

**PORT OF GUAYMAS**  
**BASAL REINFORCEMENT, GUAYMAS, SONORA**

**BASAL REINFORCEMENT**

**Product: ParaLink® 400 and ParaLink® 600**

**Problem**

The Port of Guaymas functions as a shipping, manufacturing, commercial and tourism centre.

When the port authority started a two phase program of expansion to meet growing demand for containerised cargo handling in addition to the port's traditional markets of agricultural and mineral bulk, there was a strong possibility of differential settlement or collapse upon the soft and unstable ground in the loading bays. This area had been experiencing differential settlements due to very soft soils (CBR = 1 / 3) and heavy loads up to 440 kN/m<sup>2</sup>.

**Solution**

Differential settlements can be controlled by the construction of a basal platform to spread the loading upon the ground. The performance of this platform can be enhanced by the use of high strength geosynthetic geogrids. These grids absorb, spread, span or dissipate the applied loads vertically downwards into the ground or into the piles, therefore, strengthening the soft subsoil.

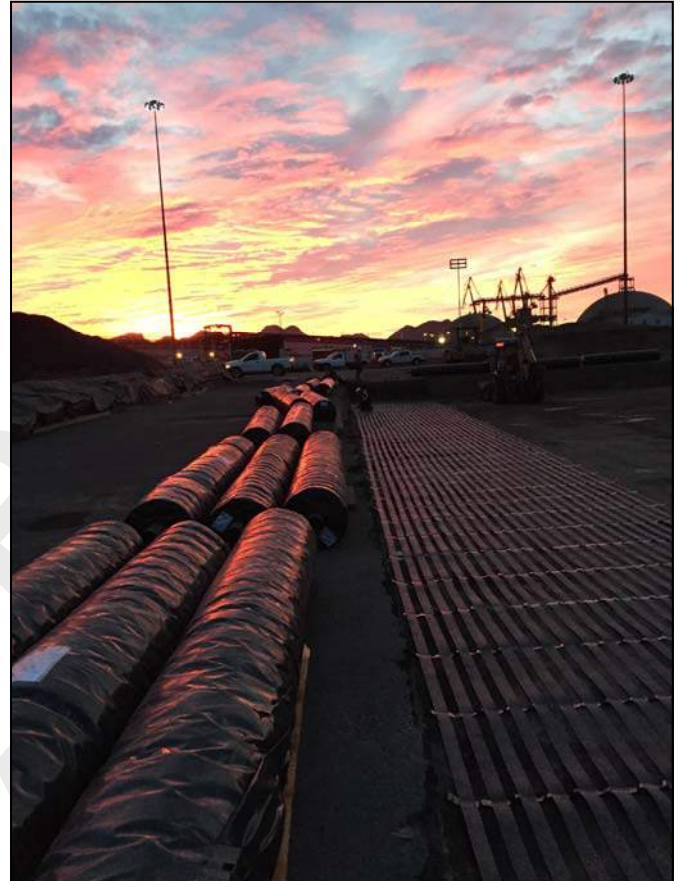
Maccaferri's solution ParaLink® was selected for the job. We worked closely with the contractor Punta Mero to supply rolls, which were supplied to the project site cut to size to minimise wastage and maximise efficiency.

More than 28,000 m<sup>2</sup> of ParaLink® was laid in four layers with a depth of 1.2 m and filled with granular material, which was then topped with 30 cm thick concrete slabs.

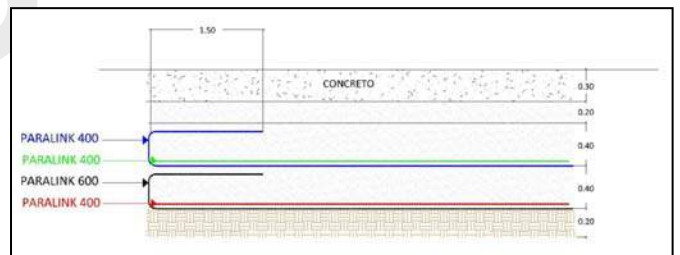
**Material Description**

ParaLink® Geogrids are planar structures consisting of a mono-axial array of high strength composite geosynthetic strips. Each longitudinal strip has a core of low creep polyester yarn encased in a tough polyethylene sheathing. When installed it provides ultra-high unidirectional strength in soil reinforcement and absorb, spread, span or dissipate the applied loads.

At Port of Guaymas 600 and 400 kN/m strength geogrids were supplied.



Material in stock at Sonora



Typical cross section

Client:

API GUAYMAS

Main contractor:

PUNTA MERO

Designer:

MACCAFERRI MEXICO

Products used:

PARALINK® 400, PARALINK® 600

Date of construction

FEBRUARY 2015



Job site



ParaLink® 600 first layer installation



ParaLink® 400 installation



Placing filling material



Compaction phase



Final stage of ParaLink installation



Concrete pavement

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