Cascading Grassed Waterway: A Case Study

Wrestle Creek
Auglaize River Watershed
Allen County, Ohio

Cascading waterway systems are an enhancement of the grassed waterway best management practice that can help farmers more effectively manage water on their land. By combining erosion control benefits of grassed waterways with water holding capacity benefits of small retention cells, cascading waterways can be a cost-effective way to slow down water, settle out sediment, and filter nutrients in the water by allowing it to seep through the soil profile. By providing a way to catch water from surface runoff and the subsurface tile system, cascading waterways can help direct and hold water away from fields.

This project was done to correct severe gully erosion that had formed in an existing grassed waterway. By also retrofitting existing subsurface tile to drain more than 70 acres of surrounding farmland into 3,100 linear feet of a newly created cascading waterway system that contained four small retention cell areas within it, we were able to to create more than one acre-ft of additional water holding capacity. This cascading waterway system is one of the first installations of its kind in Ohio and is the longest cascading waterway built in the state as of 2019.

Partners on this project include the landowner, The Nature Conservancy, Allen County Soil and Water Conservation District, and Ohio Department of Agriculture. Funding for the project is provided by the landowner, Ohio Environmental Protection Agency Section 319, and Great Lakes Restoration Initiative grant funding. Ohio Department of Agriculture completed the engineering and design work. Allen County Soil and Water Conservation District provided on-site technical assistance. Excavation and tile retrofit was provided by Alan Myers, LLC and Myers Farm Drainage. For more information about this project contact The Nature Conservancy at (419) 782-0652.

Before Construction

During Construction

During Construction

Cascading Grassed Waterway: A Case Study Wrestle Creek, Auglaize River Allen County, OH

Site Physical Characteristics

- Soils: Pewamo silty clay loam, 0-1% slope; Blount silt loam, end moraine, 2-4% slope
- Land use: Corn-soybean rotation

Project Scope

- Drainage Area, 70 acres
- Length, 3,100 linear feet
- Width, 28 to 59 feet

Project Costs

Total Construction Project Costs: $71,686

Subsurface tile retrofit: $16,486

- 1,308 ft of 6-in tile, 2,876 ft of 8-in tile, 175 ft of 12-in tile, connections and fittings

Earthwork: $39,500

- 4,035 cubic yards waterway (cut), 1,959 cubic yards retention cell (cut), and 130 cubic yards (fill); spoiled on site
- Removed existing clay tile
- Riprap rock (112 tons)

Prepping, Seeding, Mulching: $3,900

- 2.5 acres

Erosion Control Splash Pads (2): $4,300

Erosion Control Blanket: $7,500

- 48,432 square ft

Survey, engineering design, technical assistance: $0

- Provided by Ohio Department of Agriculture

The Nature Conservancy
The Western Lake Erie Basin Agriculture Project Office
210 Clinton Street
Defiance, OH 43512
nature.org/ohio

Ohio Environmental Protection Agency

This publication was financed in part or totally through a grant from the Ohio Environmental Protection Agency under the provisions of the U.S. EPA Great Lakes Restoration Initiative. The contents and views, including any opinions, findings, or conclusions or recommendations, contained in this publication are those of the authors and have not been subject to any Ohio Environmental Protection Agency peer or administrative review and may not necessarily reflect the views of the Ohio Environmental Protection Agency and no official endorsement should be inferred.