

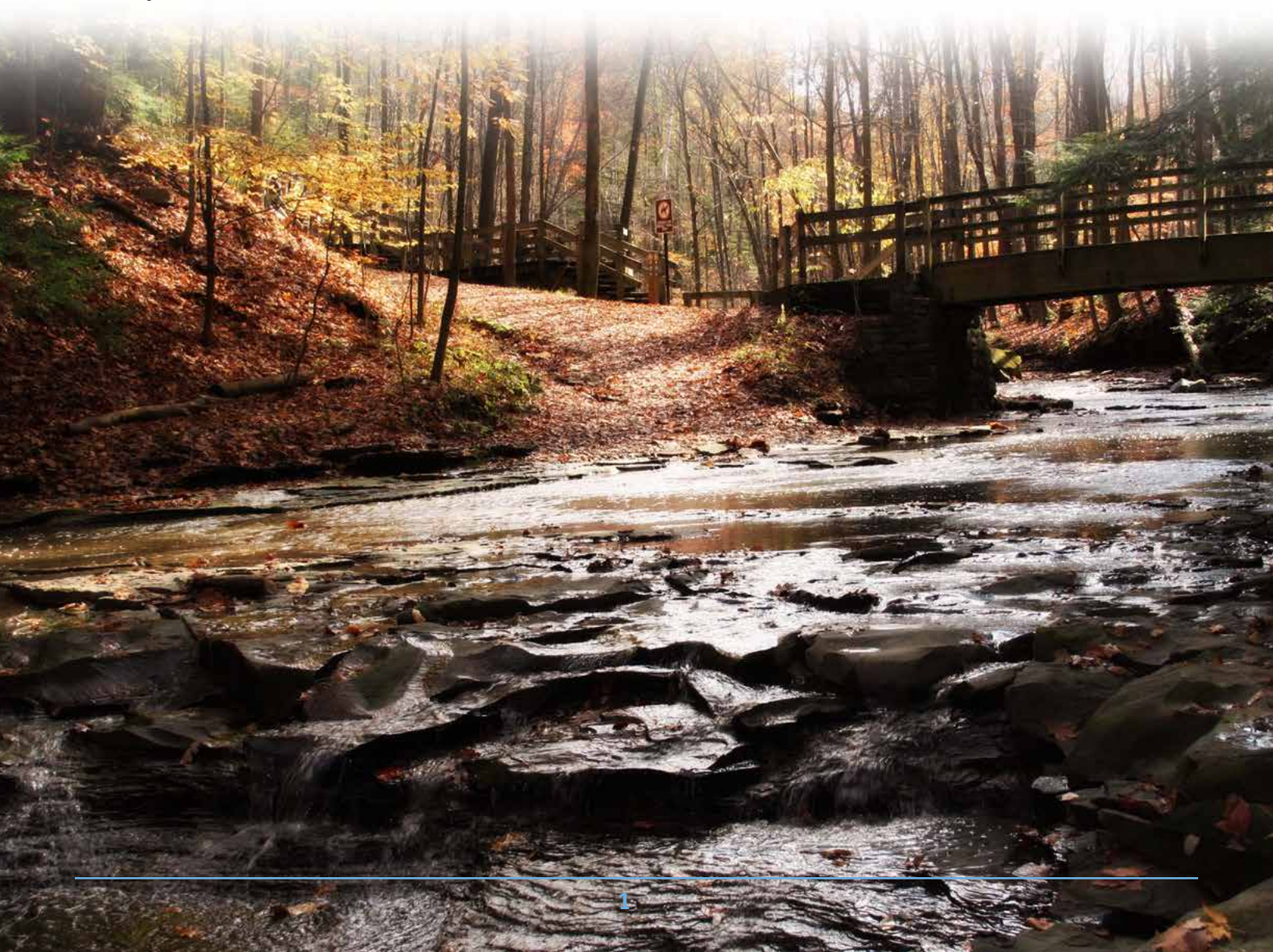
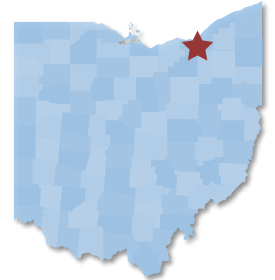
# TINKERS CREEK STREAM RESTORATION AND SLOPE STABILIZATION

### Valley View, Cuyahoga County

**Date Completed:** 2009

**Description:** 1000 linear feet of Tinkers Creek was restored and relocated to its original 1960 location. The relocation, restoration and use of flow diversion structures have resulted in a sustainable solution to a critical infrastructure problem. The project, funded by First Energy, allowed for the stabilization of a 100 foot high severely eroding slope that threatened dual transmission power lines.

**Project Size:** 4.6 acres



## Tinkers Creek Stream Restoration and Slope Stabilization Valley View, Ohio

Tinkers Creek and a severely eroding slope threatened critical dual FirstEnergy power transmission lines. URS provided multidisciplinary services including survey, geotechnical, geomorphology, landscape architectural, hydrological, permitting, and construction administration for the restoration of 1,000 lineal feet of a 100' wide stream and stabilization of a 100' height slope on Tinkers Creek in Valley View, Ohio.

The \$2 million construction project relocated the stream more than 300 ft to the north, to its historical location, to allow for the stabilization of the unstable slope. Stream restoration included an extensive analysis of a nearby reference reach to determine the stream width, radius, and profile. Stabilization of the stream bank was accomplished with native rock with joint plantings of willow and dogwood stakes. Stream design included the following design elements: rock vanes, rock cross vanes, stream riffles, log diggers to control high velocities as well as enhance habitat.

Stabilization of the 100' height slope is being accomplished by reconstruction from the toe up, needing more than 40,000 CY of fill. The completed slope at a 2.5:1 includes a drainage blanket for ground water and a naturally stabilized slope with compost and plantings.



Relocated to its location in the 1970's, the stream moved more than 300' from its position at the beginning of the project (see below construction photo). Native floodplain vegetation including trees and whip plantings are beginning to establish.



In stream log structures were imbedded into the shoreline to increase fish habitat, provide roughens in the stream, and armors channel.



The relocated stream and constructed rock vanes channel water towards the center of the stream, reducing erosion.

**URS**

***Developer/Client/Owner:***

First Energy

<https://www.firstenergycorp.com/fehome.html>

***Designer/Consultant:***

URS

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***Key Features:***

- many slope slumps are the result of groundwater saturating and weakening soils
- large streams can be relocated successfully using natural channel techniques
- stream structures such as rock vanes are effective in diverting erosive flows
- compost topsoil applied to the surface of the 100' high slope did not exhibit any gullying or erosion during seed establishment

***Project Cost:*** The engineer's estimate for the project was \$2.5 million, although bid costs were less.

***Maintenance Cost:*** There is no maintenance being performed beyond normal park maintenance. Stream and slope are functioning as a restored natural system.

***Funding Sources / Incentives:*** None

***Applicable Zoning Regulations:*** None

***Additional Comments:*** The project stabilized a 100 foot high hillside, which at the time of construction, was eroding at a rate of 1 foot per month.