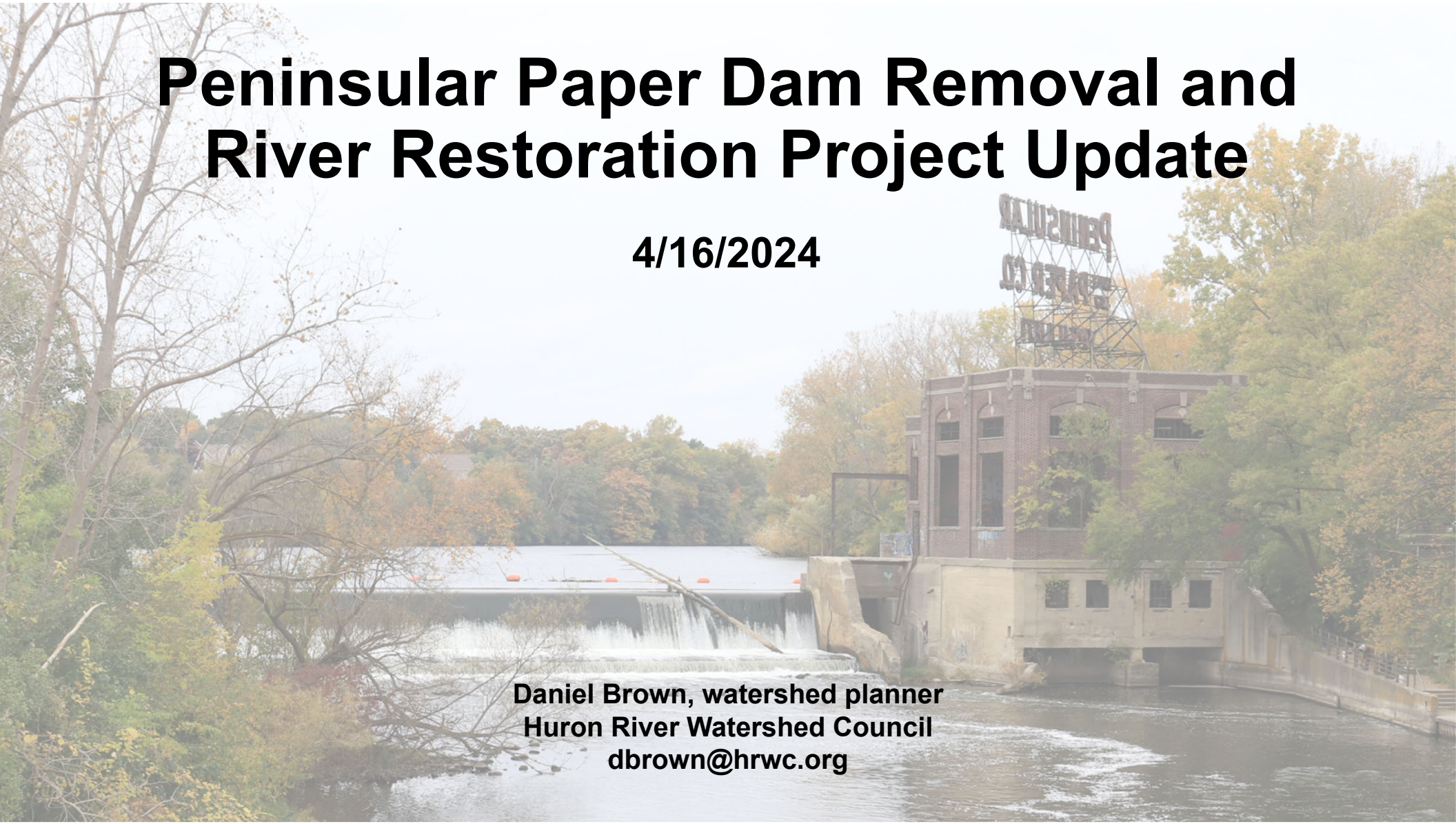
Peninsular Paper Dam Removal and River Restoration Project Update

4/16/2024



Daniel Brown, watershed planner
Huron River Watershed Council
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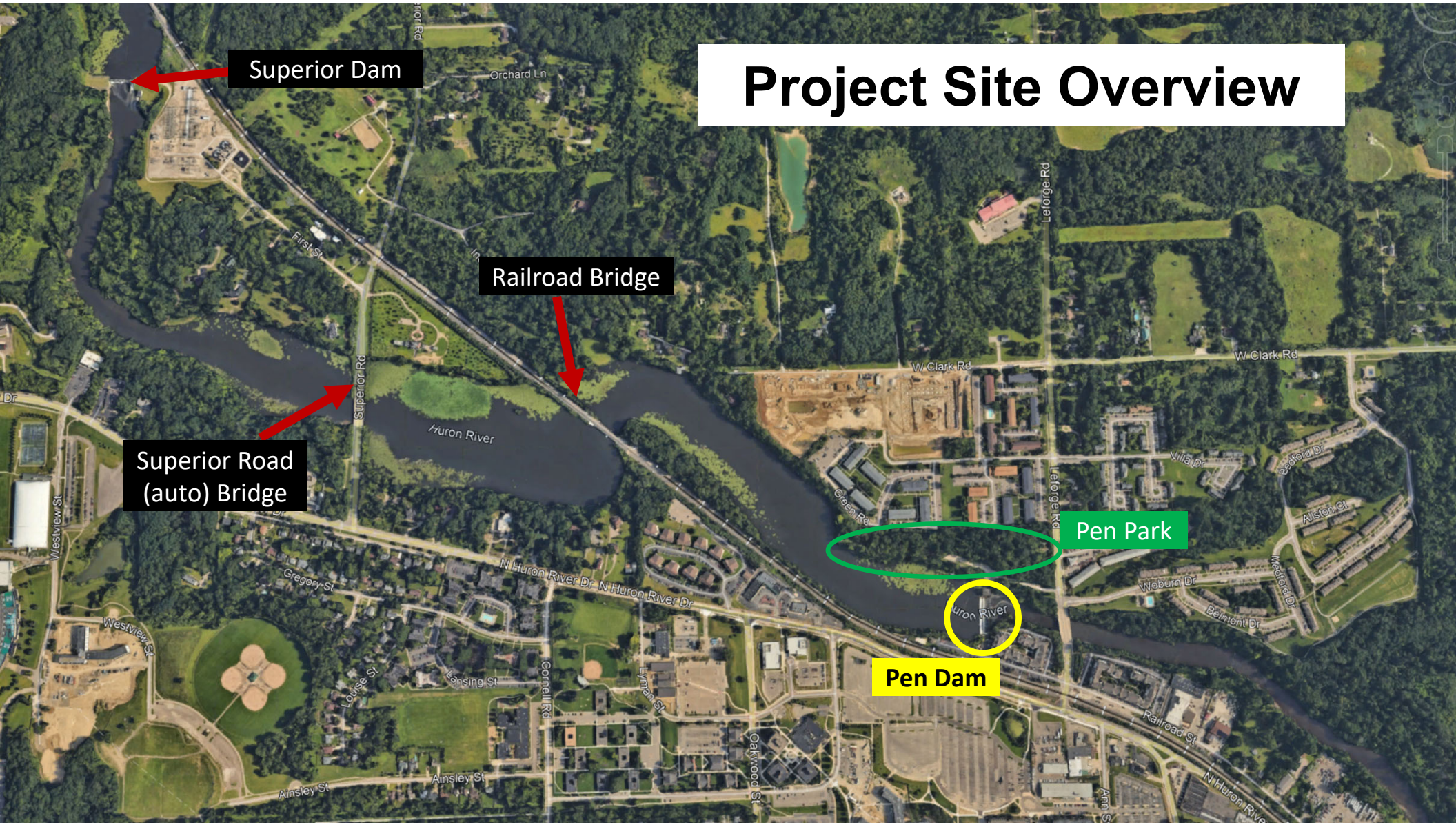

