



Installation of Tensar geogrids during construction of a Tensar Mechanically Stabilised Layer (MSL)



Paved Roads
Nº 449

Internal Roads in Al Ramla, Al Musalla, Al Muhazab

Umm Al Quawain, UAE

CONSTRUCTED IN 2019-2020

Benefits

15% savings in cost
compared to conventional pavement design

30% reduction
in carbon emissions

Time and resource savings
from an accelerated construction programme

Stable roads all the way

MOEI decided to upgrade the existing internal roads in the Al Ramla, Al Nifa, Al Musalla, Al Muhazab areas in Umm Al Quwain by rehabilitating the existing lanes and constructing new ones. The project was aimed at providing better connectivity between local communities and the adjacent highways to improve the standard of living.

CLIENT'S CHALLENGE

Infrastructure contractor Darwish Engineering Emirates was awarded the project: Construction & Completion of Internal Roads in Al Ramla, Al Nifa, Al Musalla and Al Muhazab in Umm Al Quwain, UAE. Tensar value engineered the conventional pavement design for better economy and sustainability.

TENSAR SOLUTION

Tensar's role in this project was the subgrade stabilisation of weak soils in some areas. During these works, Tensar identified an improved solution to the conventional pavement design over competent subgrade for all the internal roads in the contract.

Tensar provided an alternative, improved design for the conventional pavement sections of the roads. The solution was to incorporate a layer of Tensar stabilisation geogrid in the aggregate base course. Compared to the conventional design of pavement over competent subgrade, this eliminated the subbase layer and therefore increased the cost-effectiveness of the pavement whilst maintaining the required performance. This resulted in reduced overall project costs, thereby offering savings to the contractor.



Completed road open for traffic

PROJECT BACKGROUND

Infrastructure contractor Darwish Engineering Emirates was awarded with the project for the construction and completion of the Internal Roads in Al Ramla, Al Nefa, Al Musalla and Al Muhazab in Umm Al Quwain, UAE.

The project was initially designed with conventional pavements over competent subgrade. Where low strength subgrade soils were encountered, Tensor proposed a solution using a Tensor MSL to stabilise the subgrade for the construction and completion of the internal roads in AL Ramla (see case study ref: 448). During these works, Tensor identified an improved solution to the conventional pavement design over competent subgrade for all the internal roads in the contract.

The inclusion of a Tensor Mechanically Stabilised Layer (MSL) helped to keep the project cost on budget and offered savings to the contractor.

For the non-sabkha areas, Tensor provided an alternative optimal design for the pavement sections on the proposed roads, against the conventional design over competent subgrade, by incorporating a Tensor MSL in the aggregate base course. This eliminated the subbase layer and increased the cost-effectiveness of the pavement whilst meeting the required performance.

Client

Ministry of Energy and Infrastructure (MOEI)

Consultant

CHSS MENA

Contractor

Darwish Engineering Emirates, UAE

Distributor

Pioneers of the Middle East (POME)

Comparing a conventional road section against Tensor’s MSL

Conventional Section Tensor Mechanically Stabilised Section

