

# TIME TO EXPLORE

Cleveland Metroparks

## Beecher's Brook Restoration and Chagrin River Restoration at Jackson Field

North Chagrin Reservation  
and South Chagrin  
Reservation

November 13, 2019

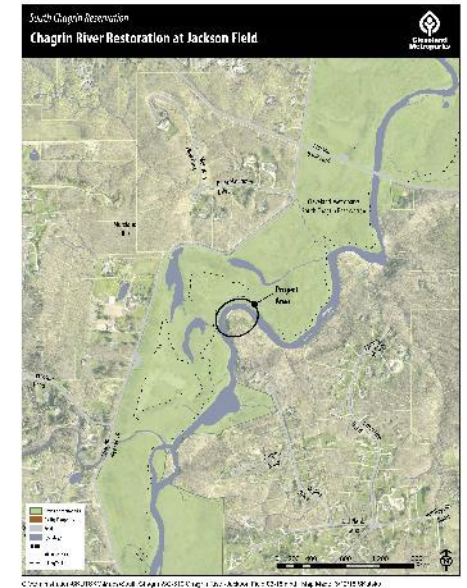




# Project Locations

← Beecher's Brook in North Chagrin Reservation

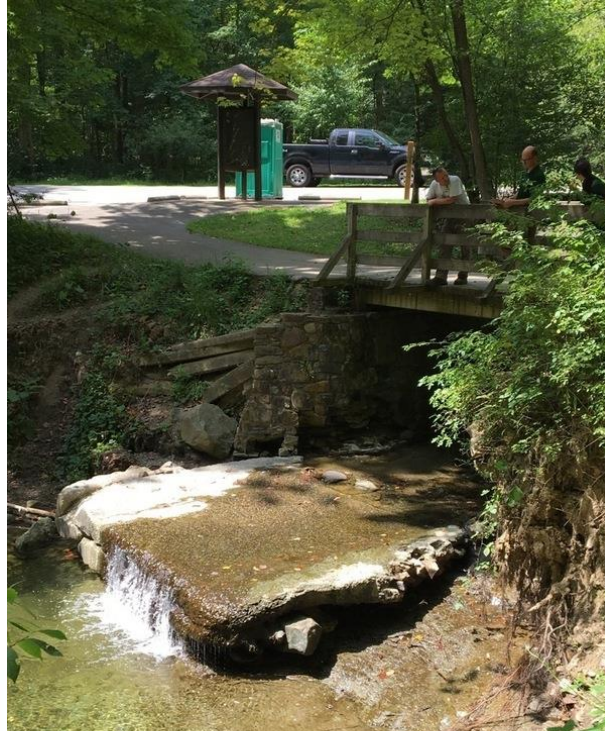
← Chagrin River at Jackson Field in South Chagrin Reservation



# Issues Identified

## Beecher's Brook

- Severe streambank erosion
- Lack of fish passage
- Excessive sediment loss



**Beecher's Brook at Wilson Mills trailhead**

## Chagrin River at Jackson Field

- Severe streambank erosion
- Lack of floodplain connection
- Excessive sediment loss



**Chagrin River at Jackson Field**



**Undersized culvert – Beecher's Brook**



**Fish Migration Barrier – Beecher's Brook**



**Eroding streambank on Chagrin River**

# Due Diligence

- Fish sampling
- Instream habitat evaluation
- Stream bank erosion assessment
- Cross-section surveys



**Ohio EPA** Qualitative Habitat Evaluation Index and Use Assessment Field Sheet **QHEI Score: 64**

Stream & Location: Beecher's Brook (NC-01) RM: 0-09 Date: 8/23/17

Scorers Full Name & Affiliation: Tom D'Arcangelo, Ohio EPA Date of Survey: 8/23/17 Office location: NC-01

River Code: 15-001-1436 STORET #: 150011436001 LAL/Long: 41.85039 181.41738

1) **SUBSTRATE** Check ONLY two substrate TYPE BOXES: estimate % or note every type present

BEST TYPES	POOL RIFFLE	OTHER TYPES	POOL RIFFLE	ORIGIN	QUALITY
<input type="checkbox"/> BLDG/SLABS [10]	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> TRILLS [1]	<input type="checkbox"/> HEAVY [2]
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> SILT [2]	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> RIPRAP [3]	<input type="checkbox"/> MODERATE [1]
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> SAND [8]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> NORMAL [0]
<input type="checkbox"/> GRAVEL [7]	<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/> (Score natural substrates; ignore sludge from point-sources)	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> EXTENSIVE [2]
<input type="checkbox"/> SAND [8]			<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> MODERATE [1]
<input type="checkbox"/> BEDROCK [5]			<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> NORMAL [0]
			<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> NONE [1]

NUMBER OF BEST TYPES: 2 (4 or more [2]; 3 or less [0])

Comments:

2) **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water; large diameter log that is stable, well developed rootwad in deep fast water, or deep, well-defined, functional pools.)

