



Native tree plantings



Natural materials to prevent bank erosion



Concrete drop structure

## VILLAGE OF BRATENAHL

### NINE MILE CREEK RESTORATION

In 2019, the Northeast Ohio Regional Sewer District (NEORS) was approached for advice and support on preventing further damage and reconfiguring the stream to make better use of the floodplain along Nine Mile Creek in the Village of Bratenahl. Through Chagrin River Watershed's Partnership (CRWP) with Bluestone Conservation through the Central Lake Erie Basin Collaborative, a regional program supported by the George Gund Foundation, CRWP secured an Ohio EPA Section 319(h) Nonpoint Source Program grant in the amount of \$274,273.50. Additionally, NEORS contributed more than \$435,000 in cash match to the project.

Prior to restoration, high storm flows exiting the culvert severely eroded the Bratenahl meanders and the displaced earth was washed to Lake Erie where it became a pollutant load. The streambed was entrenched below the natural floodplain, meander-cut banks were eroding outward, large floodplain trees were being lost, and the natural habitat was diminishing.

This project restored approximately 2200 linear feet of stream bank and 3.2 acres of riparian enhancement while employing as many nature-based approaches as possible. Several riffle structures were installed and the stream banks were graded to create a shallow and smooth transition from streambed to floodplain. The strategic placement of tree trunks and other woody materials helps to prevent bank erosion and approximately 1,200 tons of gravel, cobbles, and boulders now guard stream banks against flood scour. The longtime failing outfall was replaced with a concrete drop structure and ecological restoration made use of native trees, shrubs, and ground plants.