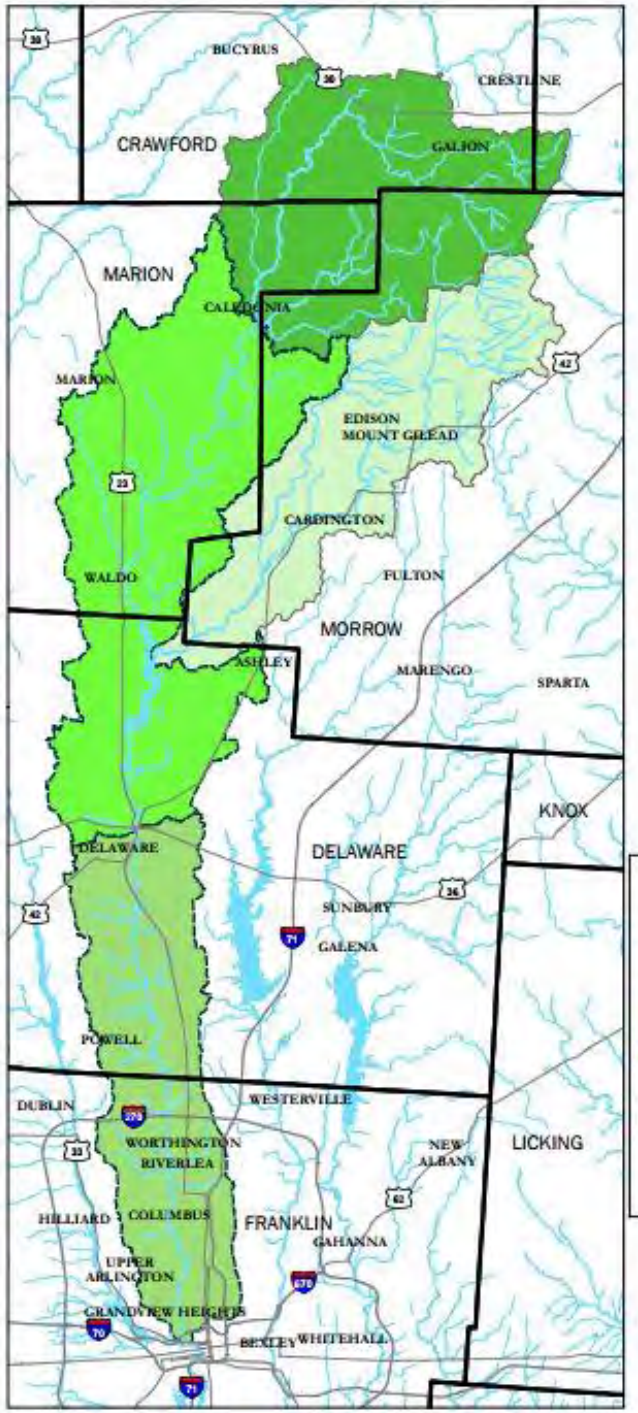
Synergy for a Healthy Campus Watershed

OPPORTUNITIES TO IMPROVE SUSTAINABILITY AND RESILIENCE @ OSU

Friends of the Lower Olentangy Watershed



Olentangy Watershed

Subdivisions

Legend

Olentangy River Watersheds

10-Digit HUC (ODNR)

- 0506000108 (Headwaters)
- 0506000109 (Whetstone Creek)
- 0506000110 (Upper) } OWPP
- 0506000111 (Lower) } OWPP
- County Boundary
- Major Roads
- Water