COVER	AMOUNT
<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> EXTENSIVE >75% [1]
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> SPARSE 5-25% [3]
<input type="checkbox"/> ROOTMATS [1]	<input type="checkbox"/> NEARLY ABSENT <5% [1]
<input type="checkbox"/> BOULDERS [1]	
<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	

Comments:

3) **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [1]	<input type="checkbox"/> NONE [0]	<input checked="" type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments:

4) **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	EROSION	EROSION	EROSION	EROSION	EROSION
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]
	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]

Comments:

5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Primary Contact
<input type="checkbox"/> > 1m [5]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [1]	<input type="checkbox"/> MODERATE [1]
<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERMITTENT [1]
<input type="checkbox"/> 0.4-0.7m [3]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [1]
<input type="checkbox"/> 0.2-0.4m [1]		<input type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]
<input type="checkbox"/> < 0.2m [0]			

Comments:

6) **GRADIENT** (ft/m)  VERY LOW - LOW [2-4]  MODERATE [6-10]  HIGH - VERY HIGH [10-6]

% POOL: 20 % GLIDE: 10 % RIFFLE: 50 % RUN: 20

EPA 4520 08/16/06

## BeechersBrookHeadwater Stream Fish Summary

Date: 23 August 2017 Dist. Fished: 0.15 km Drainage Area: 1.28 mi2

Common name	Species code	Feed Guild	Tolerance	IBI Group	Breed Guild
Rainbow Trout	25-002			E	N
White Sucker	40-016	O	T	W	S
Western Blacknose Dace	43-011	G	T	N	S
Creek Chub	43-013	G	T	N	N
Spotfin Shiner	43-032	I		N	M
Sand Shiner	43-034	I	M	N	M
Silverjaw Minnow	43-039	I		N	M
Fathead Minnow	43-042	O	T	N	C
Bluntnose Minnow	43-043	O	T	N	C
Central Stoneroller	43-044	H		N	N
Green Sunfish	77-008	I	T	S	C
Bluegill Sunfish	77-009	I	P	S	C
Rainbow Darter	80-022	I	M	D	S

