



# Bank Remediation and Restoration for a Time Critical Removal Action with Water Control Structure Removal

Joseph W. Caryl  
Principal Construction Manager

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# Agenda

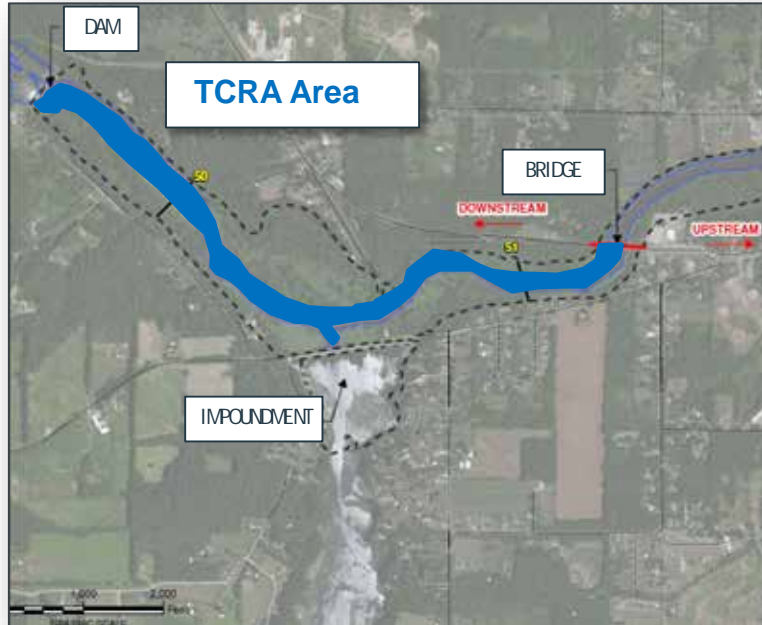
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- Background
- Goals/Objectives
- Pre-Design
- Design Considerations
- Implementation
- Results/Lessons Learned