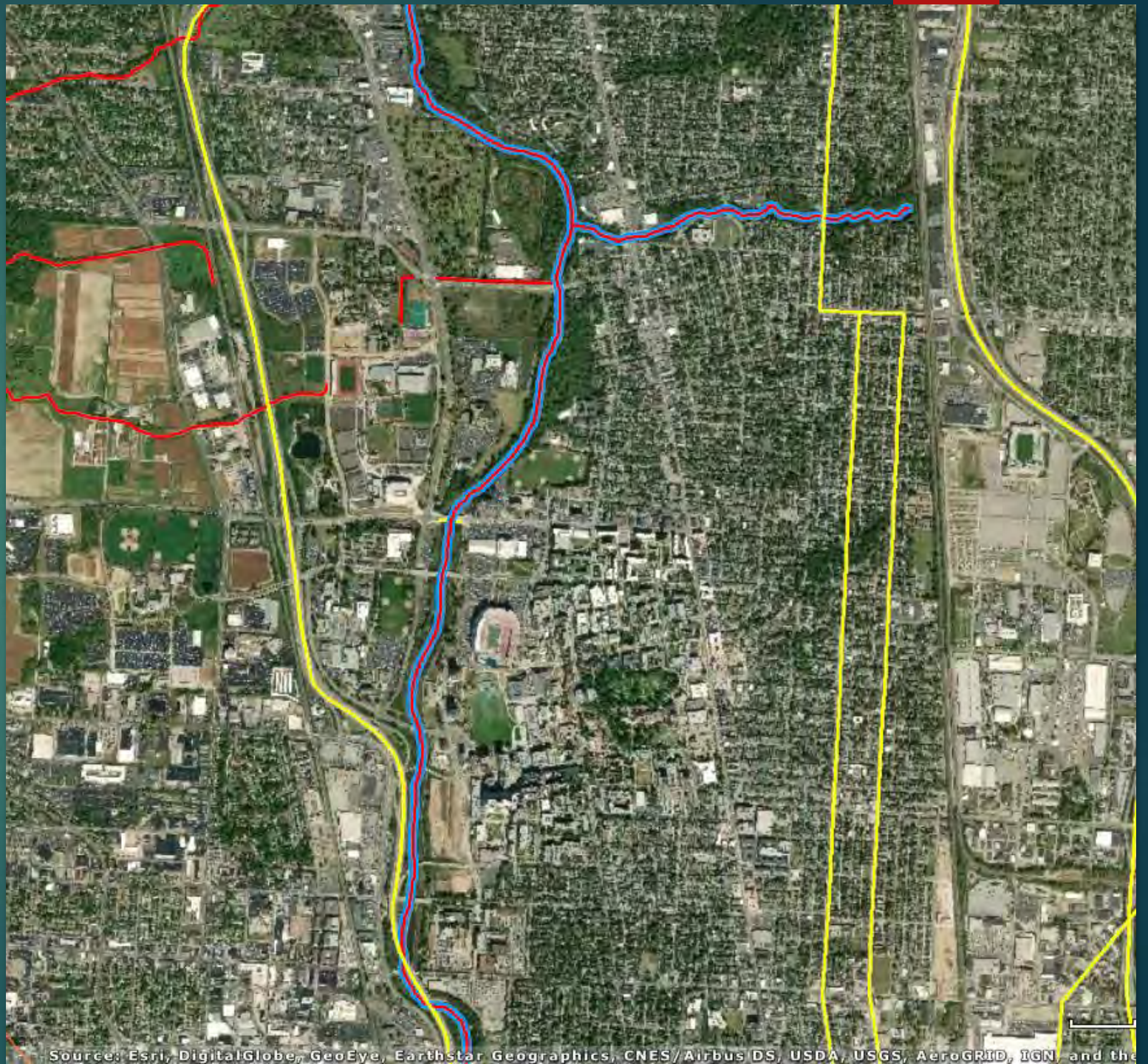
0 5 10 Miles

N

The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
K:_Arc GIS\Center for Energy & Environ\Olentangy Balanced Growth\Maps for OWPP Document\LID-SqMiHUC.mxd
Nov 2011

Natural Partners- FLOW & OSU

1. Worst 2 miles of the Olentangy upstream of the 5th Avenue Dam !
2. Most campus streams have been culverted!
3. High % of impervious surfaces!
4. Stormwater Runoff with litter!
5. Low Tree Canopy 7-13 %!