Total: 582  
Number Species: 12  
Number Hybrids: 0

# Solutions Proposed – Beecher's Brook

Existing All-Purpose Trail

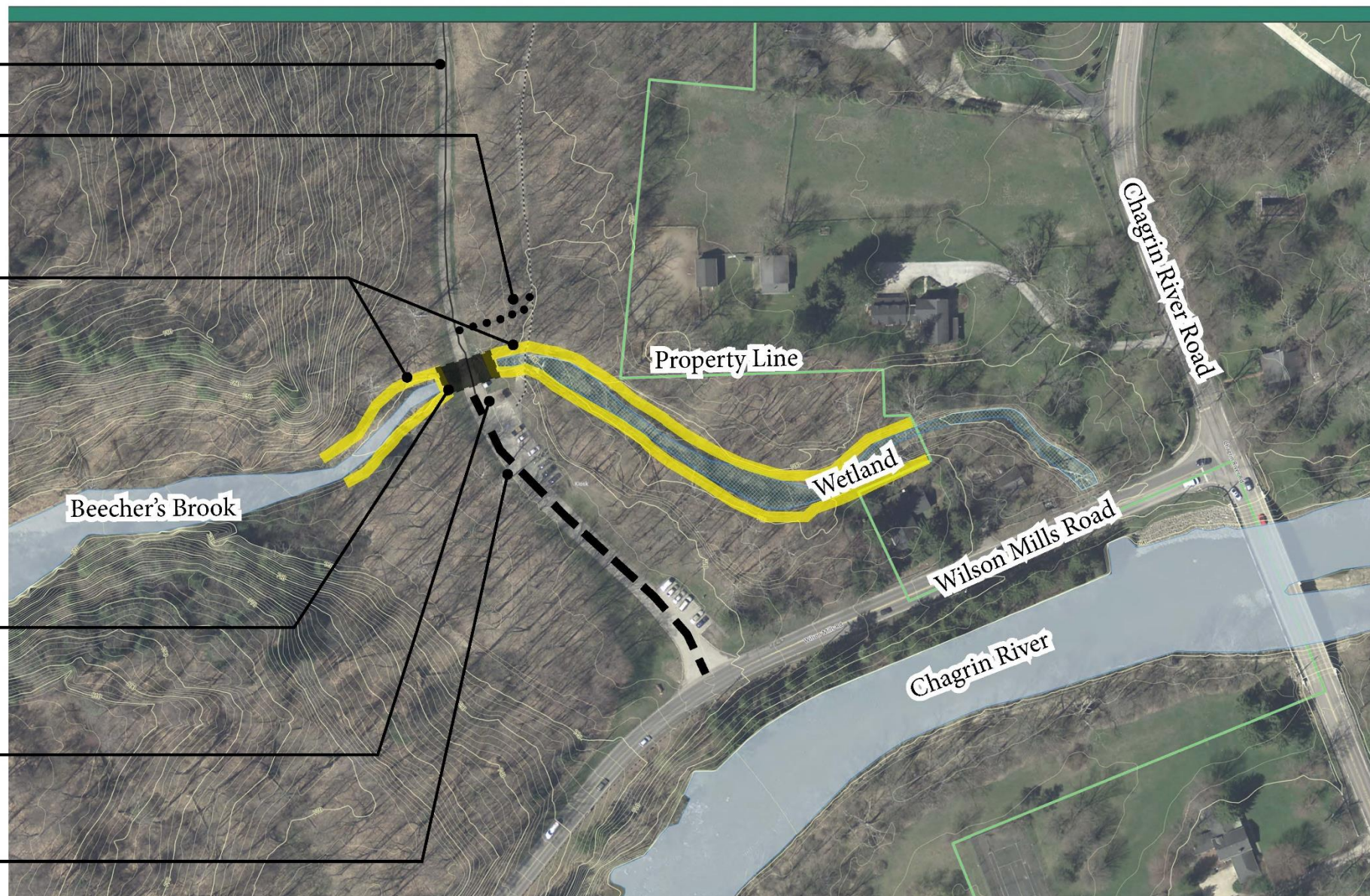
Re-align Buckeye Trail  
(Future by Cleveland Metroparks)

Stabilize +/- 350 lineal feet of  
eroding streambank,  
remove bridge across Beecher's  
Brook and improve fish habitat

Replace existing 12' wide Box  
culvert with appropriately sized  
box culvert

Improve Trailhead  
(Future by Cleveland Metroparks)

