfully on the north and south sides of the Motorway M9, with a total face area of 6,000 m² requiring about 75,000 modular concrete blocks.

The versatile modular concrete facing blocks were installed to form narrow curves around the skewed bridge abutments and associated pedestrian access staircases as can be seen in the photograph above.

Main Contractor:
Frontier Works Organisation

Consultant:
National Engineering Services Pakistan (NESPAK)

Client:
National Highway Authority

“Our turnkey solution resulted in large project cost savings and peace of mind for all stakeholders”

Murtaza Khan
Director
M/S TerraStructures

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