Case Study

In 1999 the engineering firm of Camp, Dresser & McKee was examining the options available for a subsurface drainage system as part of the Irwin Creek Equalization Storage Basin for Charlotte-Mecklenburg Utilities in Charlotte, NC. The project would require a subsurface drainage system underneath a 40 million gallon concrete-lined, rebar-reinforced storage basin. This facility presented a significant challenge due to the 2:1 slopes present on the side walls of the basin. Initial consideration was given to placing freedraining aggregate in the subsurface drainage system; however, an alternative was sought due to the logistics of grading aggregate on 2:1 side slopes. Additionally, because rebar would be placed on top of the subsurface drainage system, the drainage material would have to be capable of withstanding foot and construction traffic during the rebar installation and pouring of concrete.

Traditional construction methods call for careful placement of aggregate and rebar installation, a difficult and time-consuming process. Tendrain drainage geocomposite was, therefore, selected as an alternative to the traditional aggregate as the drainage medium. Tendrain is capable of providing all of the drainage capacity of free-draining aggregate, and due to its tri-planar structure, it can withstand foot and light construction traffic without deforming or shifting out of place. Also, the geotextile filter fabric laminated to the top and bottom of the tri-planar geonet acted as a separator to keep the concrete and soil from blinding the tri-planar geonet structure. Therefore, the geotextile layer which is normally installed above and below the free-draining aggregate layer was not required. Tendrain was placed, rebar was installed, and concrete was poured successfully. The use of Tendrain on this project improved constructability, reduced construction time, and resulted in overall cost savings for the owner.