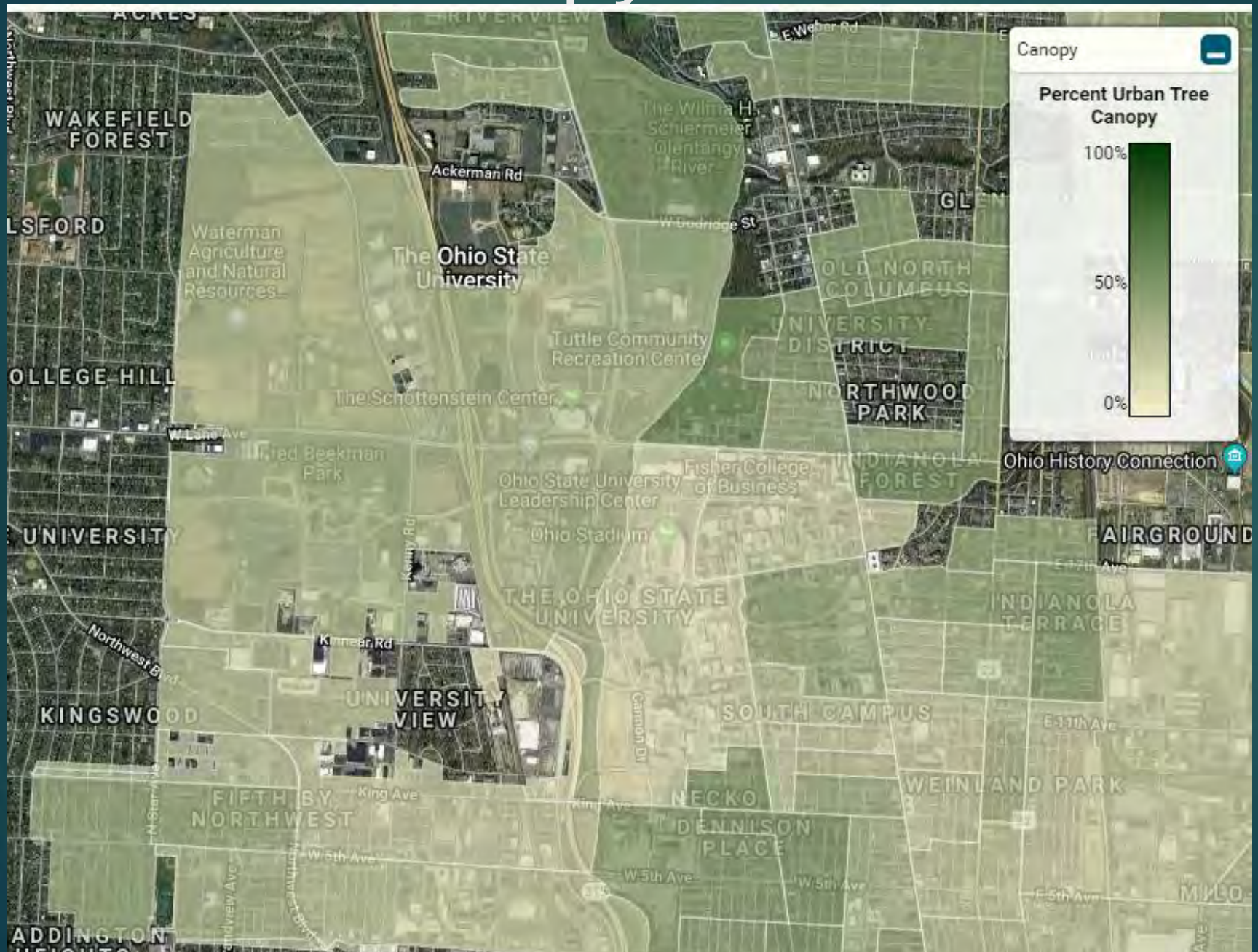
PARTNERSHIP CHALLENGES

DEVELOPMENT PRESSURE

High and Increasing Impervious Surfaces

Midwest Lands

Low Tree Canopy



Litter

CAPSTONE CLASSES

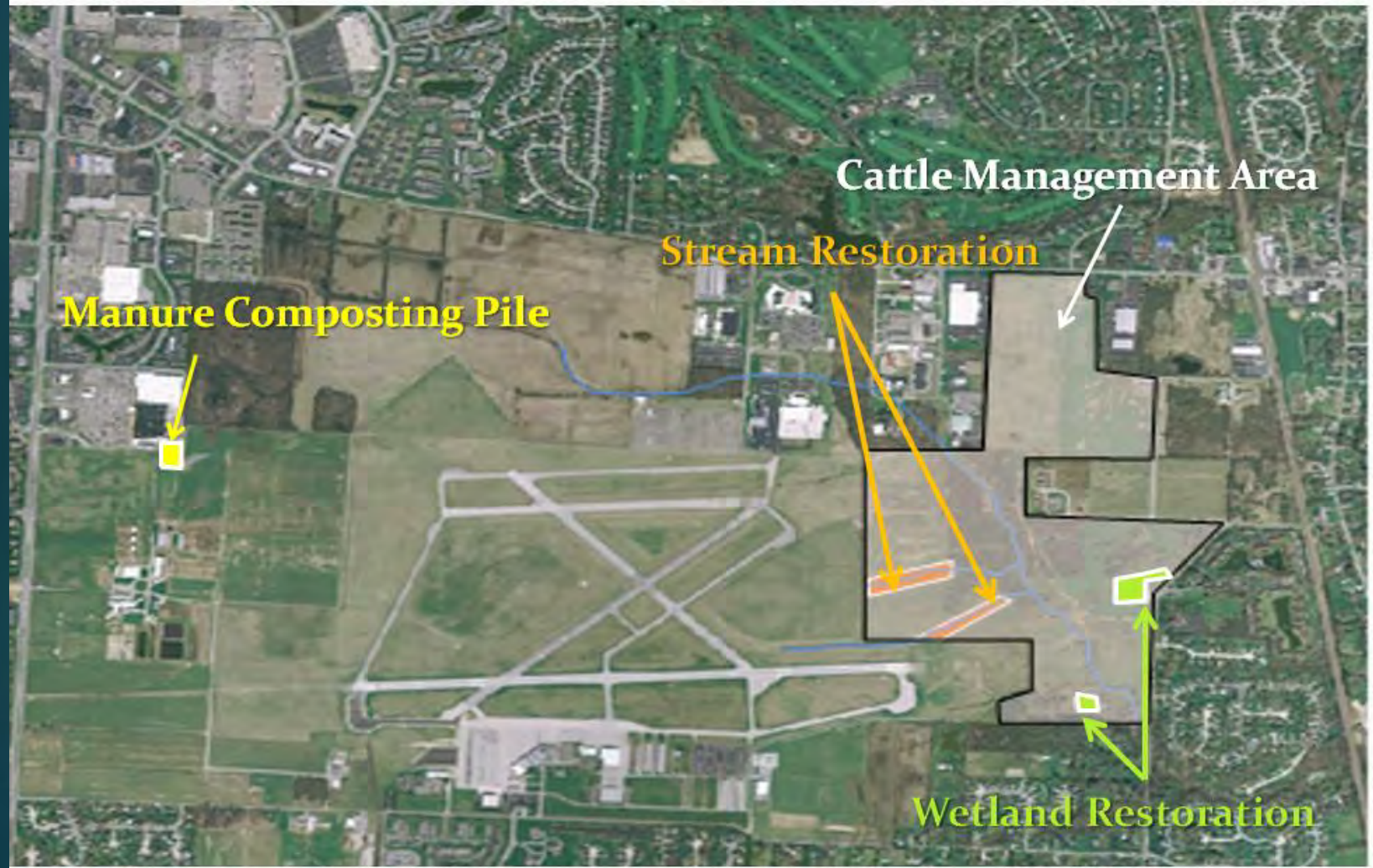
FABE GOLF COURSE INITIATIVE 2010

FABE-Don Scott Farm-OEPA 2010

THE OHIO STATE UNIVERSITY
DEPARTMENT OF FOOD, AGRICULTURAL, AND BIOLOGICAL ENGINEERING

