



CASE STUDY

Channel Infrastructure Dam Improvement: Water Flow and Structural Stability

LOCATION: El Paso, Texas

PROJECT TYPE: Product Supply, and Installation

PRODUCT USED: Geocell, Articulated Concrete Blocks & TE-8 Non-woven Geotextile



CHALLENGE:

El Paso's varied terrain and urban growth in hilly regions have significantly changed its water flow and management properties.

After multiple high-intensity rainstorms caused structural damage to a concrete channel and posed risks to both property and residents, the City of El Paso sought a solution to enhance the existing infrastructure and improve channel conveyance.

CONVENTIONAL VS. TITAN SOLUTION:

El Paso Water was challenged with creating a low-impact design to withstand rain events that accumulated rock and silt in the Bear Ridge Channel.

Before rehabilitation, the infrastructure consisted of concrete line channels that did not reduce the speed of water flow or catch the collected debris.

The City Of El Paso adopted the use of ACB's and geocell technology to create a low impact design.



Channel Pre - Rehabilitation



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CONVENTIONAL VS. TITAN SOLUTION CONT'D:

Articulated Concrete Blocks or “ACB” integrated strong, flexible stainless-steel cables into high-strength concrete, providing durability and flexibility as an erosion control measure.

Geocell panels allowed for vertical drainage due to the perforations on the cell walls. TE Nonwoven geotextile was used to separate the rock infill from the natural subgrade while allowing water flow.

Titan’s operations Team created a panel layout based on the site drawings. With this on hand, custom-made panels were manufactured, which minimized waste on-site. Installation time was reduced by attaching adjacent panels prior to deployment.

ACHIEVEMENT

The improvement of the Channel reduces the amount of debris accumulation, slows the speed of water as it flows off the mountain, and lowers overflow risks to the surrounding residents. The perforated geocell allows lateral flow, and the open cells let the water drain vertically to replenish the aquifer.

A trusted geosynthetic solutions supplier and installer, Titan provided efficiencies on the installation that reduced the time and cost of this phase.

Given the challenges of navigating heavy equipment in the residential area, trucks were used to side-dump the rock directly onto the geocell, significantly reducing the need for material rehandling.



Geocell Installation



Arial shot of channel



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ACHIEVEMENT CONT'D

Approximately 164,176 ft² (15,252 m²) of custom geocell panels were supplied by Titan along with 2,700 ft² (251 m²) open cell ACBs 4.75" in thickness and 180,000 ft² (16,723 m²) of TE-8 Nonwoven Geotextile.

Committed to adding value to our customers, our technical team installed the nonwoven geotextile and geocell.



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