

application

location

product

Reinforced Steepened Slope

Home Depot, Hampton Township, PA

Miragrid® and MiraDRAIN®

THE CHALLENGE

The site for the new Hampton Township Home Depot was in need of a .5:1 reinforced steepened slope to allow for more parking spaces to meet local zoning regulations. A large utility pole and a county road were within feet of the proposed geogrid wall. The geogrid wall measured 30 feet in height and 600 feet in length. The earthwork had to be completed before the coming winter weather.

THE DESIGN

A rapped face geogrid slope was designed with a .5:1 rise utilizing the sandy clay and shale available on site. Wire face baskets were used to simplify installation and compaction at the face. A narrow 4' x 4' rock toe was designed not to infringe on the county road or utility

pole at the base of the slope. An open mesh face was needed to allow room for vegetation to grow. Miragrid® GF1 was selected for this purpose. Miragrid® XT geogrids were used for their excellent long-term design strength.

CONSTRUCTION

MiraDRAIN® G200N composite drains were installed vertically on the existing slope covering 70% of the height and 33% of the total area. The composite was connected to a 15 cm (6 in) perforated pipe that measured the distance of the existing slope. The pipe had bleeder drains every 12 m (40 ft) which daylighted beyond the face of the reinforced slope. The slope was designed by Earth Engineering using primary geogrids every .91 vertical meters (3 ft) and a sec-

ondary geogrid every 45 vertical centimeters (18 in). The primary geogrid consisted of Miragrid® 10XT at the bottom, 8XT in the middle, and 3XT at the top of the slope. The secondary grid used was Miragrid® GF1, which with its open weave, allowed for vegetation at the face. High-galvanized face baskets were used to allow for better compaction at the face and to make the slope as esthetically pleasing as possible.

JOB OWNER:

Home Depot

CIVIL ENGINEER:

Construction Engineering Consultants, Inc.

CONSTRUCTION ENGINEER:

Lennon, Smith and Souleret

EXCAVATING CONTRACTOR:

Richard Lawson Excavating

GRID INSTALLATION CONTRACTOR:

CKS Environmental Installations



PERFORMANCE

During the installation, two major rain events occurred producing no wall failures. Two other walls being installed using competitive products experienced failures during the same time frame. The engineer was very impressed with the Mirafi® design and the performance of the Miragrids®. They will be using this type of design for all reinforced slope projects in Western Pennsylvania.



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