LOUISA COUNTY LANDFILL: A HALLMARK CLOSURE IN VIRGINIA

ClosureTurf®

Location
Mineral, VA

Owner
Louisa County

Engineer
Joyce Engineering

Project Type
Muncipial Solid Waste Landfill

Year Completed
2015

Size
14 acres

"Overall, we are very pleased with the performance of the site. The synthetic turf cover is holding up very well. Our annual maintenance requirements have been greatly reduced and our steep slopes have maintained integrity with no failures."

- *Jeffery Ferrel, Director of General Services, County of Louisa*

Faced with silty and highly erodible soils, Louisa County turned from traditional closure methods to an advanced engineered closure system that would be the first of its kind in the state.

Traditional final cover systems approved by the Virginia Solid Waste Management Regulations include 18 inches of clay, a geosynthetic clay liner (GCL), or a minimum 40-mil thick geosynthetic membrane barrier, covered by a minimum of 18 inches of protective cover soil and six inches of earthen material capable of vegetative support. Unfortunately, the on-site borrow soils at the landfill in Mineral, VA, were silty and highly erodible and would make maintaining vegetation an almost impossible task. Louisa County, the owner, wanted to avoid the costs and headaches associated with grass maintenance, repairing slope erosion, and removing silt in stormwater ditches and sediment basins.

With support from their consultant, Joyce Engineering, the County obtained approval from the Virginia DEQ to use ClosureTurf®, also a Subtitle D approved solution, as a final closure cap. The County would be the first in Virginia to use the system.

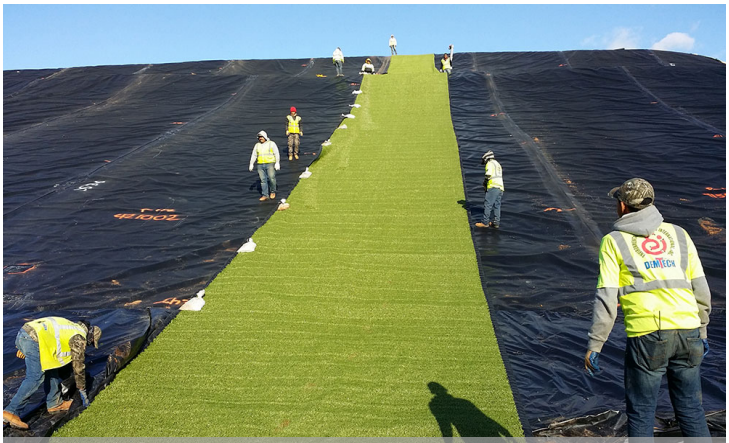
770.777.0386 • www.watershedgeo.com

WG WatershedGeo® Unearthing Solutions

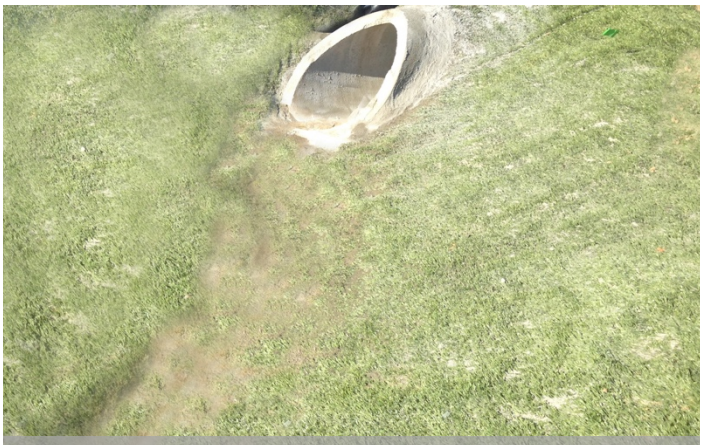
ClosureTurf® solved several of the County's challenges and offered multiple long-term economic advantages. First, it allowed an additional two feet of waste (45,000 cy) valued at $1.5M to be placed within the permitted airspace limits by eliminating the conventional 18-inch infiltration and 6-inch vegetative support layers. The use of ClosureTurf not only provided additional revenue with the additional airspace, but as an industry, it allows for maximization of airspace in already permitted, constructed and approved MSW containment cells. Second, the County estimated an annual savings of $45,000/year on maintenance by eliminating mowing, minimal slope erosion repair and sediment removal in stormwater ditches and sediment basins. Third, because ClosureTurf provides the ability to close in incremental closures, there will be savings on future piggyback expansions.

While sand infill was used on the top decks and slopes, the diversion berms, downslope drainage channels and stormwater conveyance channels were lined with a cementitious infill, called HydroBinder®, to withstand the high velocities from stormwater runoff. Another design feature is that the surficial landfill gas is collected in strips installed below the geomembrane and vented through passive gas vents on spacing no greater than one per acre.

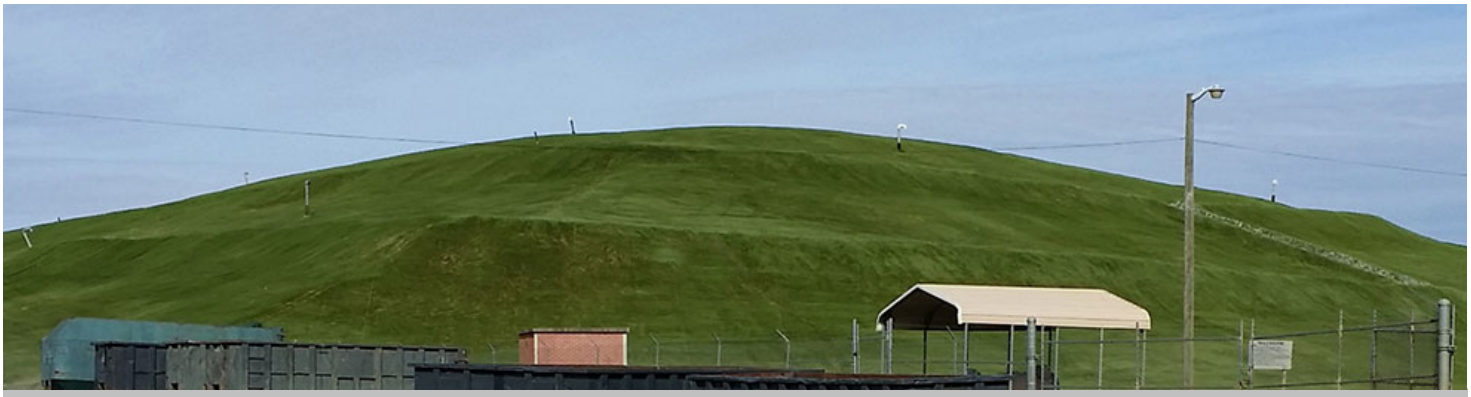
The end result for Louisa County was an aesthetically pleasing, low-maintenance closure that will maintain integrity well beyond the post-closure care period. The project was completed in February 2015 and ClosureTurf is now approved as a final cover system in the state of Virginia. ClosureTurf is being considered on additional sites for MSW and Industrial closures.



The engineered synthetic turf is rolled out over the Super Gripnet® geomembrane.



HydroBinder® is used in the channels for hydraulic protection.



East slope view of final installation.

ClosureTurf product (US Patent Nos. 7,682,105 and 8,585,322; Canadian Patent No. 2,663,170; and other Patents Pending) and registered trademarks are the property of Watershed Geosynthetics, LLC.