

## CASE STUDY

**Slope Reinforcement | Reinforcement | Acornhoek Mall, Hoedspruit, Mpumalanga**

Apr 2013

Client John McCormick Properties

Contractor ALSBEE Projects

Consultant TMW Consulting Engineers

Product **Bidim® A2, 75mm Flo-pipe & Miragrid GX 75/75**

For Kaytech Winnie Botha

### Problem

A large expansion project at the Acornhoek Mall Shopping Centre on the R 40 between Hazyview and Hoedspruit involved the construction of a platform on which to build a new Shoprite Checkers centre. In order to stabilize the platform, a reinforced soil wall using a concrete block facade needed to be constructed.

### Solution

The Checkers centre was to be built 3 m from this 90 m long wall, which was constructed at an 85° angle and ranged in height from 2.5 to 7.5 m.

To ensure proper drainage, a subsoil drain, consisting of **bidim® A2** geotextile wrapped stone aggregate including a 75mm **Flo-Pipe™** was constructed behind the blocks just above the lowest point of the wall. Pipe outlets were placed along the wall at 1 m intervals through the face of the blocks. A second similar drain was installed and connected to a junction box behind the wall.

Before construction started, subsurface water as well as storm water collected at two low points along the retaining wall path, creating a saturated, low bearing pressure foundation soil situation. This problem was solved by a pioneer layer constructed by placing **Miragrid GX® 75/75** geogrid on the saturated base, with **bidim A2** wrapped around a 250 mm dump rock layer, to form a blanket drain. A 300 mm layer of 5% cement-stabilised soil compacted to 93% Mod AASHTO in 150 mm layers was placed above that. The wall foundation was then cast directly over this layer.

**bidim** is a continuous filament, needlepunched nonwoven filtration geotextile, made of carefully selected recycled polyester, in Kaytech's ISO 9001 certified factory in Atlantis.

### Project Benefits

With the installation of these products, the developer is assured of a structurally sound retaining wall that will stand the test of time.



*Miragrid GX 75/75 grid used to reinforce the retaining wall.*



*Part of the reinforced retaining wall at the Acornhoek Mall.*



*Site Overview*