Project Site Overview
Superior Dam
Railroad Bridge
Superior Road
(auto) Bridge
Pen Park
Pen Dam
Huron River
N Huron River Dr
W Clark Rd
Superior Rd
Leforge Rd
Orchard Ln
First St
Gregory St
Westview St
Louise St
Lansing St
Cornell Rd
Lyman St
Oakwood St
Ainsley St
Railroad St
Green Rd
Villa Dr
Bedford Dr
Alston Ct
Woodfield Dr
Belmont Dr
Weburn Dr

Project Partners

The project is at the discretion of City of Ypsilanti.

Supporting agencies and organizations

- Huron River Watershed Council
- Washtenaw County Water Resources Commission
- Michigan Department of Natural Resources
- Michigan Department of Environment, Great Lakes, and Energy
- U.S. Fish and Wildlife Service regional office
- Eastern Michigan University
- University of Michigan

Technical Consultants (Current and Past)

AECOM, LimnoTech, Inter-Fluve, ECT, Princeton Hydro

Past Project Timeline and Status

Timeframe	Tasks
9/2018	Feasibility Study completed
3/2019	Ypsilanti decided to remove Pen Dam
9/2020	MDNR awarded $327K to project (COVID delay)
7/2021	MDNR awarded $334K to project (2020 Cycle)
10/2023	Activities funded by MDNR completed
2023	USFWS awarded to City of Ypsilanti $300K
2023	EGLE awarded to City of Ypsilanti $3.8 million
Current	RFP for dam removal to be posted pending EGLE review

Future Project Timeline

Timeframe	Tasks
Summer 2024	Mussel survey efforts led by HRWC to be completed
June 2024-June 2025	Remaining permitting, plans, and designs
Summer 2025	Mussel relocation to be completed, site construction preparation
Late Summer 2025	Impoundment dewatering begins
Fall 2025-Fall 2026	Dam removal and primary river restoration completed
2026 and beyond	Refinement restoration and environmental monitoring

Project Funding Needs

Planning, Design, and Permitting	$785,000
Dam Demolition and Removal	$2,957,110
Restoration Activities and Sediment Management	$10,304,180

The City's financial commitment of $500,000 to the project remains unchanged from 2019. Any additional funds will need to be raised from external sources.

Princeton Hydro estimated the cost of removal at $2.66M in 2018, including scour protection of two bridges. That component of project cost has remained relatively stable despite high construction-related inflation.

Based on community feedback, the location and visibility of the project, and the potential ecological value of this river stretch once restored, the project team has chosen to set a higher fundraising target with more active sediment management and restoration activities.

Project Funding Secured and Pending

Sources of Match and Secured Funding*		
EGLE Dam Risk Reduction Grant Program 2023	$	3,781,654
USFWS National Fish Passage Program 2023	$	300,000
City of Ypsilanti	$	415,000
Huron River Watershed Council (Walters Family Foundation Grant)	$	100,000
Total Funding Secured	**$**	**4,596,654**
Pending Funding Opportunities Not Yet Secured		
EGLE Dam Risk Reduction Grant Program 2024	$	4,000,000
FEMA High Hazard Dam Program	$	4,000,000
USFWS National Fish Passage Program BIL (2024 cycle)	$	800,000
MDNR Fisheries Habitat Grant Program (2023 cycle)	$	500,000
National Fish and Wildlife Foundation National Coastal Resilience Fund	$	7,500,000

**Does not include funding and match already applied in previous phases.*

Acknowledgements

Senator Jeff Irwin

Representative Jimmie Wilson Jr.

Congresswoman Debbie Dingell

Commissioner Annie Somerville

All provided support for fundraising efforts.

Walters Family Foundation provided direct financial assistance for HRWC to apply as fundraising match.

Peninsular Paper Dam Removal and Huron River Restoration

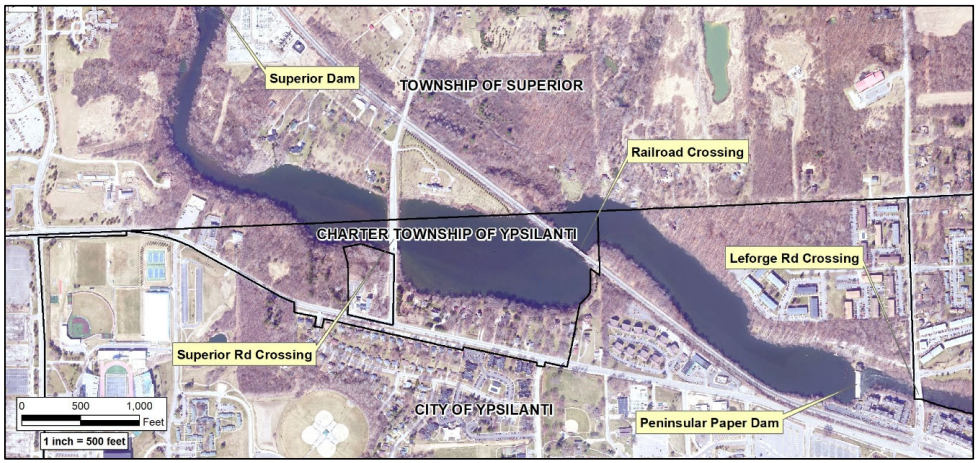
City of Ypsilanti City Council Meeting
April 16, 2024

