

application

location

product

Segmental block retaining wall

St. Louis, MO

Miragrid® 5XT, Mirafi®140N

THE CHALLENGE

The project consisted of a restaurant/gasoline station combination site that needed a cost effective retaining wall at the rear of the site. Originally the site was designed with a concrete wall, and a modular block wall was considered to help lower the site development costs.

THE DESIGN

The owner approached the local Keystone producer (Kienstra, Inc.) to provide a package of the Keystone block, Mirafi geogrids, and a retaining wall sealed design. The final design was complicated by global stability concerns, temporary excavation stability concerns, and a high water table. By working closely

with PSI, Inc. (the project geotechnical engineer) a final wall design was completed that insured a long term globally stable solution that had a safe temporary excavation.

CONSTRUCTION

The base of the excavation exposed the bedrock and it was noticed that there was water running out of the cut near the top of the bedrock. The reinforced backfill was reviewed and changed to a 1" clean rock, an open graded crushed limestone, to provide a free draining reinforced fill section. Mirafi 140N filter fabric was installed at the back of the excavation to separate the rock from the soil.

The excavation also exposed local soft spots in the foundation where the wall was to be constructed. PSI reviewed the situation and the base of the wall was overexcavated and replaced with compacted crushed rock.

The Keystone wall is 4650 square feet with a 3.5:1 slope above the wall.

This wall project is an excellent example of how there are several entities involved in a quality construction project. Several parties need to be involved at an early stage in the project. The geotechnical engineer needs to be aware of the retaining wall design



requirements such as bearing pressures, geogrid lengths, and global stability concerns. The general contractor needs to be involved to be aware of temporary stability concerns, and to have the geotechnical engineer inspect the foundation prior to wall construction. The wall builder needs to be conscientious and alert the wall designer of changes in construction such as ground water. The design engineer needs to alert the owner early of potential global stability concerns and temporary stability concerns. He needs to be involved during the construction process and be in a position to make quick design modifications. The retaining wall builder needs to know he can call the design engineer when he runs into problems and he needs to know he can get a realistic and quick answer to questions.

JOB OWNER
**McDonald's Restaurant
 and Amoco**

ENGINEER
Farnsworth-Polk

CONTRACTOR
SCR Contracting

Construction of Retaining Wall for McDonald's in St. Louis, MO



Installation of Miragrid® 5XT



Construction of Keystone SRW with Miragrid® 5XT

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