Photo from engineering.osu.edu

Areas of Concern

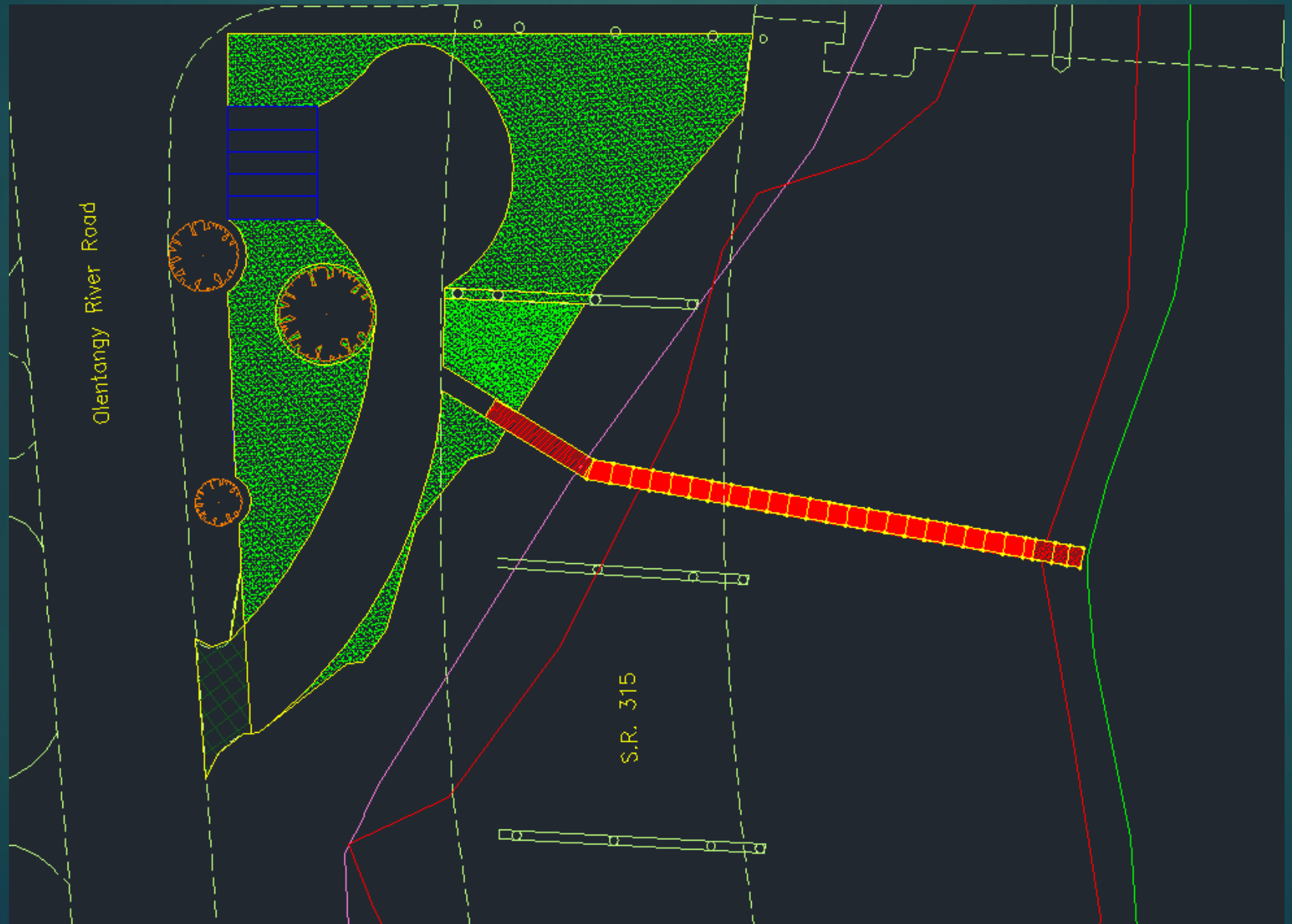


Engineering- EMHT- Worthington 2012

A NEED FOR RETROFIT

- FLOW: Friends of the Lower Olentangy Watershed
- A need for improved water quality.
- Watershed protection
- Change from impervious surfaces to more permeable options.