Existing site access and parking lot



# Solutions Proposed – Chagrin River at Jackson Field

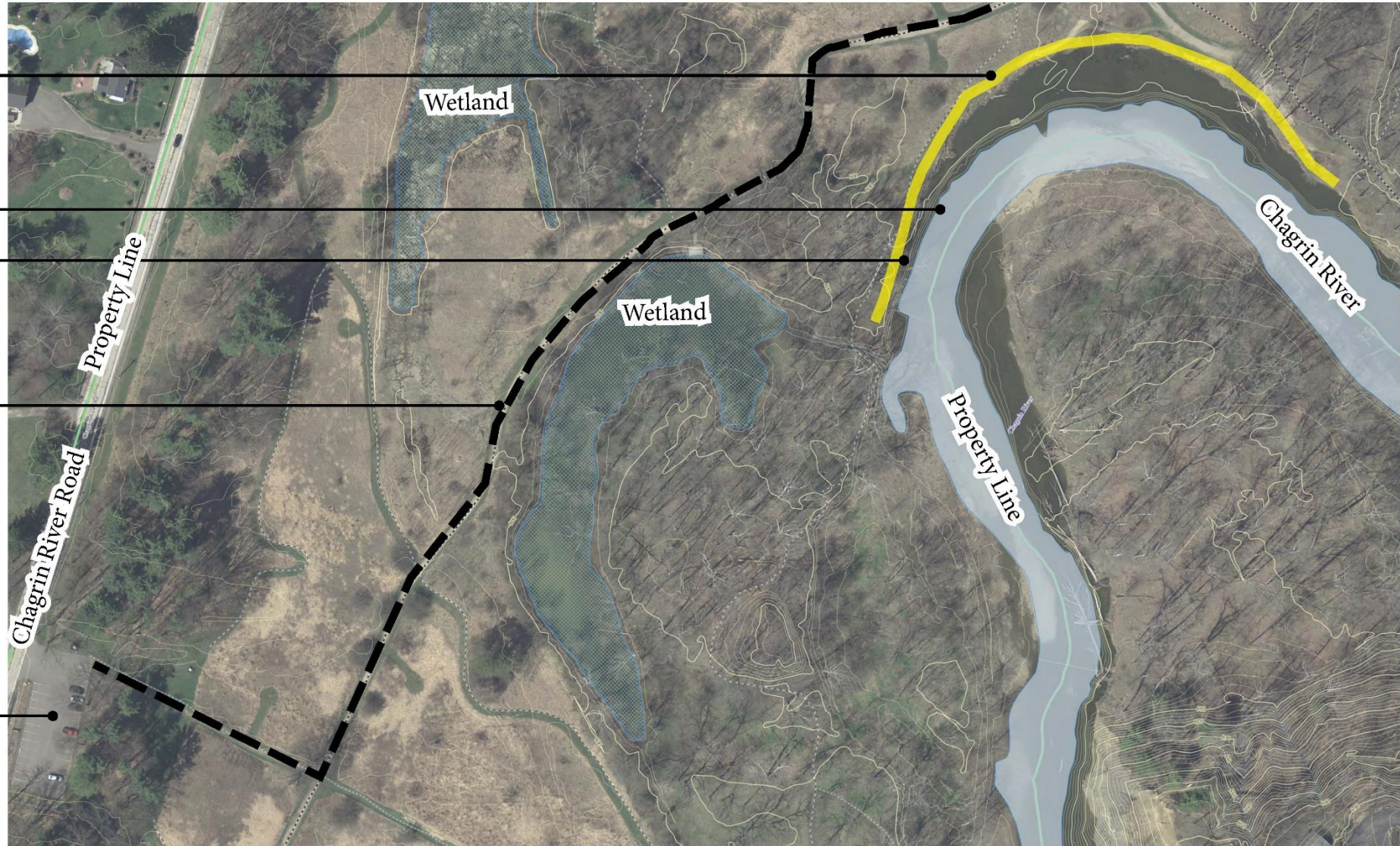
Restore +/- 500 lineal feet of streambank

Improve fish habitat

Restore floodplain connectivity and revegetate

Existing Bridal Trail/Site Access

Existing Parking Lot



# Grant Application and Project Goals

Section 319(h) through Ohio Environmental Protection Agency

## Beecher's Brook

- Restore 350 In. ft. of stream and its banks
- Remove fish barrier and enhance fish migration
- Install 2 ac. of riparian plantings and buffer enhancement

\$181,530 (Federal)

\$121,020 (CM Match, cash and in-kind)

## Chagrin River at Jackson Field

- Stabilize 500 In. ft. of streambank
- Floodplain connection
- Install 0.25 ac. of riparian plantings and buffer enhancement

\$228,708 (Federal)

\$152,472 (CM Match, cash)



# Project Schedule

- Request for Qualifications were issued: October 2019
- Request for Proposals will be issued: November 2019
- Recommended award of Design-Build contract: December 2019
- Design and Permitting: January 2020 – August 2020
- Construction: September 2020 – June 2021



**REQUEST FOR QUALIFICATIONS  
FOR DESIGN-BUILD SERVICES**

**RFQu No. 6458**

**Design-Builder for Cleveland Metroparks  
Beecher's Brook Restoration, North Chagrin  
Reservation and Chagrin River Restoration at  
Jackson Field, South Chagrin Reservation**

**Cleveland Metroparks  
Administrative Offices  
4101 Fulton Parkway  
Cleveland, Ohio 44144**

**Issued October 1, 2019  
Qualifications are due by 2:00 pm, October 29, 2019**

# Beecher's Brook Restoration and Chagrin River Restoration at Jackson Field

In partnership with:

**Emerald  
Necklace  
Trout Club**



# Beecher's Brook Restoration and Chagrin River Restoration at Jackson Field

QUESTIONS?