Mario.Sebastiani@aecom.com

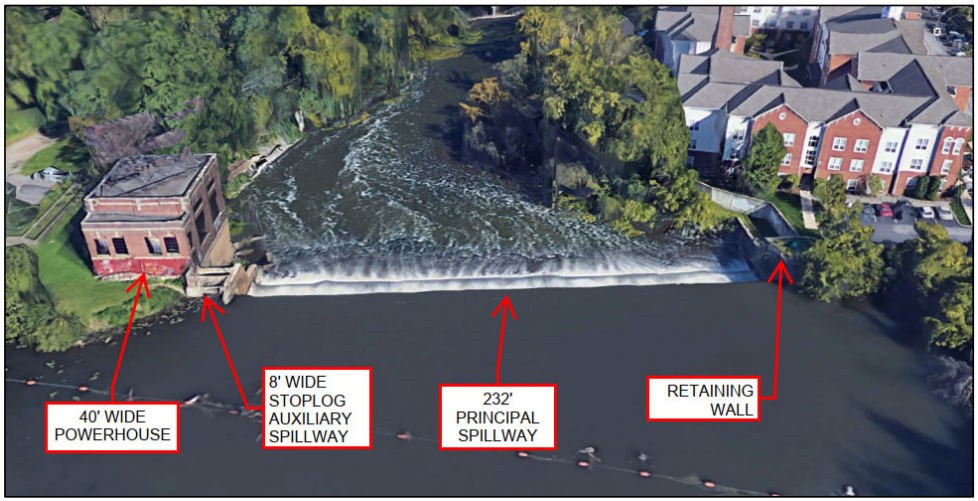
Delivering a better world

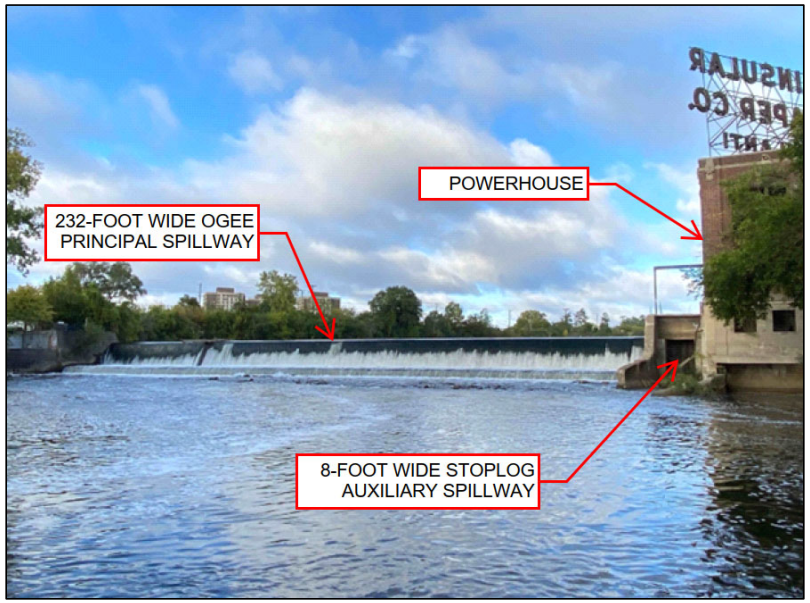
aecom.com

Background



- Originally constructed in 1867 and rebuilt in 1920
- High Hazard Potential Classified dam
- Maintains approximately 14 feet of water
- Creates a 66-acre impoundment extending approximately 1.25 miles



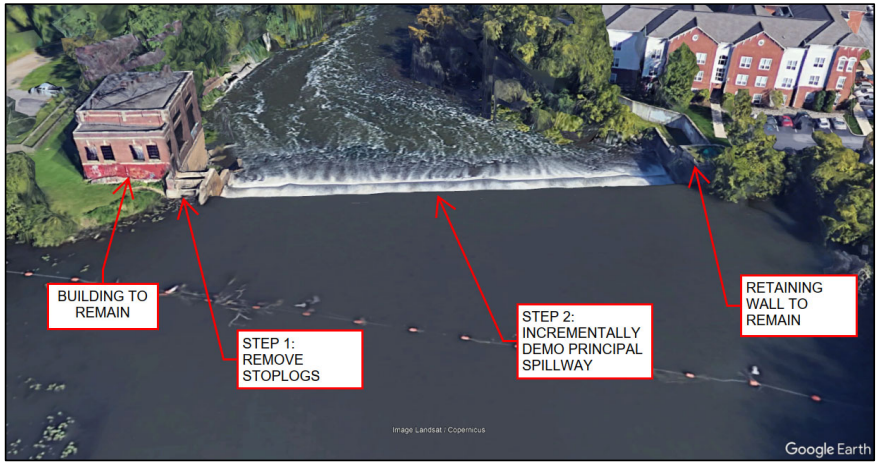


Project Objectives

1. **Eliminate safety issues** involving the existing dam structure and potential dam failure.
2. **Re-establish connectivity** for fish, aquatic organisms, flow, sediment, and recreational users.
3. **Establish a stable channel form** which will pass flow and sediment delivered from upstream.
4. **Provide fish passage and river habitat** within the restored impoundment.
5. **Minimize impacts** to adjacent landowners, infrastructure, and sensitive slopes within the former impoundment as well as downstream reaches of the Huron River.
6. **Create a community amenity** for recreation and ecologic health.