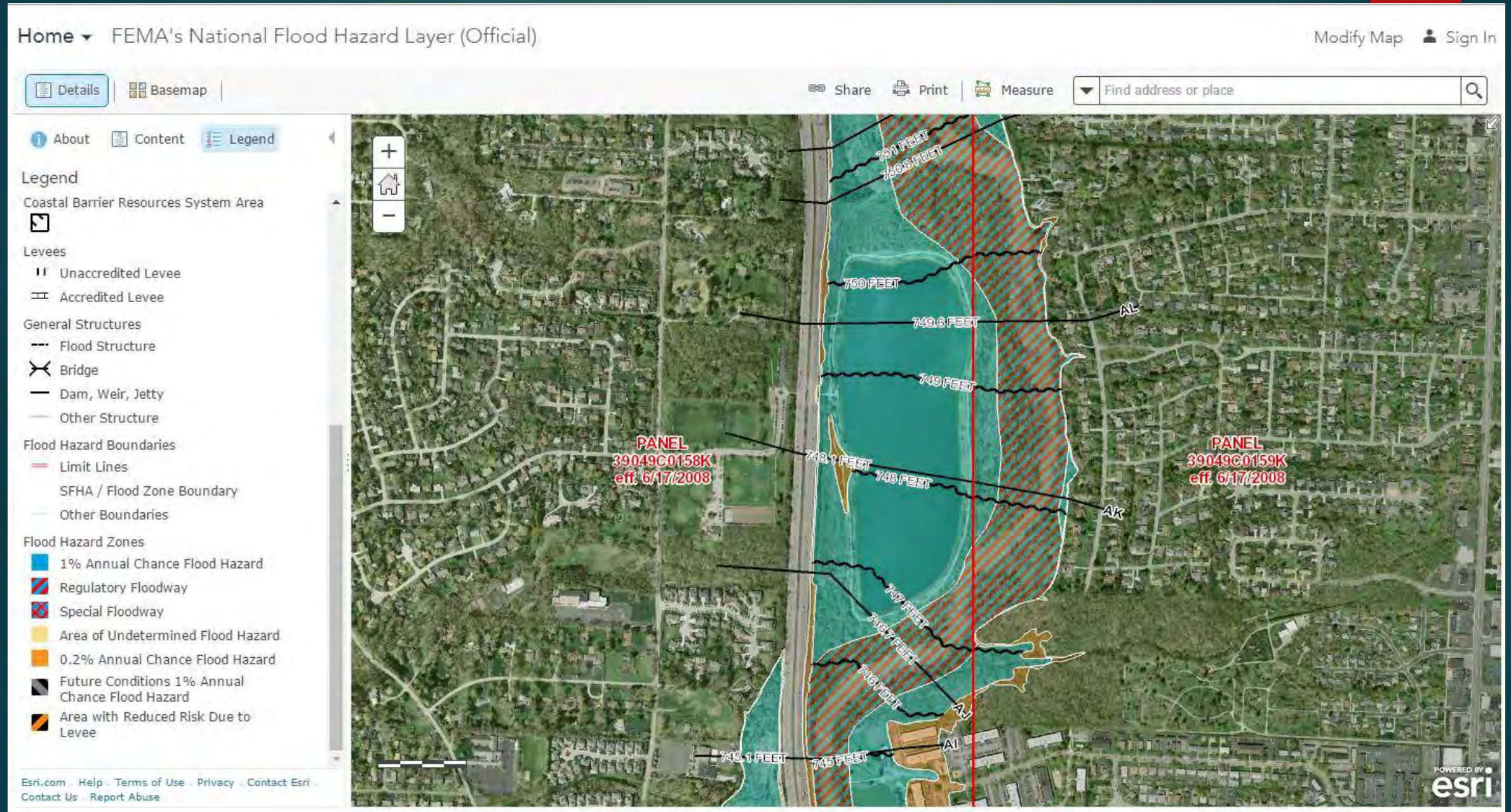
FABE- Columbus Parks-DLZ 2014



Olentangy Water Trail at King Avenue

FABE-STANTEC LOW HEAD DAM 2016

FABE-STANTEC ANTRIM LAKE 2016



FABE

FOD

Coca-Cola

Aqua-Doc

RUSSELL TREE

2017-2018

STUDENT INNOVATION

CUTTING HONEYSUCKLE DURING COLD WEATHER

DRILLING STUMP & APPLYING HERBCIDE LATER

FABE Capstone + OSU Wetland Class

Educational Signage

Sustainability in Action

Gray Tree Frog found at Carmack Woods

ABOUT CARMACK WOODS

Spread throughout Carmack Woods are three separate wetlands! They help store and filter the stormwater runoff that flows from each of the Carmack parking lots, and prevent flooding and soil erosion. Pollutants such as motor oil and antifreeze are filtered out by the natural processes of the wetland vegetation. In addition to keeping the campus of Ohio State clean and healthy, Carmack Woods is also home to over 133 species of bird and amphibians such as the red-backed salamander and gray tree frog.

HONEYSUCKLE REMOVAL

The invasive honeysuckle species had taken over Carmack Woods! With the help of Friends of the Lower Olentangy Watershed (FLOW) and the leadership team of Backs, Froelich, Papio, Radeff and Sanders, volunteer events took place to remove the honeysuckle and replace it with native species, restoring the biological diversity of the site. Through community engagement, Carmack Woods inspired environmental education and sustainability on campus.

Carmack Woods Capstone Team working

CARMACK WOODS

Wetlands

A wetland is defined as an area that contains saturated soils, is flooded for some period of the growing season, and has predominantly hydrophytic, or water-adapted, plant life. Wetlands come in many varieties, based on differences in climate, soil, hydrology, vegetation and other factors. Due to the ample biodiversity such as fish, amphibians, reptiles, microbes, plants, and birds that reside in and near them, wetlands are considered to be among the most productive of ecosystems! Wetlands perform important ecological functions such as biological production, flood control, carbon sequestration, water storage and filtration.

HOW WETLANDS WORK?

ENR-Landowner's Toolkit 2017

614-267-3386 info@olentangywatershed.org

FLOW

About FLOW | About the Watershed | What We Do | Support/Take Action | Calendar of events | DONATE

Landowner's Toolkit for Protecting the Watershed

What is the Problem?

