
CASE HISTORY

High flow triplanar geocomposites and geonets for leak detection systems, Volusia County Landfill

PRODUCT	TENAX GNT high flow triplanar geonets TENAX TENDRAIN high flow triplanar geocomposites
LOCATION	Volusia County, Florida
PROJECT	SCS Engineers



PROBLEM

Alternative design and construction of landfill liner systems using Geosynthetic Clay Liners (GCLs) has become more and more popular because GCLs have been accepted by engineers and regulators. In fact, in many common categories of equivalency, GCLs are considered superior to compacted clay liners (CCLs). But traditional geosynthetic drainage composites for leachate collection and leak detection in contact with a GCL layer suffer severe flow rate loss due to intrusion of the soft saturated GCL within the drainage structure.

SOLUTION

With GCLs acting as liners a problem exists because the GCL surface will tend to press against the filter geotextile layer and intrude into the flow channels of a drainage geocomposite. With most geosynthetic drainage composites this is an important concern because geotextile intrusion underneath any soil or substitute soil layer will restrict design flow rates below desired performance levels. The triplanar configuration of TENAX GNT drainage net is designed to prevent such geotextile intrusion and maintain high drainage levels for many years under, over, or between soils and/or substitute soil layers. The outside ribs of TENAX TENDRAIN hold the geotextile and soil away from the drainage net core so that flow restricting intrusion is minimized. TENAX TENDRAIN is the solution to solve interface problems between geosynthetic clay liners, CGLs, and geosynthetic drainage products by providing long term flow rate performance.

CONCLUSIONS

At this landfill in Volusia County, Florida, a leak detection system was developed which required a geonet that would limit intrusion of the GCL into the flow channels of the geonet. The problem of GCL intrusion results in a reduction of flow through the geonet, a situation that was unacceptable on this project. Project engineers, however, discovered that the structure of TENAX TENDRAIN was ideal for use with GCLs because the very structure of TENAX TENDRAIN prevents intrusion into the drainage channels. TENAX TENDRAIN was therefore deployed on this project in the leak detection system, to provide rapid detection of any major breach in the primary liner system, and to limit the head acting on the secondary liner to lengthen the thickness of the LDS.