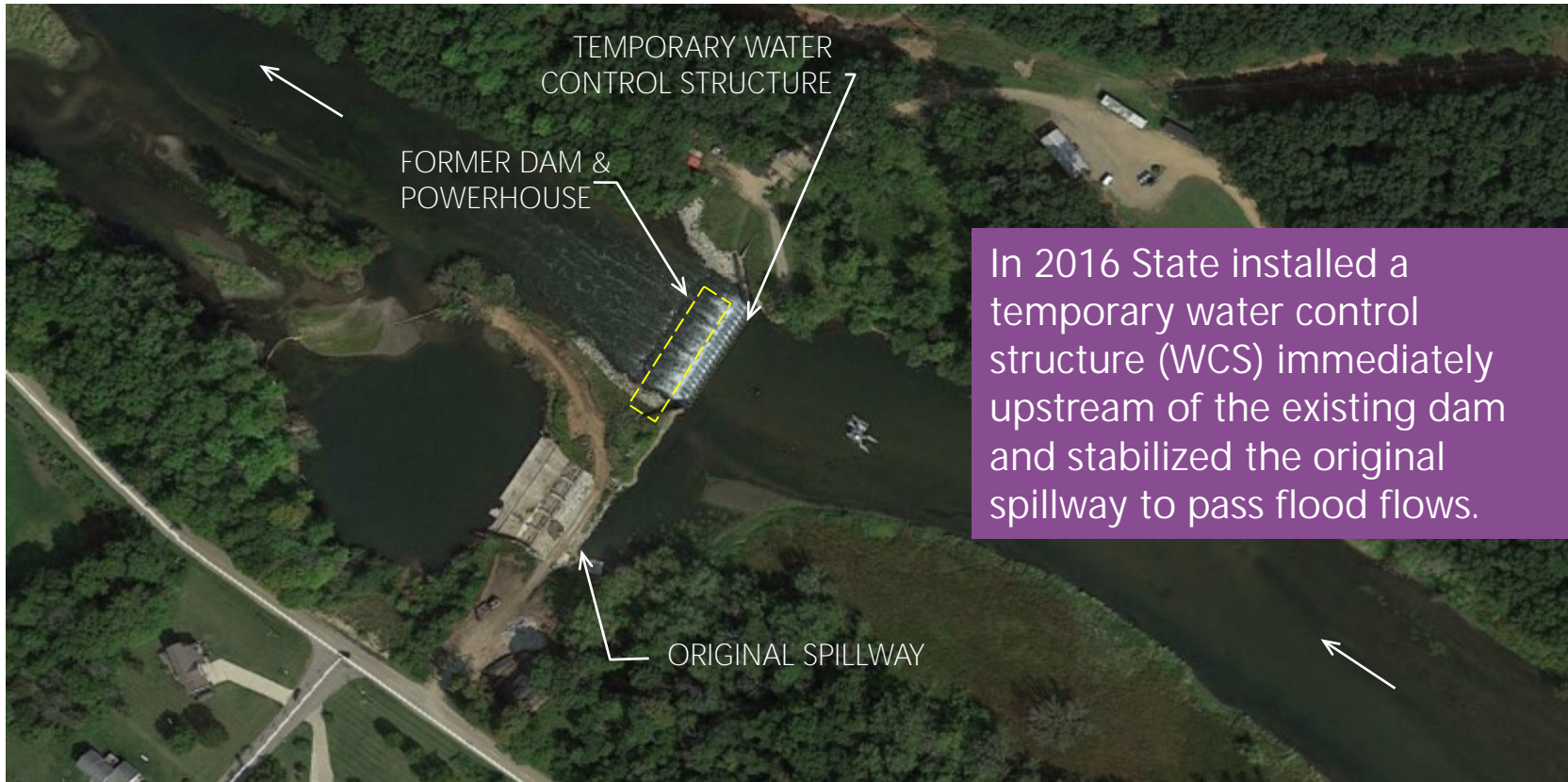


# Background

- Time Critical Removal Action with dam removal from a EPA Region 5 river Superfund Site
- Bank stabilization and sediment removal along 1.7 miles
- Design criteria based on hydraulic and sediment transport model results



# Former dam area



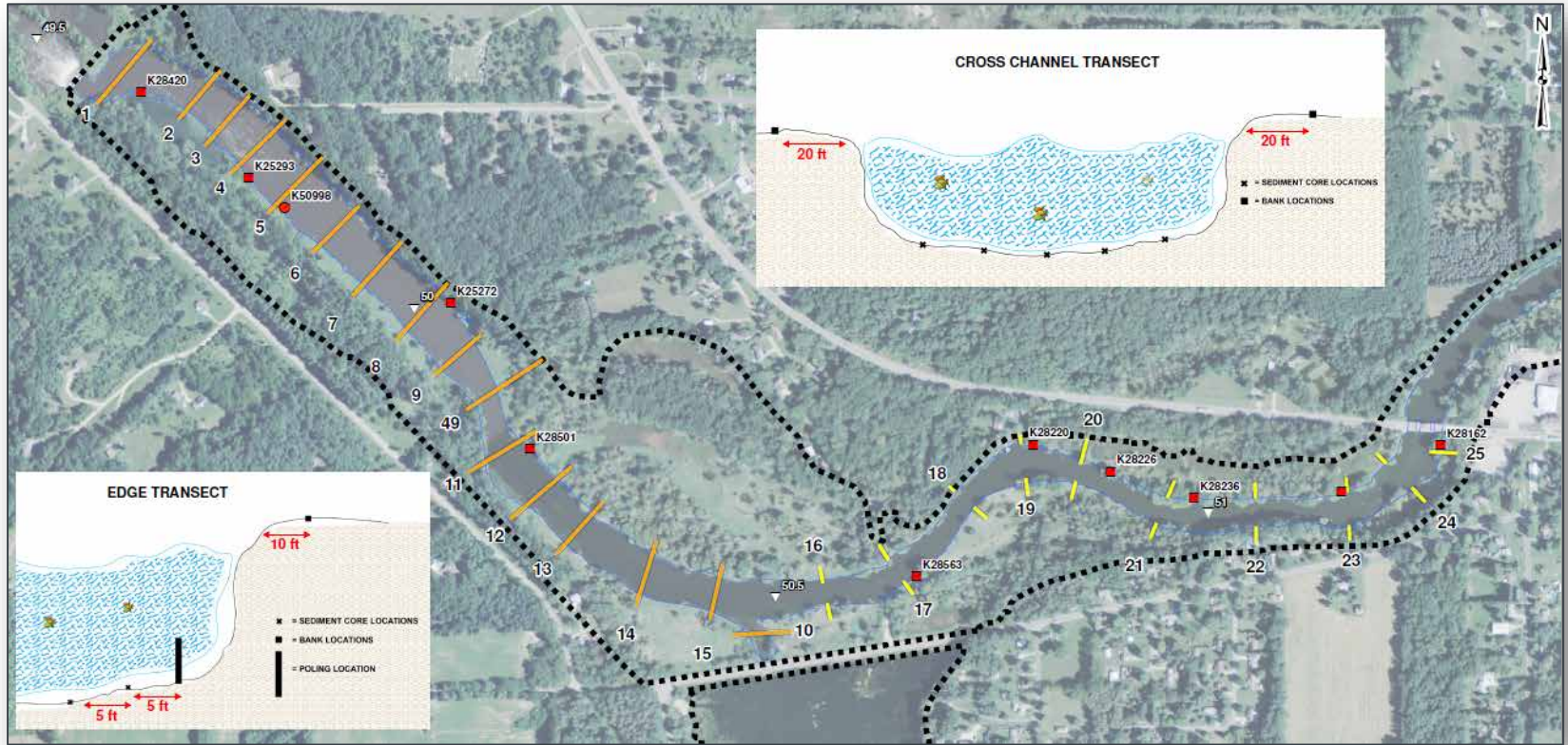
# Goals

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- Provide a stable river condition with dam removed
- Address potentially erodible sediment/banks containing PCBs