Dam Demolition / Dewatering

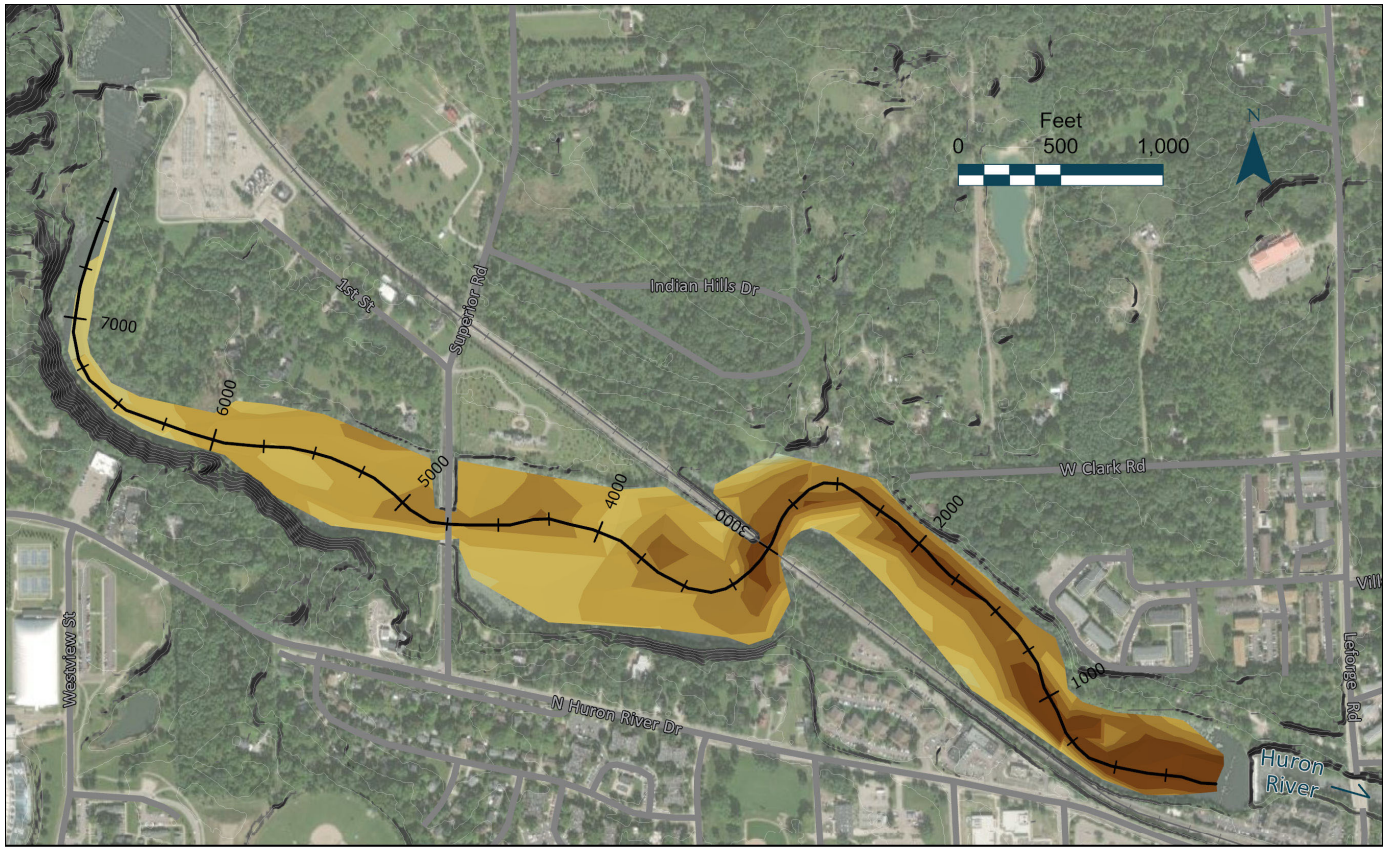
1. Removing a dam is a slow, careful, and incremental process.
2. The maximum dewatering rate is half a foot per day (state regulation).
3. To people downstream of the dam during demolition, the additional flow is largely negligible. It may look like the river after a rain event.
4. The dewatering operation will need to be carefully coordinated with the sediment management activities upstream.
5. Once turbidity curtains and sediment traps are installed downstream of the dam to capture accumulated sediment and demolition debris, incrementally lower the impoundment by removing stoplog timbers from the auxiliary.
6. The remaining drawdown will occur by notching the principal spillway crest to lower the impoundment slowly and carefully. This can be accomplished by using an excavator-mounted hydraulic jack hammer.



Stoplog Auxiliary Spillway

Principal Spillway

Historic Riverbed



DOR Elevation (ft)

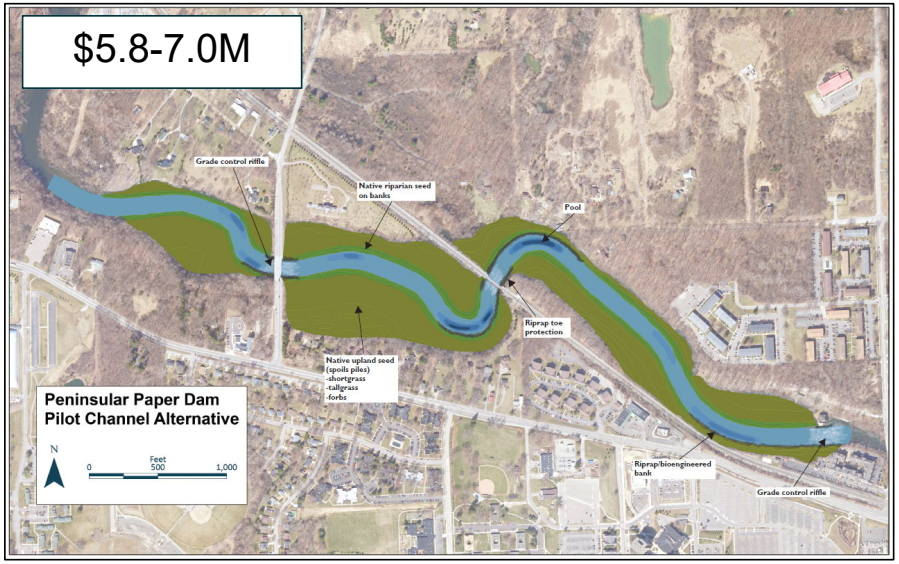
700 704 708 714

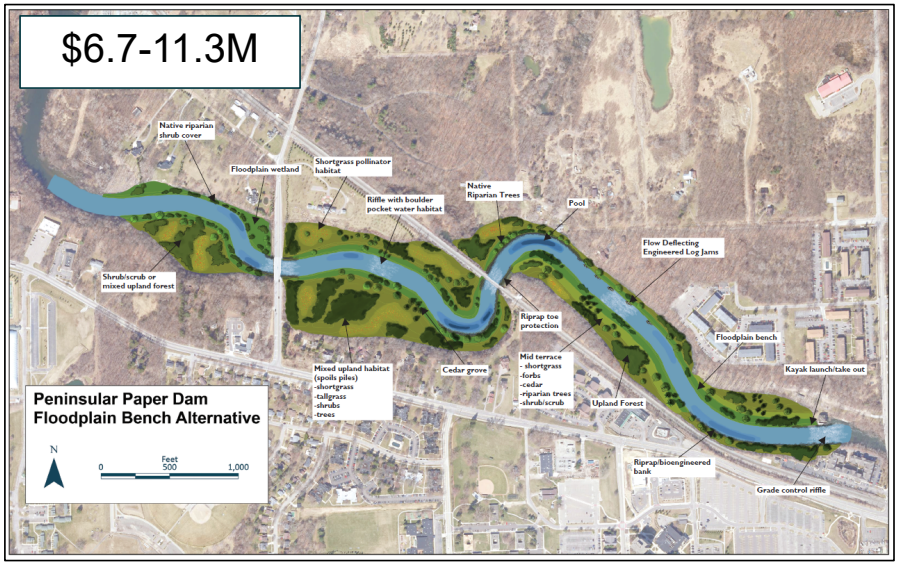
Notes:
1. 10 foot contours based on 1/9 Arcsecond NED DEM
2. Bathymetric and DOR data collected by Inter-Fluve Inc. May 10-14, 2021.
3. Horizontal Datum - HARN/MI Michigan State Planes, South Zone, Intnl Foot Vertical Datum - NAVD88

