

TIME TO EXPLORE

Cleveland Metroparks

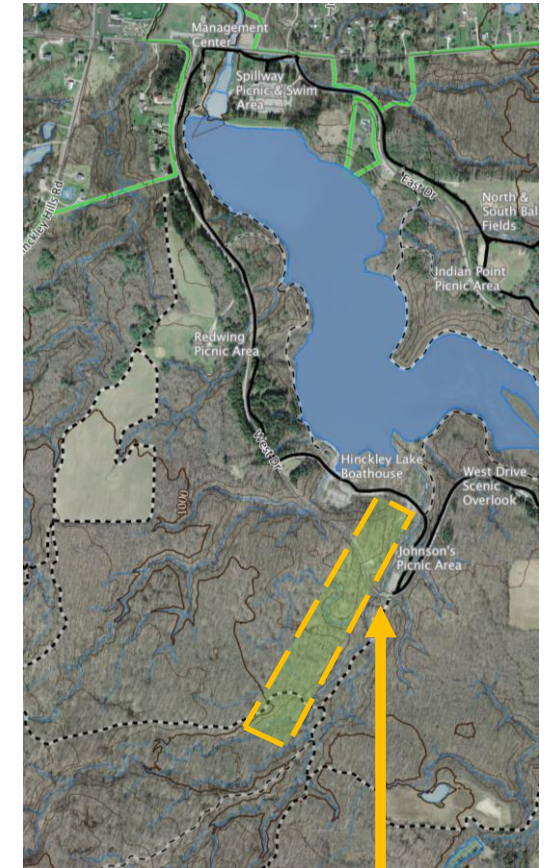
Johnson's Creek Restoration Project

Hinckley Reservation

January 14, 2021



Project Location



Project Area

Identified Issues – Johnson's Creek



Fish passage barrier



Disconnected Floodplain



Streambank Erosion

Proposed Solutions – Johnson's Creek

Existing All Purpose Trail

Project Area

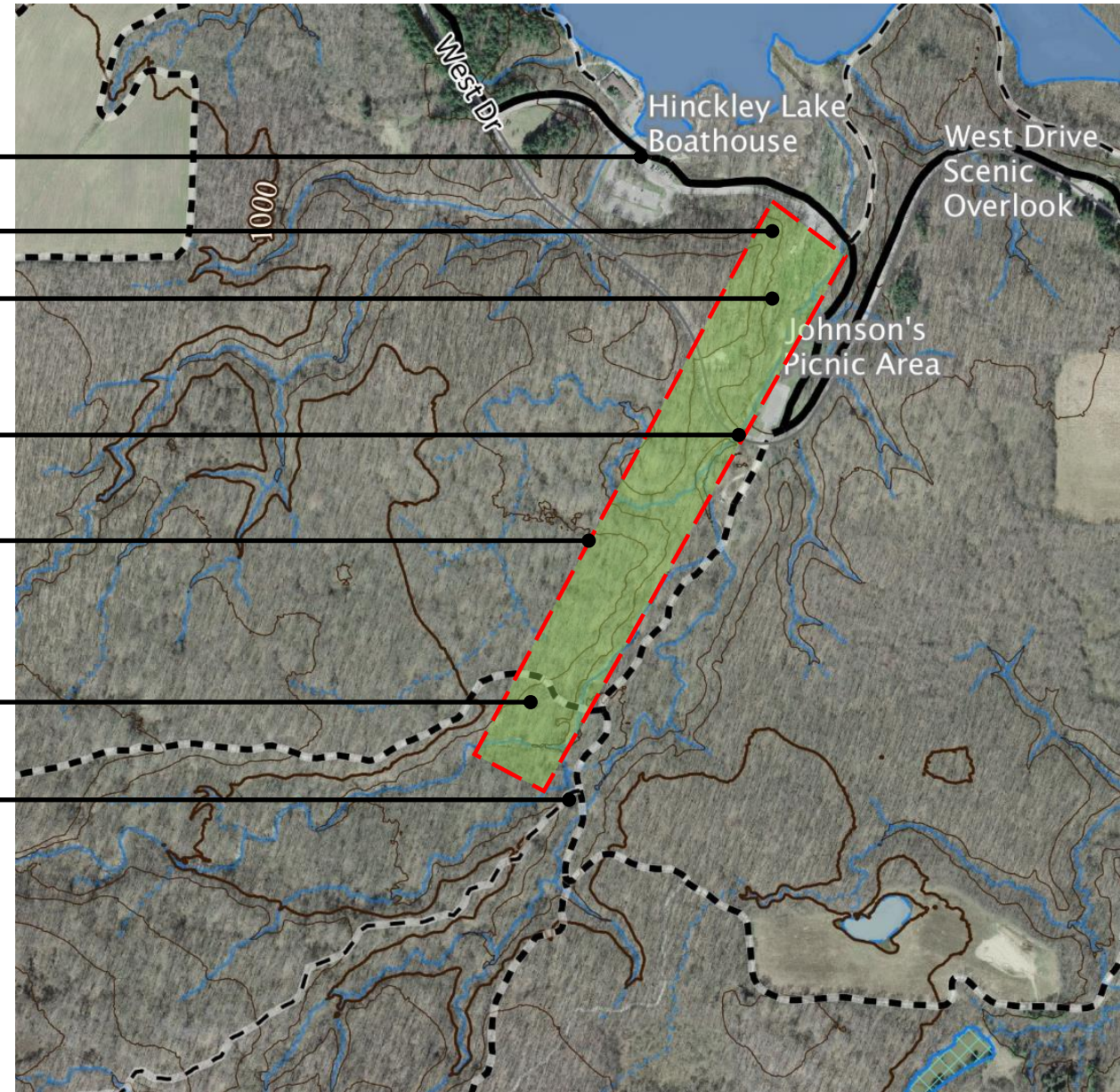
Install stream bed grade control structures to prevent further downcutting