When rain falls during a storm event, some will infiltrate into the soil and some will flow over the land as surface runoff. The amount of surface runoff versus infiltration will depend on the soil conditions, vegetation, and land use. Surface runoff causes problems for the river in the form of carrying a variety of pollutants, increasing soil erosion, and increasing flash flooding. As development increases infiltration decreases thus this toolbox is an effort to counteract the effects seen with development in a suggestion series of Best Management Practices (BMPs). These methods will help enhance some areas of the Olentangy River and preserve others. BMPs can be implemtented on land across the watershed in a variety of ways including:

- **Prairies**
- **Riparian Corridors**
- **Stormwater Ponds**
- **Woodlands**

Woodland Examples

Desirable	Needs Improvement
	
Native vegetation under trees provides habitat and a wildlife corrider between natural areas	Grass under trees requires maintenance, provides no habitat, and blocks wildlife movement

FABE -MetroParks Trail Flooding 2019

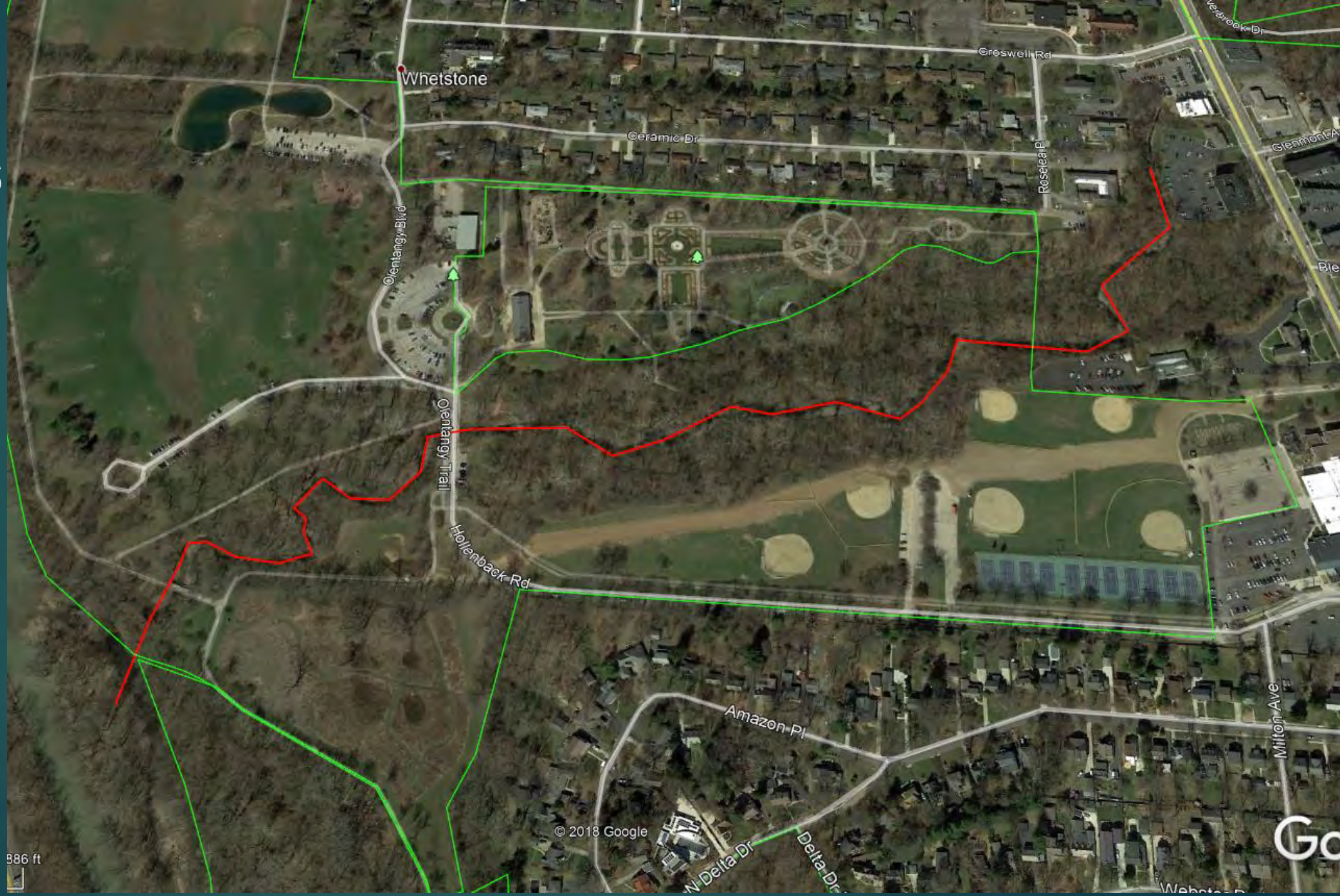
Next Steps

- Process Survey Data
- Concept Research & Evaluation
- Preliminary Model Creation
- Calculations

