



## ClosureTurf®

**Location**  
Richwoods, MO

**Owner**  
IESI- Progressive Waste Solutions

**Project Type**  
Municipal Solid Waste Landfill

**Year Completed**  
2010

**Size**  
10 acres

In December 2010, Progressive Waste Solutions (formerly IESI-BFI Canada) installed ClosureTurf® on ten acres of its Timber Ridge Landfill in Richwoods, MO. The installation at Timber Ridge was the second of its kind. It resulted because of the positive experience IESI had with the very first installation of ClosureTurf at the La Salle Grant Landfill in Louisiana during 2009.

The Timber Ridge Landfill in Richwood, Missouri, had been plagued with a combination of erosion and maintenance issues, and the objective was to implement a closure system that would lower capital costs and minimize the use of the operational resources for maintenance after closure. The landfill was also producing significant amounts of methane and the client wanted to take a proactive approach to capture the methane at early stages of generation.

MADE WITH  
  
STRUCTURED MEMBRANES

  
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ClosureTurf® combined two elements of closure by using geosynthetics to capture methane and prevent water infiltration. The decision to use an engineered turf layer eliminated the soil cover component and promised stability even in severe weather conditions and seismic activity. This design also removed several thousand truckloads of dirt off the road, eliminated the need for mowing and vegetation maintenance such as fertilizer and replacement soil, and also contained landfill emissions resulting in significantly less greenhouse gasses released into the atmosphere.



Compared to traditional closure methods, the project reduced its total carbon footprint from 652,400 kg CO<sup>2</sup>/hectare to 132,200 kg CO<sup>2</sup>/hectare just in the construction, with an additional 500 ft<sup>3</sup> of landfill gas (approximately 50% methane) captured by the geosynthetic system. Furthermore, maintenance costs on the gas collection system alone have been reduced by an estimated \$53,000 per acre during a 30-year period.

This project demonstrated that advanced geosynthetic applications can improve the reliability and performance of landfill closures. In particular, adding a specialized synthetic turf component to a geomembrane can improve on membrane protection, accessibility, wind resistance, and aesthetics. The engineered turf also provides economic and environmental savings. Construction and post-closure maintenance costs are reduced and the new system results in reductions in CO<sup>2</sup> emissions from the construction and the earlier capture of methane gas.

The client was able to address critical components of landfill operations—environmental closure plus gas collection and containment—into one streamlined, cost-effective approach that also reduced environmental impact. The integrated surficial gas collection system has allowed Timber Ridge to harvest high-quality methane that can serve as fuel for future green energy generation. The emissions at Timber Ridge produce little condensate since the gas cools to ambient temperatures as it slowly rises toward the surface. The absence of vertical wells removes the potential for oxygen contamination and thereby increases the potency of the methane. The Timber Ridge system is consistently venting 500 SCFM over a ten-acre closure. Additional value could be realized with potential sales of carbon credits and the development of landfill-gas projects.

The site was recognized for their accomplishments when Agru America Inc. was presented the Outstanding Achievement Award in the 2011 International Achievement Awards (IAA)/ Geosynthetics category presented by the Industrial Fabrics Association International. IESI also received the SWANA Gold Award the same year for their ability to implement ClosureTurf resulting in a significant impact to the betterment of the environment.

***“Capturing 100% methane has provided operations for carbon credits and given us more fuel to burn for generating energy. As soon as an area is closed, all emissions can be controlled which is great. And, the structured membrane protects against oxygen infiltration, eliminating that as a fire pathway.”***

Mike Freisen,  
Regional Engineer,  
IESI, A Progressive Waste  
Solution Company

