

application **Reinforced Embankment**
 location **Home Depot, Augusta, ME**
 product **Geolon® HS4200 and HS2400**

THE CHALLENGE

Market Place II was a fast track design project with Home Depot as the anchor store. As part of the overall project, a building pad and parking lot was to be constructed 7.6-9.1 m (25-30 ft) above the natural ground surface, which consisted of poor foundation soil of medium stiff silty clay.

The existing soils would not support a conventional geogrid reinforced modular block retaining wall because of the soil's low shear strength and high weight of the blast rock being used as fill material.

Ten Cate Nicolon would be required to review the design approach, engineering calculations, analysis, and deliver the high strength geotextiles to begin construction of a reinforced

embankment within three weeks of the initial design proposal.

THE DESIGN

The engineer submitted an initial design to several national geotechnical product suppliers for their review and recommendations. Ten Cate Nicolon reviewed the initial design and performed a global stability analysis and provided three design and construction options for the reinforced slope. Ten Cate Nicolon was selected to provide the high strength geotextiles, which consisted of one layer of HS2400 with an embedment length of 35 m (115 ft) from the face of the slope at the bottom of the embankment and a second layer of HS2400 with an embedment length of 22.9 m (75 ft) and a 12.2 m (40 ft) set back from the face of slope.

CONSTRUCTION

Construction began on the 1.5:1 reinforced embankment in February 1999. The HS4200 and HS2400 high strength geotextiles were delivered to the job site in master rolls. The contractor was given the steel core dimensions and fabricated a lifting beam and spindle attachment prior to delivery of the geotextile. The entire geotextile laydown was accomplished with one front end loader and one laborer guiding the 15 cm (6 in) overlap. The HS4200 was placed from the face of the slope back over a 30cm (12 in) sand base. An additional 15 cm (6 in) sand cushion was placed on top of

JOB OWNER:

W/S Development Assoc.

ENGINEER:

RW Gillespie & Associates

CONTRACTOR:

RJ Grondin & Sons



Geolon® HS4200 master rolls were delivered to the job site for efficient coverage.



The first layer of HS2400.

the HS4200. The second layer of geotextile, HS2400, was placed with a 12.2 m (40 ft) setback from the toe of the slope. A minimum cover of 45 cm (18 in) of gravel was placed and compacted over the HS2400. The 7.6-9.1 m (25-30 ft) embankment was then constructed with blast rock with a slope of 1.5 to 1 over the high strength geotextile base mat.

PERFORMANCE

The entire reinforced embankment was constructed within the two month time frame required for this fast track design build project. Inclinator data to date indicates no unusual displacement on the reinforced embankment.



Backfill over the HS4200.



The contractor fabricated a lifting beam and spindle attachment to install the HS4200.



The completed 1:5:1 reinforced embankment.

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