ENR-Columbus Rec& Parks

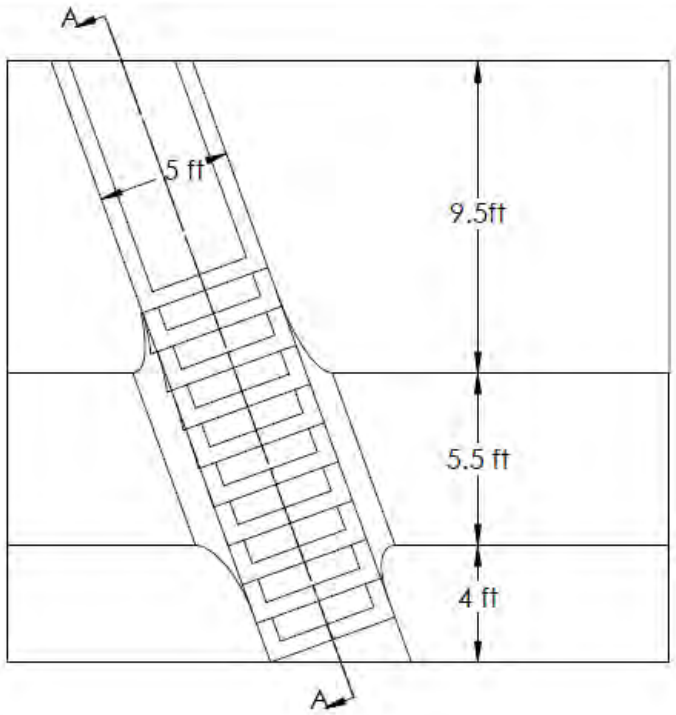
Whetstone Park 5yr Plan

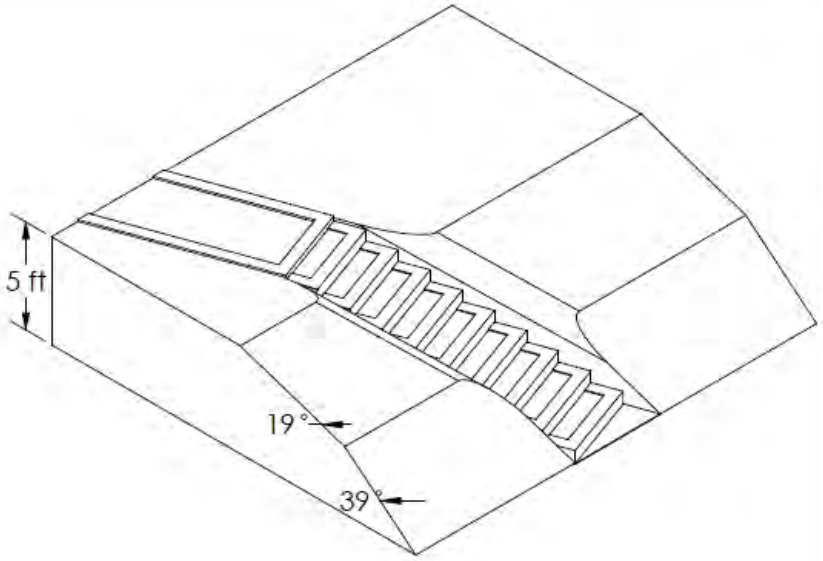
Adena Brook - 4110 ft

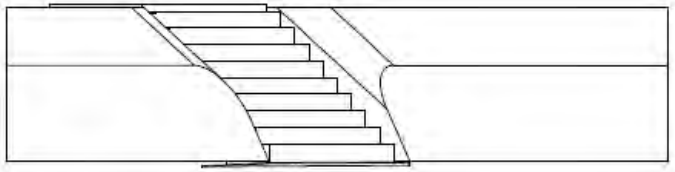


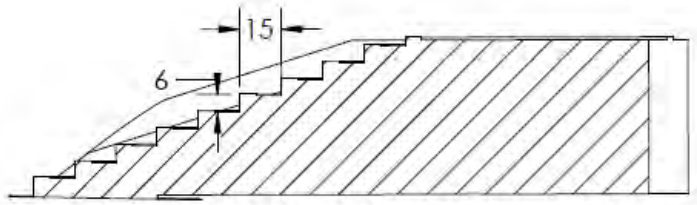
Other Learning Opportunities

ENGINEERS WITHOUT BORDERS-River Access ODNR 2012









SECTION A-A

The Ohio State University Dept of Mechanical & Aerospace Eng	
DWG NAME	DESIGN 3: STAIRS ONLY
FILENAME	OSU EWB LOCAL PROJECTS COMMITTEE
DATE 12/12/12	DIMENSIONS ARE IN INCHES SCALE:1:60 SHEET 1 OF 1
MATERIAL	PRESSURE-TREATED WOOD, MULCH, METAL

ENGINEERS WITHOUT BORDERS- Greif Water Back Pack Design 2014

ENGINEERS WITHOUT BORDERS-STRATFORD ECOLOGICAL FARM-COLUMBUS FOUNDATION 2014 - Edible Rain Gardens.

