

# RIVERBANK PROTECTION

*Geo Products, LLC | EnviroGrid® GeoCell  
Panaostrich Corporation, S.A. | Panaweb*

## *Background*

The strong currents of the famous rebel Guayabo River at its highest point in the Anton Valley watershed almost destroyed a large area of privately owned land. Constant changes in the water levels have eroded the banks, causing ancient trees to fall into the river's grasp. The construction of luxury residences, "Los Portales" was suspended as the fight against nature seemed insurmountable.

## *Technical Information*

### **MATERIALS USED:**

EnviroGrid® EGA30 6" 6,500m2  
(Retaining Wall)

EnviroGrid® EGA30 4" 1,000m2  
(Slope Erosion Control)

### **PROJECT LENGTH:**

5 months  
12 man crew



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Los Portales, Rio Guayabo  
Pre-EnviroGrid® GeoCell



Los Portales, Rio Guayabo  
With EnviroGrid®

## *Problem & Objective*

After realizing that traditional methods would not solve the erosion problem, the owners of Los Portales had to choose between implementing new technology or abandoning the entire residential project. Panaweb technicians suggested the EnviroGrid® Geocell as a solution.

## *Design Solution*

EnviroGrid® was used to create a monolithic system, comprised of retaining walls and slope protection, resistant to erosion above and below the natural river walls. The system reshaped the river banks to soften the course of flow and established proper drainage from surrounding areas. Adjacent slopes were protected and the resulting system was vegetated to provide a long term solution.

## *Construction Overview*

During the dry season, the riverbed was excavated to 1.5m below natural grade to allow for construction of a stable foundation resistant to the erosive forces of the river. EnviroGrid® layers, 6" tall and 5 cells deep were stacked to build a 3m high, 212m long retaining wall. The layers below the natural river bottom were wrapped with a non-woven geotextile to prevent undermining of the system. The front 2 cells of each wall were filled with lean concrete, and the remainder filled with local gravel and stones. The slopes above the wall were reshaped to 45 degrees and protected with the EnviroGrid® panels, filled with local dirt and vegetated immediately with Chorrerana grass. The few trees remaining at the river's edge were protected with individual retaining walls.

## *Results*

Contractors were able to complete the residential project on time while restoring the natural environment. The property owners were ecstatic with the beautiful and functional results of the project. Flooding is now a thing of the past, and the EnviroGrid® system was integrated into the natural terrain, while keeping the Rio Guayabo in its natural course.