# Pre-design work

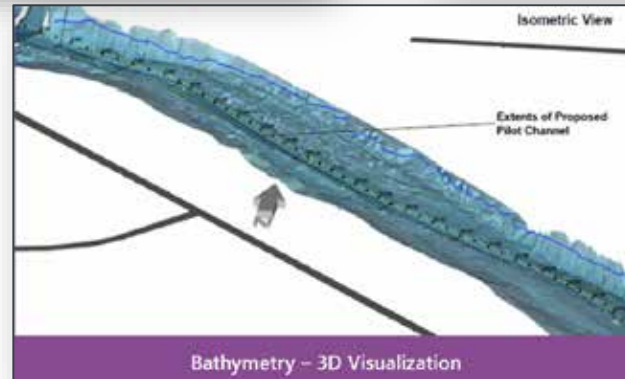
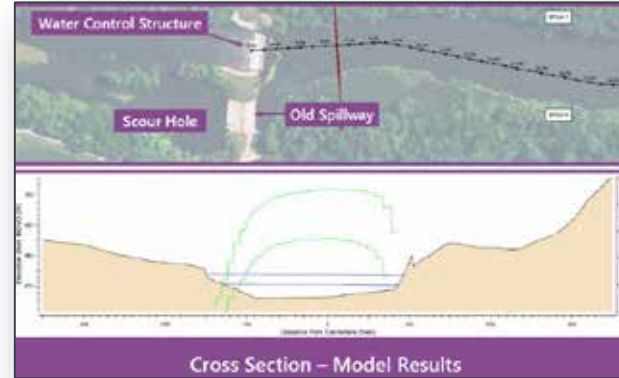
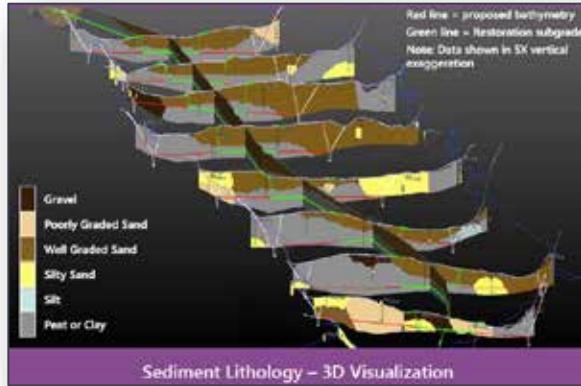


# Design considerations and approaches

- Designed in phases by bank removal and stabilization areas (9 total)
- Contractor collaboration
- Protect endangered species
- Long-term protection against erosion of steep banks
- Utilize functional bank treatments
  - coir face
  - root wads
  - joint planting
  - install J-hooks to redirect flow
- Protection of existing structures
  - bridge
    - coordinate with DOT
  - water control structures



# New channel design



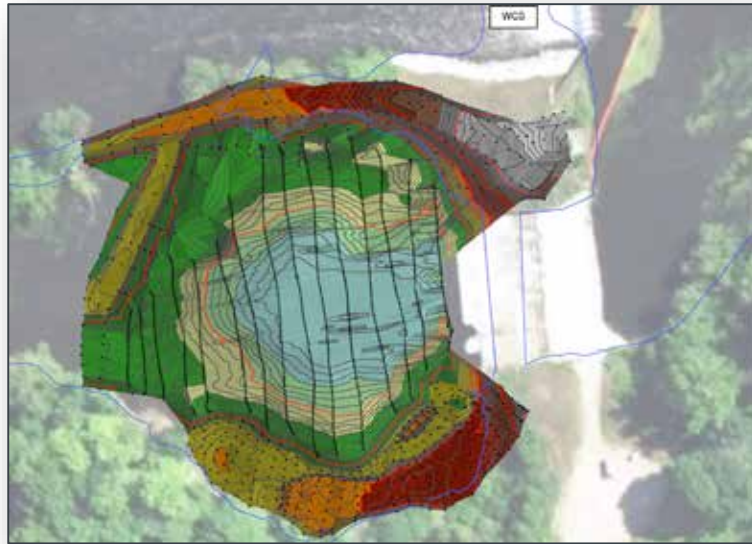


# Design – pilot channel

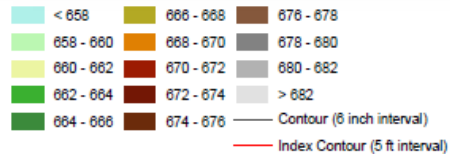
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# Pilot channel – sediment reuse