ENGINEERS WITHOUT BORDERS- WORTHINGTON GARDEN CLUB, WHGC, FSWCD 2018

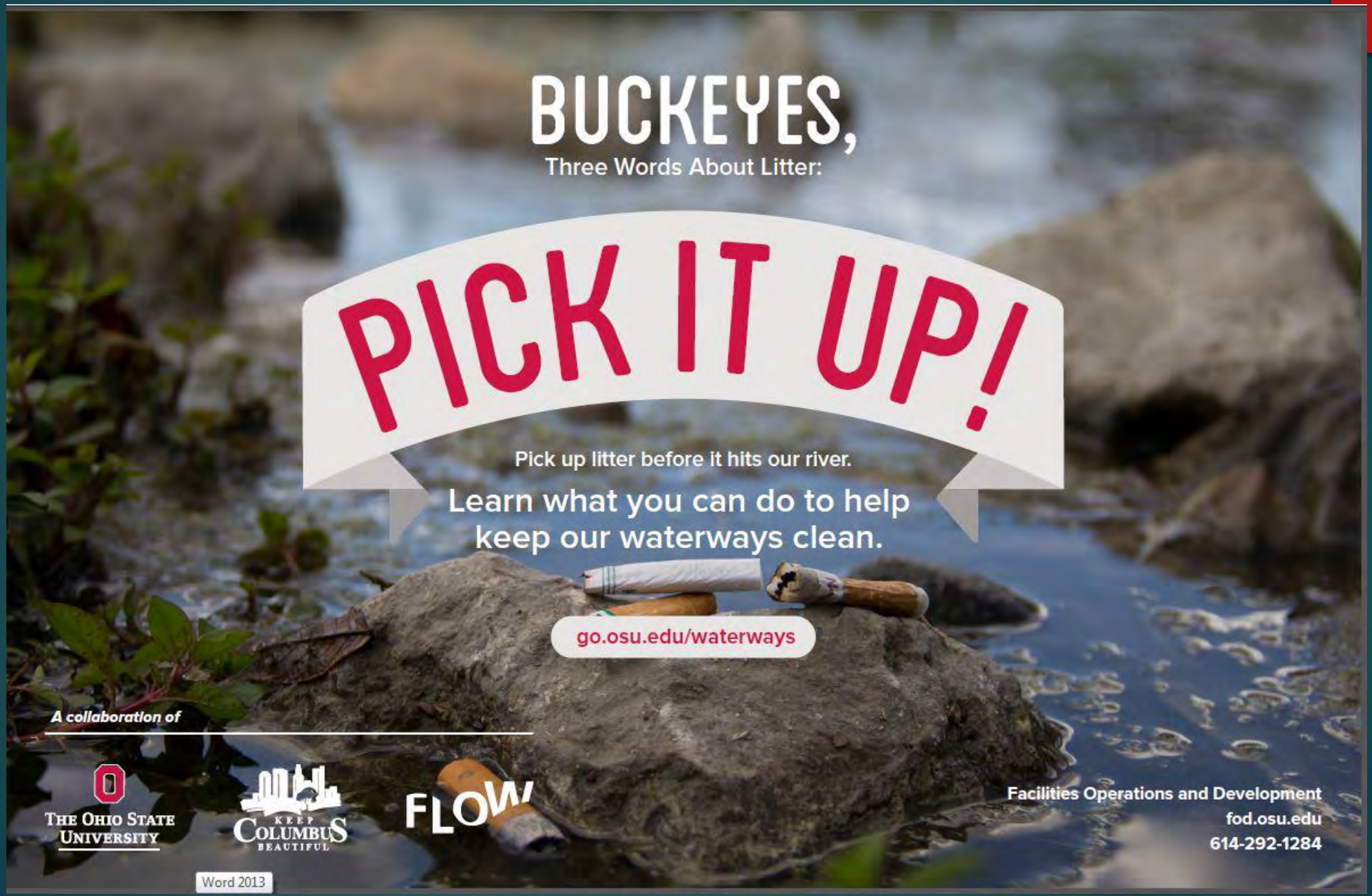
Soil Type Jar Test:

In order to get a more detailed idea of the soil types in our rain garden areas, we took soil samples from the two rain garden areas. These soil samples were then combined with water and salt in clear jars to suspend and break apart the soil types. After vigorous shaking the soil then settled into different layers based on the weight of the soil particles. Sand settles first, followed by silt, and lastly fine clay particles. Due to difficulty in differentiating the layers after all soil particles settled, the small amount of sand was marked within 5 minutes of the beginning of the test as it settles very quickly. The samples were then left for 24 hours to allow the silt and clay to settle. The results are as follows:

Rain Garden Soil Test Results	
Fence	Parking Lot
	
	

OSU ENVIRONMENTAL HEALTH & SAFETY 2014

OSU EHS 2016


BUCKEYES,
Three Words About Litter:
PICK IT UP!
Pick up litter before it hits our river.
Learn what you can do to help keep our waterways clean.
go.osu.edu/waterways
A collaboration of
THE OHIO STATE UNIVERSITY
KEEP COLUMBUS BEAUTIFUL
FLOW
Facilities Operations and Development
fod.osu.edu
614-292-1284
Word 2013

Service Events

USG-FOD- Drake Union Tree Planting- 4/10/16

USG-FOD Lane Avenue Tree Planting – 4/10/17

Lane Avenue Tree Planting – 4/10/17

USG-FOD-Tree Planting & Honeysuckle Removal 4/7/18 Bloch Cancer Survivor Center

USG-FOD Tree Planting- 10/6/18

ENR-FABE-OAC-REI-DEWEYS River Cleanup 2017


DEWEY'S
PIZZA
BUCKEYE NATION
GET INVOLVED

ENR-FABE- REI-HERO USA RIVER CLEANUP 2018

REI Most Unusual Litter – Contest Winner 2018

OSU STUDENT GROUPS/CLASSES
Biology Scholars
Ecological Engineering Society
Engineers Without Borders
Environment& Natural Resource Scholars
Fisher Cares
Green Engineering Scholars
Humanistic Engineering Scholars
Landscape Architects
Mount Leadership
OSU Running Club
OSU Theater Group
Pay-It-Forward
Professional Business Writing
Save the Planet
Seeds of Service
Semester of Service
Society for Ecological Restoration
Stream Geomorphology Class
TerrAqua
Undergraduate Student Government

FOR PARTNERSHIP OPPORTUNITIES

- Friends of the Lower Olentangy Watershed (FLOW)
- www.olentangywatershed.org
- info@olentangywatershed.org
- 614-267-3386

- Laura Fay
- FLOW Secretary
- lfay9785@Columbus.rr.com
- 614-580-2656