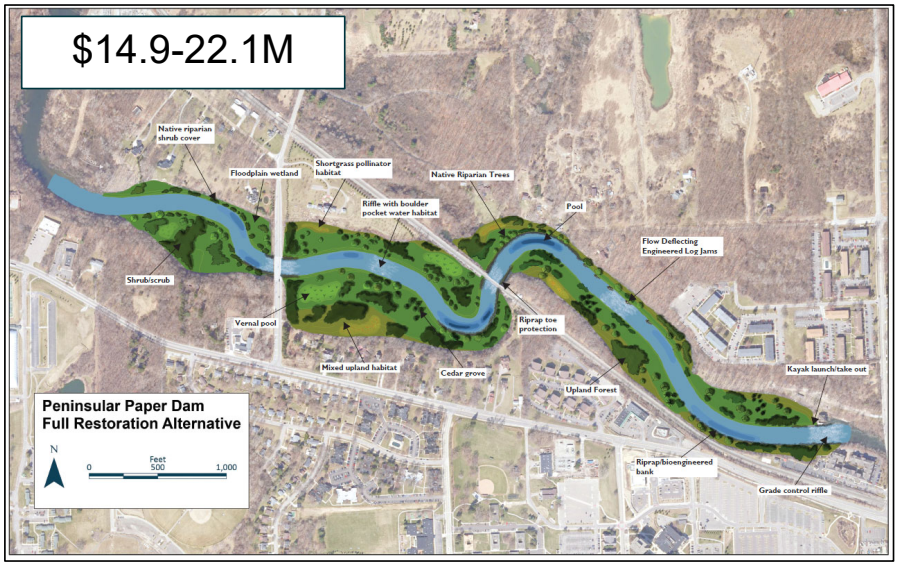
Peninsular Paper Mill
Dam Impoundment
Huron River, Michigan

1. A key component of river restoration is restoring the pre-dam channel and floodplain.
2. Back in May 2021, Inter-Fluve collected bathymetric and depth-of-refusal (DOR) data in the impoundment to estimate the depth of sediment accumulated behind the dam and to determine the pre-dam channel alignment.
3. Our design focuses on returning the river as close to its pre-dam condition as possible within project and budget constraints.

River Restoration Alternatives Considered



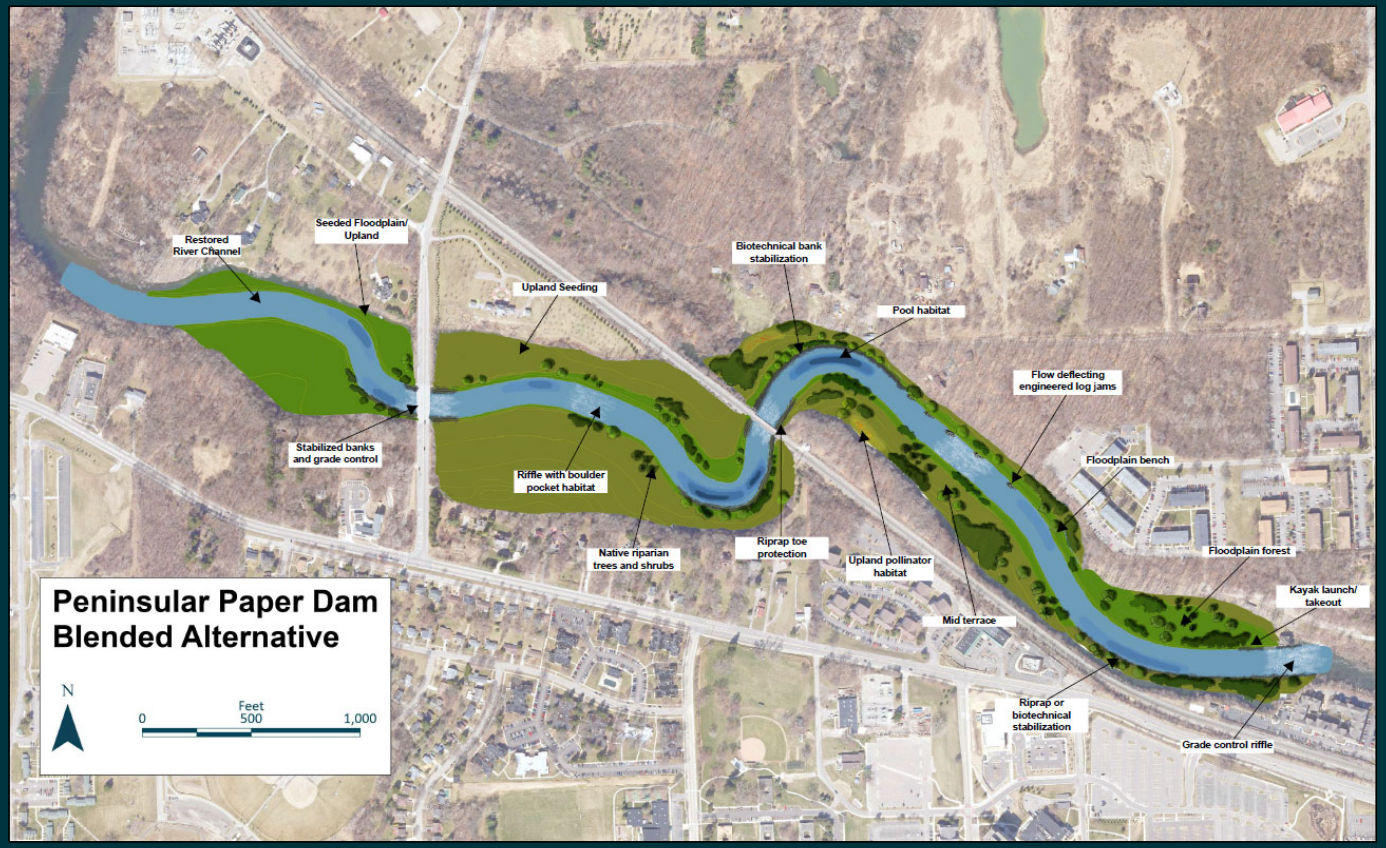




Proposed Channel Geometry:

