Case Study

PANAWEB

Panaostrich Corporation, S.A.

Bijao Beach Resort

Slope Erosion Control

Santa Clara, Carretara Interamerica, Panama, Republica de Panama

Background:

The Bijao Beach Resort community resides in the balmy region of Panama near Santa Clara's beaches. It was constructed as a luxury resort to compete with nearby Playa Blanca and Decameron. An artificial mountain was created to enhance the geography of the resort. Native soil of the area was compacted and stabilized with biaxial geogrid, but rain has wreaked havoc upon the slopes. Severe erosion has caused extremely large ruts to form in the sides of the mountain which threaten its integrity.

Bijao Beach Resort
(Pre-Envirogrid Slope Erosion Control System)

Technical Information:

Materials Used:	EnviroGrid EGA304 4,200 m2
Application:	Slope Erosion Control
Project Length:	March 2009 (2 weeks) 8 man Crew

Problem and Objective:

Initially when the mountain was developed biaxial geogrid was used as stabilization, but as the rains eroded away large portions of the slope it was determined that this material was inappropriate for the application. These slopes were extremely steep, measuring sixty-five to seventy degrees, and lacked any type of vegetation. The opening date of the resort set a narrow time frame for completion of the project and forced contractors to find an aesthetically pleasing, quick solution that would efficiently solve the problem without excess cost.

Design Solutions:

The Envirogrid 3D cellular confinement system was chosen by project engineers as the perfect solution to their problem. After analyzing several other products it was determined to be the most effective system for protecting the slopes involved.

The slopes consisted of two twenty-three meter long portions separated by a five meter shelf midway down the slope.

Construction Overview:

A 4" perforated EnviroGrid 3D cellular confinement system was used and placed directly on the slopes. The EnviroGrid panels were anchored in place with polyester tendons along the entire slope including the 5 meter shelf area. The tendons were dead-man anchored at the top of the slope and adjacent panels stapled. The EnviroGrid was filled with local sandy soil and hydro seeded with Saint Augustine grass seed. The 4,500 m2 of EnviroGrid were installed in 2 weeks by a crew of eight men.

Results:

After construction contractors continued to irrigate the slope, preventing additional erosion within the cells while the vegetation was taking root. At 4 weeks, abundant vegetation growth was observed and responsible gardeners kept the slope hydrated.

The goal to control the erosion of the slopes from heavy rains and improper initial design was accomplished and the community was able to proceed with the construction of the Bijao Beach and Golf Resort Community.

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