



PUMP ROAD DAM

DAM OVERTOPPING



LOCATION

Richmond, VA

OWNER

Henrico County Dept. of
Public Works

ENGINEER

Timmons Group

CONTRACTOR

Exact Stormwater
Management

SIZE/PRODUCT

10,000 sq ft
HydroTurf® CS
Turf Type 1- 75% Field / 25%
Olive Blend

DATE COMPLETED

2019

The Pump Road Dam (also known as the Canterbury Lake Dam) was recently upgraded to meet current Dam Safety Regulations. Henrico County selected the HydroTurf® advanced revetment technology for overtopping protection to comply with these regulations. Cost savings, ease of installation, elimination of road and lane closures, and aesthetics all played a role in their decision.

In May 2018, Henrico County experienced substantial flooding from an historic storm that resulted in over 7-inches of rain. As a result of this storm, the Pump Road Dam overtopped and experienced damage to the downstream side of the embankment. Also, in September of that same year, Hurricane Florence swept through the southeast causing extensive flooding. In preparation for Florence, the county released more than 0.5 million gallons from Canterbury Lake to minimize the potential for overtopping and to reduce the risk of downstream flooding. These events prioritized the renovation of the Pump Road Dam. In late 2018, the Virginia Department of Conservation and Recreation (DCR) approved an alteration permit for the use of HydroTurf for overtopping protection on the Pump Road Dam.

Henrico County's initial design included installing articulated concrete block (ACB) as the revetment solution. However, this would have required mobilizing a large crane and closing Pump Road for staging and offloading of the ACBs. It is a major thoroughfare, and a temporary bypass would need to have been constructed to reroute the traffic.

Instead, Henrico County selected HydroTurf, an exceptional performing, yet cost-efficient revetment solution. The HydroTurf engineered system consists of a structured geomembrane, engineered synthetic turf and a high strength (5000 psi) cementitious infill. Rolls of the geomembrane and engineered turf, along with the bagged infill material, required minimal laydown area and were installed with small, light-weight equipment. This eliminated the need for road closures and the construction of a bypass, as well as shortening the construction timeline. As a result of using the HydroTurf, the county saved approximately \$2 million.

The system has been tested to withstand more than 40 ft/s of water velocity, thus providing a more than sufficient solution to dam overtopping protection. The potential for erosion is eliminated and maintenance is greatly reduced. The engineered turf does not require county workers to maintain the grass; however, its excellent aesthetics will remain year-round. Being that this is a well-traveled route in the county, citizens will notice and appreciate the well-manicured and natural appearance of HydroTurf.



Before installation.



After installation of the HydroTurf® revetment system.



HydroTurf blends into the natural environment mirroring the look of well-manicured, natural grass.



Installation without road or lane closures.

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