

Geotextiles and matting improve surfaces

Geotextile works in landfill renovation

When the City of Charlotte decided to convert a landfill site into an 18-hole community golf course, its primary problem was how to stabilize the uneven surface of the landfill into a smooth, well-drained surface for tees and greens.

Moreover, a solution was needed to prevent the landfill from sinking and its contents from pumping up to the surface.

Designers selected heavy-duty geotextiles to solve these problems. Installed over landfill content and fill, geotextiles provide a separating layer between these elements and the top layers of the fill and soil. Additionally, they reinforce and stabilize the uneven content of the fill by spreading the load from above and save contractors money because considerably less fill is needed.

The installation

The first step in preparing the course was to place at least 12 inches of soil on top of the landfill material. Even so, it was anticipated that the subsurface might be unstable in some locations.

Since it was particularly critical that the tees and greens be solidly based, 8 oz.-per-square-yard Supac fabric was unrolled in tee and green locations on top of the backfill material. In addition to reinforcing and stabilizing the subsurface, Supac also acts as a filtering agent.

The fabric was overlapped 12 to 18 inches at the edges and end of each roll and shovelfuls of earth were deposited along the edges and randomly across the width of the fabric to prevent the wind from lifting it. Then approximately six inches of backfill was bladed onto the geotextile.

Before seeding...

Next, six inches of backfill were placed on top of the geotextile, followed by a 20-inch polyethylene sheet, a further six inches of fill, and finally six inches of topsoil prior to planting grass seed.

Supac geotextiles are manufactured by Phillips Fibers Corp. (Greenville, S.C.) with 100 percent manmade fibers that are mechanically interlocked.

Manufactured from polypropylene, a petrochemical-based polymer, Supac geotextiles are chemically and biologically inert. Supac will not decompose in soil due to bacterial or fungal action. It is unaffected by acids, alkalis, oils and most chemical solvents.

Geotextiles are also being used to line several ponds on the golf course and as sedimentation control barriers. They enjoy widespread acceptance in a wide range of civil engineering projects, including reinforcement, stabilization, drainage and erosion control. **LM**



About six inches of backfill was bladed onto the geotextile, spread in the direction of its overlap to keep the fabric from separating.

Matting improves playground surface

The Chicago Park District is using a unique-looking black nylon geomatrix matting underneath playground surfaces to improve drainage and help provide a safer, more consistent playing surface for kids.

The compression-resistant, three-dimensional matting and wood chips are being used to replace sand playing surfaces and on playgrounds with asphalt surfaces. The matting, called Enkadrain, is manufactured by Akzo Industrial Systems, and distributed by American Excelsior Company.

Problems with sand

The sand-based playground design presented several problems: sand clogs drainage systems, children constantly moving it around creating an uneven playing surface, and the children unwittingly carrying it home in pockets, shoes and pants cuffs.

In some Chicago playgrounds, children's play apparatus stood on asphalt surfaces, which made for a

hard landing surface that caused cuts and bruises.

The matting, which comes with a filter cloth on one side, was placed directly onto the existing asphalt paving with the fabric side up. Eighteen inches of fire-resistant, vermin-proof wood chips were placed on top of the matting, which was stapled to the inside of 18-inch-tall timber retaining walls that formed a boundary of the playing area.

The matting, which is available in 0.4- and 0.8-inch thicknesses, resembles a tangle of heavy black nylon fishing line. Its open, three-dimensional nature allows rain water to seep through the wood chips, which are kept out of the matting by the fabric, and into the drainage system.

Other applications

Enkadrain has also been used for highway shoulder drainage and as a drainage medium in commercial and residential planters. Its primary use has been for drainage against subsurface walls where it relieves hydrostatic pressure and helps keep basements dry. □