

Manor Borough Stormwater Retrofit

Design Features: 2 rain gardens, permeable parking spots, concrete curbs and curb cuts, native trees and shrubs, lawn expansion

Date of Installation: 2022

Location: Manor Borough, Westmoreland County PA

Client: Manor Borough

Cost: \$133,500 Growing Greener, \$25,234 Manor Borough cash match, \$20,381.60 Richard King Mellon, \$5,840.89 WCD In-Kind Match

Project Partners: Westmoreland Conservation District, Manor Borough, and KGD Contracting Inc., Richard King Mellon Foundation

Project Contact: Hank Bradish, hank@wcdpa.com



Completed parking lot with permeable parking spots

Project Specifications

In order to combat stormwater runoff from flooding and depositing sediment in Brush Creek, this project investigated and applied stormwater best management practices to the 1 acre Borough building and parking lot. Two rain gardens were installed to help control runoff and filter out pollutants that may create runoff. Approximately 1,120 square feet of permeable pavers were added to allow the stormwater to infiltrate through cracks between the pavers into the soil layer below. Concrete curbs and cuts directed stormwater from the parking lot into the rain garden. Additionally, 12 native trees and 17 shrubs were planted to promote water infiltration.

Benefits/Performance Measures

Through the applied best management practices, stormwater runoff was captured, treated, and reduced from an uncontrolled parking lot. It reduced impervious areas by eliminating unused pavement and reduced pollutants and the volume of runoff. The project also reduced pollutant loads, which is broken down below by best management practice type.

Pollutant Load Reductions

BMP	NO3/yr	TP/year	TSS/year
Rain Garden	1.1 lbs	2.2 lbs	620 lbs
Permeable Paving	0.02 lbs	0.02 lbs	4.7 lbs

TSS-total suspended solids TP-total phosphorous NO3-nitrate

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Re-defined parking lot



Rain garden and native shrubs



Turf stone permeable pavers



Eco-optiloc permeable pavers

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Rain garden two years after construction



Premeable pavers two years after construction



Planted trees two years after construction