Oronoco Dam Removal and Zumbro River Restoration Project

Presented to the Project Oversight Committee

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August 29, 2012

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Agenda

1. Zumbro River Restoration Engineering and Design
2. Cultural Resources Study Update
3. Asbestos Clean up
4. Lakebed Property / Easement Acquisition
5. Project Costs and Funding
6. Potential Grant Submittals
7. Project Schedule

1. Zumbro River Restoration Engineering and Design

- Primary Engineering Components
  - A. Grade Control Structure (Gradual Rapids)
  - B. Stream Design, Alignment and Wetland Features
  - C. Dam Removal

– Balance overall design –
hydraulic analysis needs to
show a "no-rise" condition
With channel design requirements
and constructability challenges

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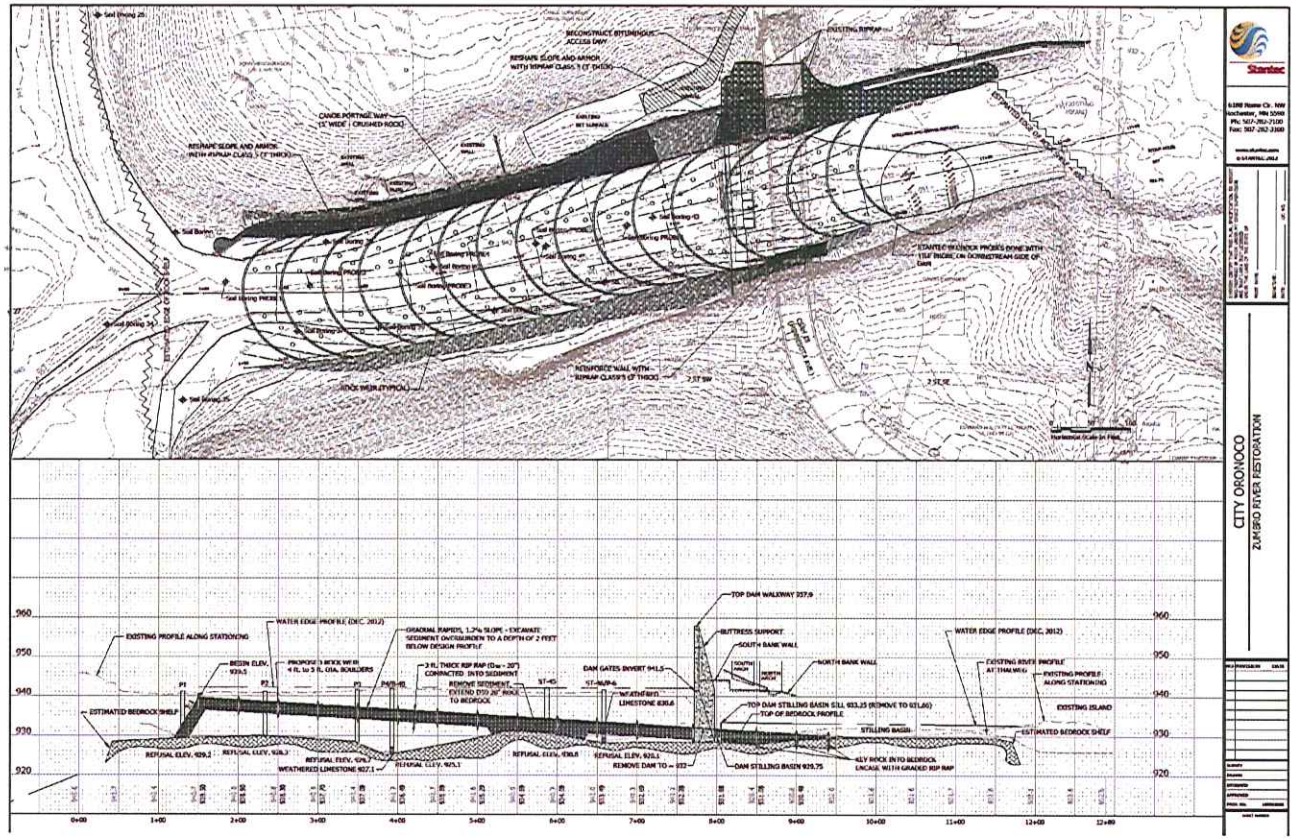
1. Zumbro River Restoration Engineering and Design

A. Grade Control Structure (Rock Arch Rapids)



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1. Zumbro River Restoration Engineering and Design

A. Grade Control Structure (Rock Arch Rapids)

- Remove sediment – replace with 3' riprap & 4-5' boulders
- Slope estimated – 1%
- Grade change estimated – 5-7 feet
- Tie into bedrock

PLACEMENT OF BOULDER WEIRS (courtesy Luther Aadland)