- Top width of 143 feet
- Depth of 4.3 feet
- Slope of 0.19%

Huron River Restoration Rendering



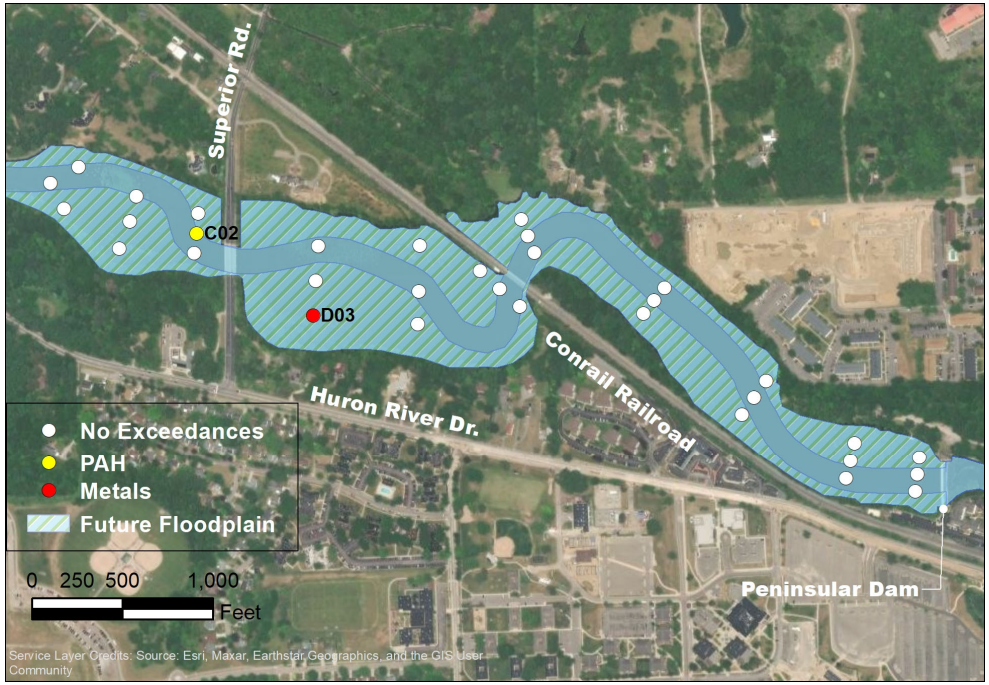
Source: Inter-Fluve

A “blended” alternative was ultimately selected for design:

1. Full dam removal of Pen Dam.
2. Full restoration of recovered lands in and adjacent to Pen Park on lands owned by the City of Ypsilanti.
3. Minimal alteration to recovered lands beyond a floodplain bench between the railroad bridge and Superior Road bridge.
4. Minimal alteration to recovered lands beyond the pilot channel upstream of the Superior Road bridge.

Example Renderings of River Restoration

Proposed Sediment Management Strategy



- To reduce impacts to downstream areas, we are proposing an active sediment management operation with primarily on-site disposal via hydraulic dredging or conventual excavation options.
- Contaminated sediments will be properly placed and capped in proposed floodplain areas.

PENINSULAR PAPER DAM

SEDIMENT SAMPLING RESULTS

APRIL 16, 2024

inter·fluve

AECOM

LimnoTech

Water Environment | Scientists Engineers

SEDIMENT SAMPLING – WHY?

Evaluate whether there are pollutants present in the sediment that can harm **public health** or the **natural ecosystem.**

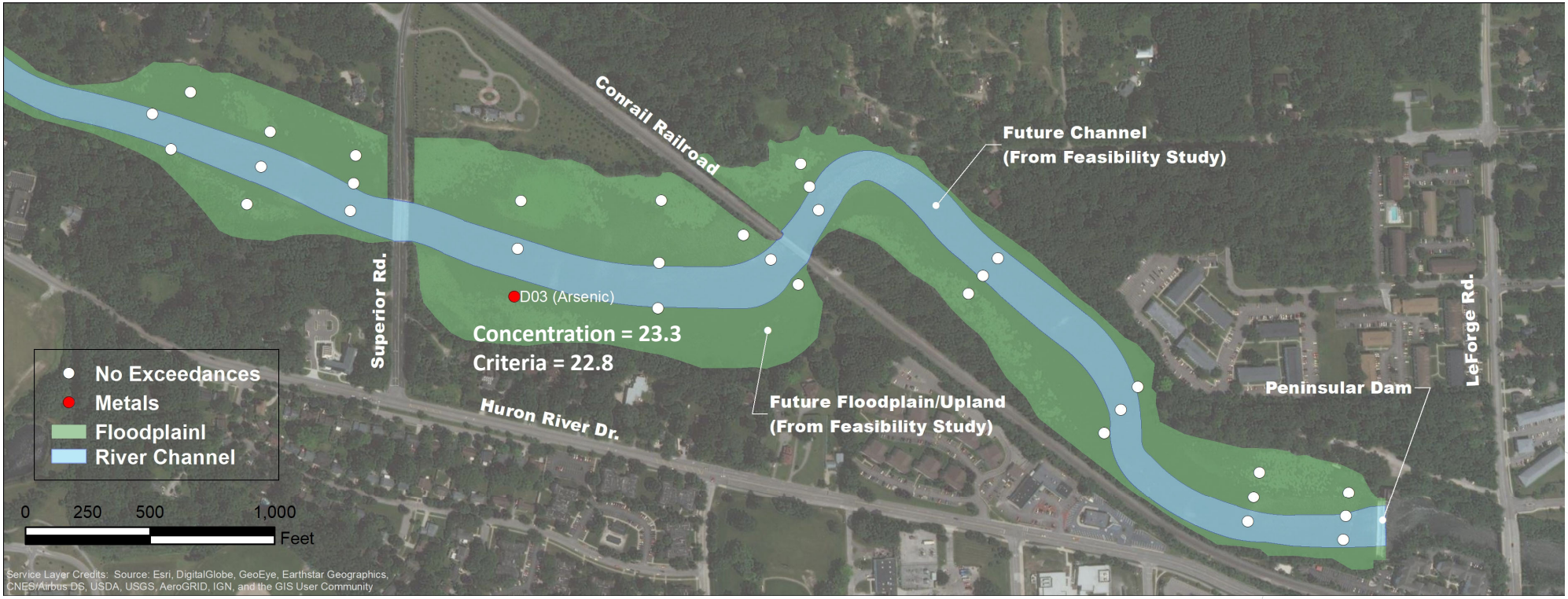
These measures are necessary to properly design and manage the sediment during dam removal and channel restoration.

