



# Punta Raton Beach

## Slope Erosion Control

Beach Properties, San Carlos, Panama, Republica de Panama

Case Study



GeoCeldas 3D

Panaostrich Corporation, S.A.

### Background:

The hilly Pacific coastline of Panama has witnessed the force of many storms and severe erosion forces in years past, leading to a problem for the Punta Raton Beach Residences. In order to procure the most property out of the available space, contractors have been required to cut into the bordering slopes at a 70 degree angle,



Punta Raton Beach Properties  
(Pre-Envirogrid Slope Erosion Control System)

### Technical Information:

Materials Used: EnviroGrid 4" EGA30 2,100m<sup>2</sup>

Application: Slope Erosion Control

Project Length: August 2010 (4 weeks)



Finished Project showing termination of material  
(Left is complete, Right is original slope)

### Problem and Objective:

Heavy rains and wind in the coastal area as well as strong water flows coming down from the mountains during these storms have led to significant material loss on the edges of these properties. The continental sand is washing out, leaving heavily rutted and crumbling bluffs that must be protected.

The decision was made to protect the existing slopes with some type of erosion control system, reconstruct the face of the slopes, and restore vegetated cover to the area.

## Design Solutions:

After analyzing many possible solutions in the geosynthetics market, Panaweb found out that the only system that could solve this problem in an efficient, fast, and cost-effective way while still being environmentally friendly was the EnviroGrid cellular confinement system,

## Construction Overview:

Construction began on the slopes, which were considered in critical condition at the time of the project. The soil in the area was very unstable, loose, and sandy. They proceeded to install the EnviroGrid material on the slopes, using a dead man anchor at the top connected to polyethylene tendons to support the material and prevent sliding. The cells were then filled with sandy soil. At times, this process was impossible with heavy machinery and the cells had to be filled by hand. After compacted, the slopes were hydroseeded with the root medium *Brachiaria* (by Hydro-green of Panama) and several days were given to allow the vegetation to grow.

## Results:

After 8 days of watering, vegetation began to take root and by 3 weeks abundant vegetation had grown on the slopes. The problem was solved. The EnviroGrid cellular confinement system impeded further erosion and confined the soils on the slope to allow grass and other vegetation to grow,

The EnviroGrid system was able to control erosion while making the Punta Raton Beach Properties more attractive to international investors.



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