## Elevation (feet, NGVD 29)



## Note:

WCS = Water control structure  
 NGVD 29 = National Geodetic Vertical Datum of 1929

- Shoreline
- Survey Locations

# Implementation – bank/sediment removal and restoration

- Clearing/access roads
- Staging areas/water treatment
- Cofferdam systems
- Bank/sediment removal
- Restoration



# Implementation – J-hooks

- Boulders sized to withstand 100+ year flow
- J-hooks situated according to modeled locations; boulder placement guided by GPS survey equipment
- Height of J-hook in-field adjustment



Aerial view  
after J-hook  
Installation

# Implementation – pilot channel and beneficial sediment re-use

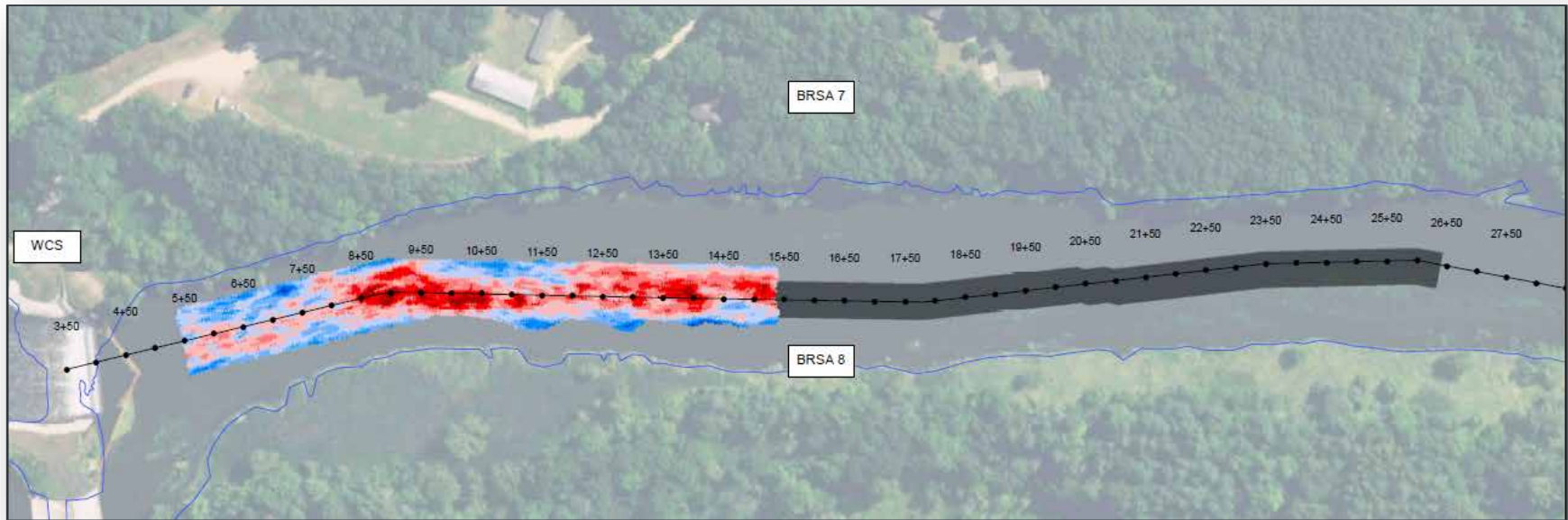
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# Implementation – dredging and turbidity controls



# Implementation – monitoring dredging progress



# Implementation – water control structure removal





# Project completion



Image from drone –  
looking upstream at  
completion of construction

# Results

- Completed successfully, within schedule and budget
- A high flow event occurred during construction without significant damage or delay
- The river stabilization structures remain stable and functioning as intended



# Results - restoration

- 8,900 LF joint planting
- 5,700 LF of root wads
- 2,200 LF coir fabric



# Sustainability/Community Relations

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Local Vendors Used
Aggregates
Sand & Gravel
Trucking
Sheet Pile Cofferdam
General Supplies
Accommodations

Materials Recycled	
Cardboard	1,590 lbs.
Plastic	845 lbs.
Metals	44,276 lbs.
Total	46,711 lbs.





## Questions?

Thank you!  
For more information:

Joseph W. Caryl  
Principal Construction Manager  
[joseph.caryl@woodplc.com](mailto:joseph.caryl@woodplc.com)  
248-313-3678

woodplc.com