Sediment Sample Cores

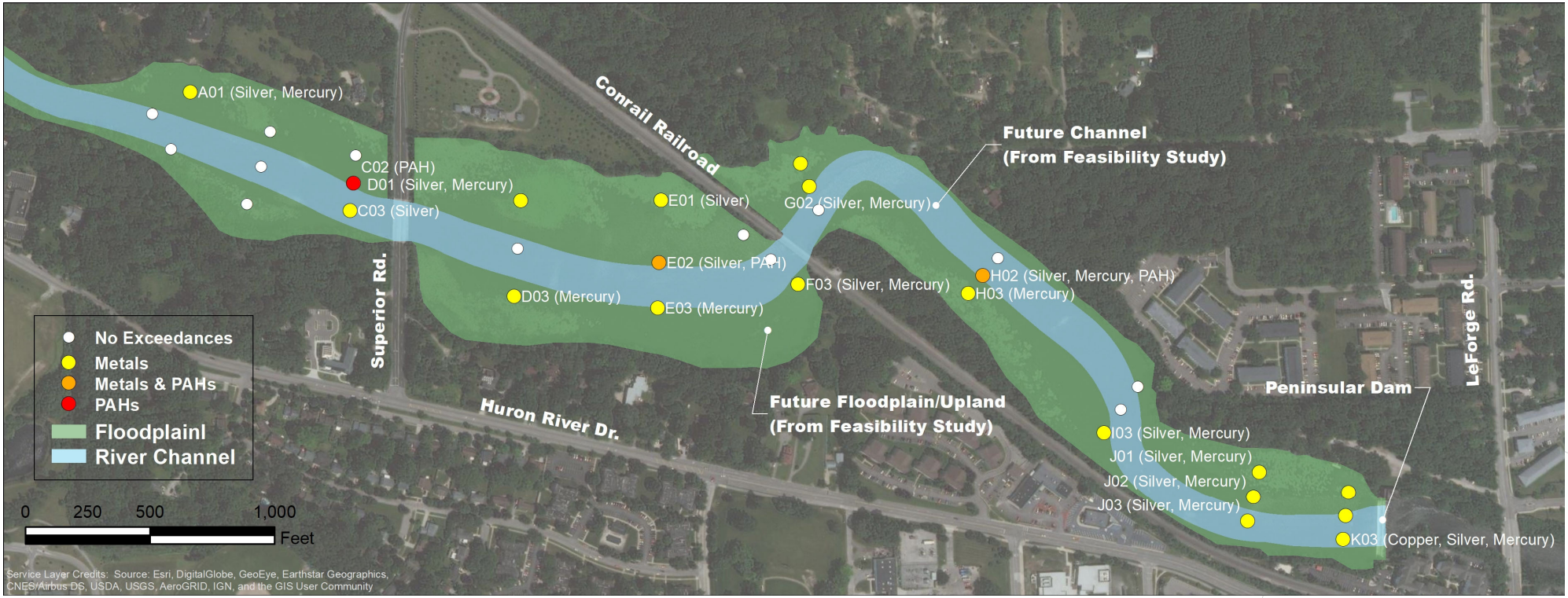
SEDIMENT QUALITY ANALYSIS

- Metals (Michigan 10 Required):
  - Arsenic
  - Barium
  - Cadmium
  - Chromium
  - Copper
  - Lead
  - Selenium
  - Silver
  - Zinc
  - Mercury
- Other
  - Phosphorus
  - Moisture Content
- PCBs (Ford Lake)
- Polycyclic aromatic hydrocarbons (PAHs)
  - Acenaphthene
  - Acenaphthylene
  - Anthracene
  - Benzo(a)anthracene
  - Benzo(a)pyrene
  - Benzo(b)fluoranthene
  - Benzo(g,h,i)perylene
  - Benzo(k)fluoranthene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluoranthene
  - Fluorene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Phenanthrene
  - Pyrene
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene

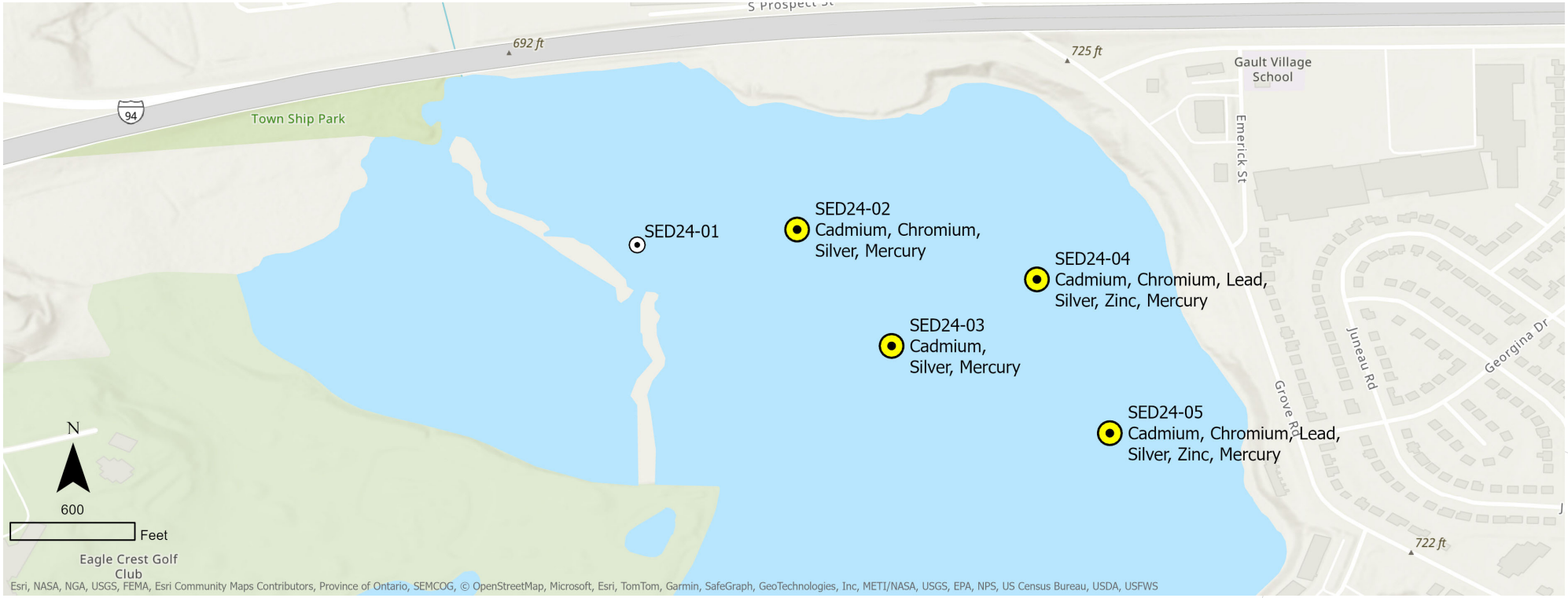
Peninsular Dam Impoundment
Human Contact Sediment Quality Criteria Exceedances