Replace existing box culvert to enable fish and macroinvertebrate passage

Restore +/- 650 lineal feet of streambank using natural channel design and bioengineering slope stabilization techniques

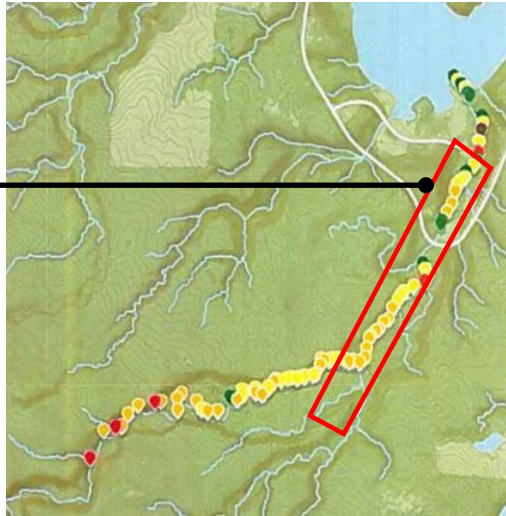
Provide floodplain connection

Existing Bridal Trail



Due Diligence– Johnson’s Creek

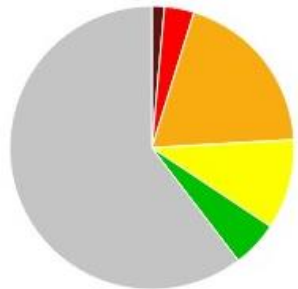
Bank Erosion Hazard Index (BEHI)-2014



Project Area

Johnson’s Creek (BEHI)

Total Length Assessed 13,111 lf



Extreme: 186 lf
Very High: 440 lf
High: 2,530 lf
Moderate: 1,346 lf
Low: 690 lf
No rating: 7,916 lf

+/- 650 lf

Index of Biological Integrity- 2011

West Drive Culvert

West Drive Culvert- Upstream (2011)

Poor Rating

Headwater IBI Calculation

River Code: 13-100 River Mile: 23.72 Date: 7/12/11
 River: Johnson's Creek Above Barron Location: Hinkley Reservoir
 Drainage Area (sq mi): 1.34 Collectors: M. Burstein, B. Mack, A. Mehnold
 W. Rieder, B. Conrad, S. Norris, D. Harshbarger, C. Wilton, D. Leung

IBI Metric	Value	Score	Low-End
Number of Native Species	3	1	N/A
Number of Minnow Species	2	3	
Number of Headwater Species	1	1	
Number of Sensitive Species	0	1	
Number of Darter & Sculpin Species	0	1	
Number of Simple Lithophilic Species	1	1	
Proportion as Tolerant	90.57%	1	
Proportion as Omnivores	0%	5	
Proportion as Pioneering Species	60.87%	1	
Proportion as Insectivores	9.66%	1	
Proportion with DELT Anomalies	0%	5	
Relative Number minus Tolerants	32.8	1	

Total IBI Score (Unadjusted): 22.0

Total IBI Score (Low-End Adjusted): N/A

"poor"

Upstream

7 Total Species Identified

West Drive Culvert- Downstream (2011)

Good Rating

Headwater IBI Calculation

River Code: 13-100 River Mile: 23.72 Date: 7/12/11
 River: Johnson's Creek Below Barron Location: Hinkley Reservoir
 Drainage Area (sq mi): 1.40 Collectors: M. Burstein, B. Mack, A. Mehnold, D. Leung

IBI Metric	Value	Score	Low-End
Number of Native Species	13	5	N/A
Number of Minnow Species	4	3	
Number of Headwater Species	1	1	
Number of Sensitive Species	1	3	
Number of Darter & Sculpin Species	2	5	
Number of Simple Lithophilic Species	3	5	
Proportion as Tolerant	83.52%	1	
Proportion as Omnivores	7.14%	5	
Proportion as Pioneering Species	70.63%	1	
Proportion as Insectivores	13.4%	3	
Proportion with DELT Anomalies	0	5	
Relative Number minus Tolerants	211.56	5	

Total IBI Score (Unadjusted): 42.0

Total IBI Score (Low-End Adjusted): N/A

"good"

Downstream

24 Total Species Identified

Grant Application/Project Goals– Johnson's Creek

Ohio Environmental Protection Agency, Section 319 (h) grant

Grant Award (\$285,467) + Capital Match (\$190,313) = \$475,780

- Restore +/- 650 lf of streambank using Natural Channel Design
- Provide grade control in the streambed of Johnson's Creek
- Replace existing box culvert to enable fish and macroinvertebrate passage
- Reduce sediment and nutrient loads in Johnson's Creek
- Reduce routine flooding atop West Drive
- Prepare Johnson's Creek to better adapt to climate change, including severe storms

Project Schedule– Johnson's Creek

Project Schedule

- Request for Qualifications were issued: December 2020
- Request for Proposals will be issued: January 19, 2021
- Recommended award of Design-Build contract: February 18, 2021
- Design and Permitting : March - December 2021
- Construction: January-July 2022

Project Support– Johnson's Creek



Ohio Environmental Protection Agency, Section 319 (h) grant



Partners for Educational and Public Outreach Deliverables

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