Stormwater Management

Pealiquor Road Stormwater Management Retrofit

KEY METRICS

101.5 lb/yr
Total nitrogen removed

6.08 lb/yr
Total phosphorus removed

3.31 tons/yr
Total suspended solids removed

PROJECT DETAILS

Client
Caroline County Department of Planning and Codes

Location
Williston, MD

Dates
Jun 2022 – 2026

Construction status
Construction complete

Construction value
$485K

SERVICES

Stormwater design, Hydrologic monitoring, H&H modeling, Permitting, Construction support, As-built survey

STAKEHOLDERS

MDE, Caroline County Planning Department, Caroline County SCD, Pay Dirt, LLC, Center for Watershed Protection, UMD Sea Grant Extension, USACE

PROJECT DESCRIPTION

Homes on Pealiquor Road in Williston flooded when ditches filled with runoff from a subdivision and farmland and water topped the road. Caroline County retained Sustainable Science for a concept plan and grant materials, then watershed monitoring and design of a stormwater retrofit. The firm gauged flow, groundwater, and rainfall for nine months, modeled the basins in TR-55, sized twin 15-inch culverts under the road, and designed bioswales draining to a stormwater wetland with check dams, plus bench plantings and outlet pipe repair at the farm pond. Pay Dirt, LLC built the project in 2026 under an MDE grant, with Sustainable Science providing construction support, regulatory coordination, and the as-built survey. FieldDoc modeling estimates removal of 101.5 lb/yr of nitrogen, 6.08 lb/yr of phosphorus, and 3.31 tons/yr of sediment.

HIGHLIGHTS

- Modeled 101.5 lb/yr TN, 6.08 lb/yr TP, 3.31 tons/yr TSS removed
- 1.6 ac stormwater wetland built with check dams and bioswales
- Twin 15-inch culverts with 4.5 times the existing pipe area
- About 8,500 CY of excavated soil reused for County ballfields
- MDE final inspection cleared project closeout Aug 31, 2026
- MDE Secretary McIlwain visited the site on June 4, 2026


Aerial of new stormwater wetland


Pipe outlets with riprap apron


Roadside ditch bioswale conversion


Excess dirt for raising low farmland