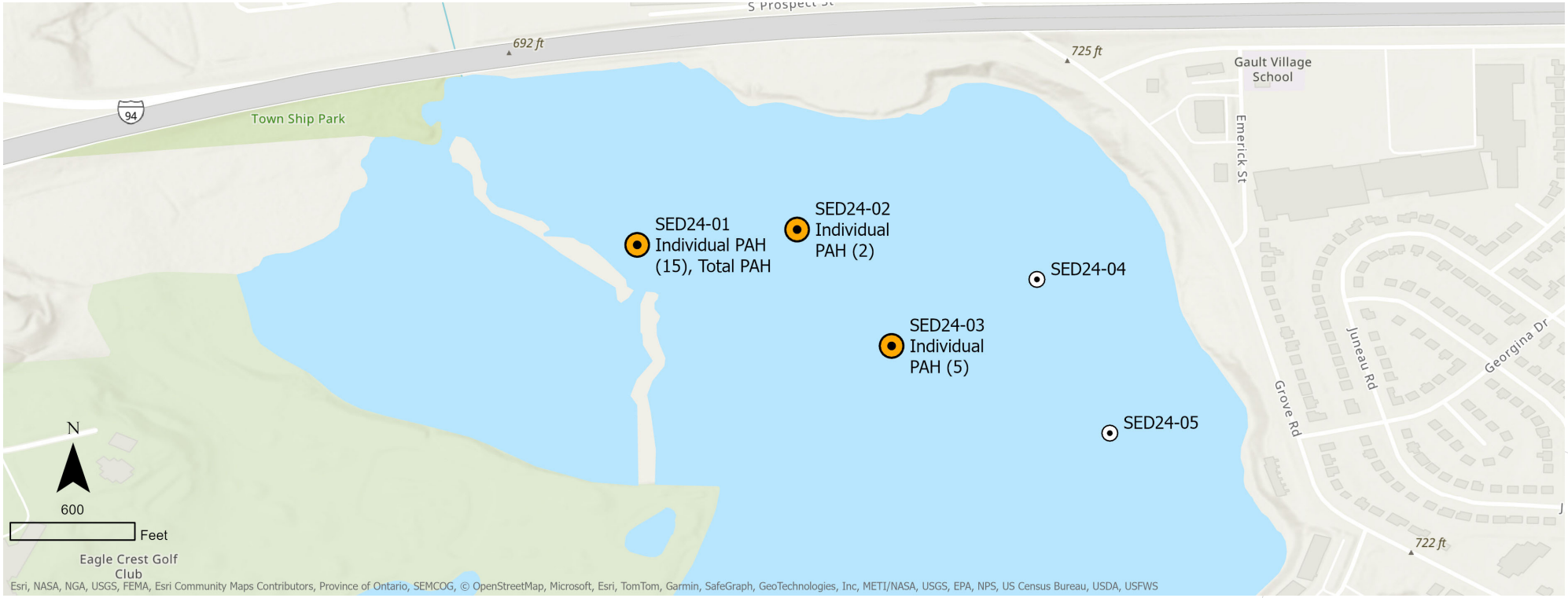
Peninsular Dam Impoundment
Ecological Sediment Quality Criteria Exceedances



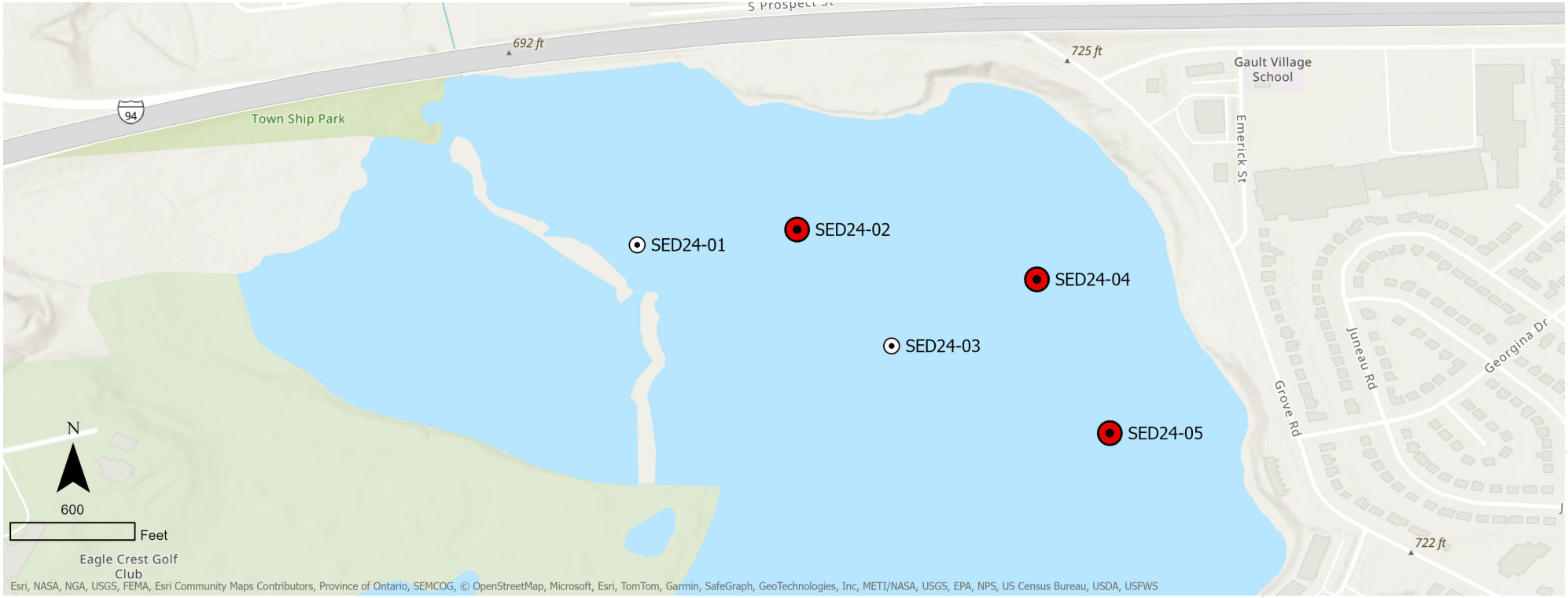
Ford Lake
Ecological Sediment Quality Criteria Exceedances - Metals



Ford Lake
Ecological Sediment Quality Criteria Exceedances - PAHs



Ford Lake
Ecological Sediment Quality Criteria Exceedances - PCBs



Sediment Sampling Conclusions

- The Sediment Management Plan for the Peninsular Dam Removal and Channel Restoration requires active management for removal and disposal where sediment samples exceeded criteria for ecological protection and direct human contact.
- Confirms that the sediment at the upstream impoundment of Ford Lake have exceedances of sediment quality criteria for aquatic ecosystems
  - PAHs prevalent at site closest to the Huron River mouth into the impoundment
  - Metals exceedances at four (4) of the five sampling locations
  - PCBs exceeded sediment quality guidelines at 3 locations – further downstream likely where finer sediments are deposited.
- The sediment quality in the upstream portion of sampled in Ford Lake are generally worse than the sediment quality in the Peninsular Dam impoundment.
  - Active management of contaminated sediment during the removal of Peninsular Dam will reduce the likelihood of impacts downstream.

THANK YOU!

FOR MORE INFORMATION, VISIT: HRWC.ORG/PENDAM

OR EMAIL DBROWN@HRWC.ORG

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AECOM

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