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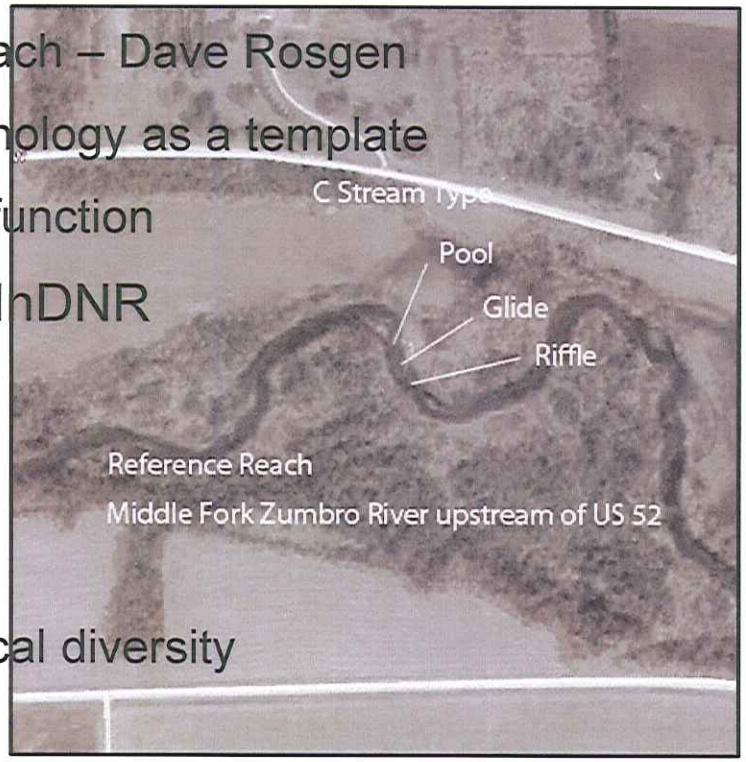
1. Zumbro River Restoration Engineering and Design

B. Stream Design & Alignment

- River Restoration Design Philosophy
  - Natural stream design approach – Dave Rosgen
  - Use reference channel morphology as a template
  - Natural stability, habitat and function
- Design in collaboration with MnDNR
- Objectives
  - Streambank stability
  - Improved visual values
  - Provide fish habitat & biological diversity
  - Manage sediment



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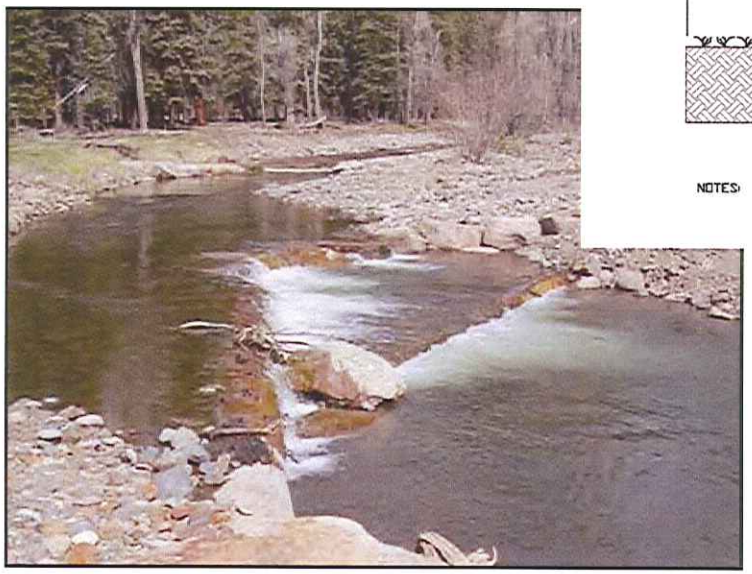
1. Zumbro River Restoration Engineering and Design

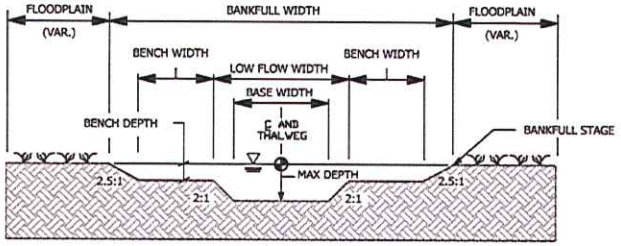
B. Stream Design & Alignment

- Design incorporates
  - Riffles, Pools and Glides
  - Toe Wood Stabilization
  - Channel Geometry



MIDDLE FORK
TYPICAL SECTION - RIFFLE SCALE: NTS

DIMENSION	LENGTH (FT)
BANKFULL WIDTH	52.4
BASE WIDTH	7.4
MAXIMUM DEPTH	7.8
BENCH DEPTH	4.1
LOW FLOW WIDTH	32.0
BENCH WIDTH	4.7



NOTES: - ALL CROSS SECTIONS ARE SHOWN LOOKING IN THE DOWNSTREAM DIRECTION
⊕ - GRADE POINT IS THE CENTERLINE OF THE STREAM
- ALL SHARP CORNERS SHOULD BE ROUNDED

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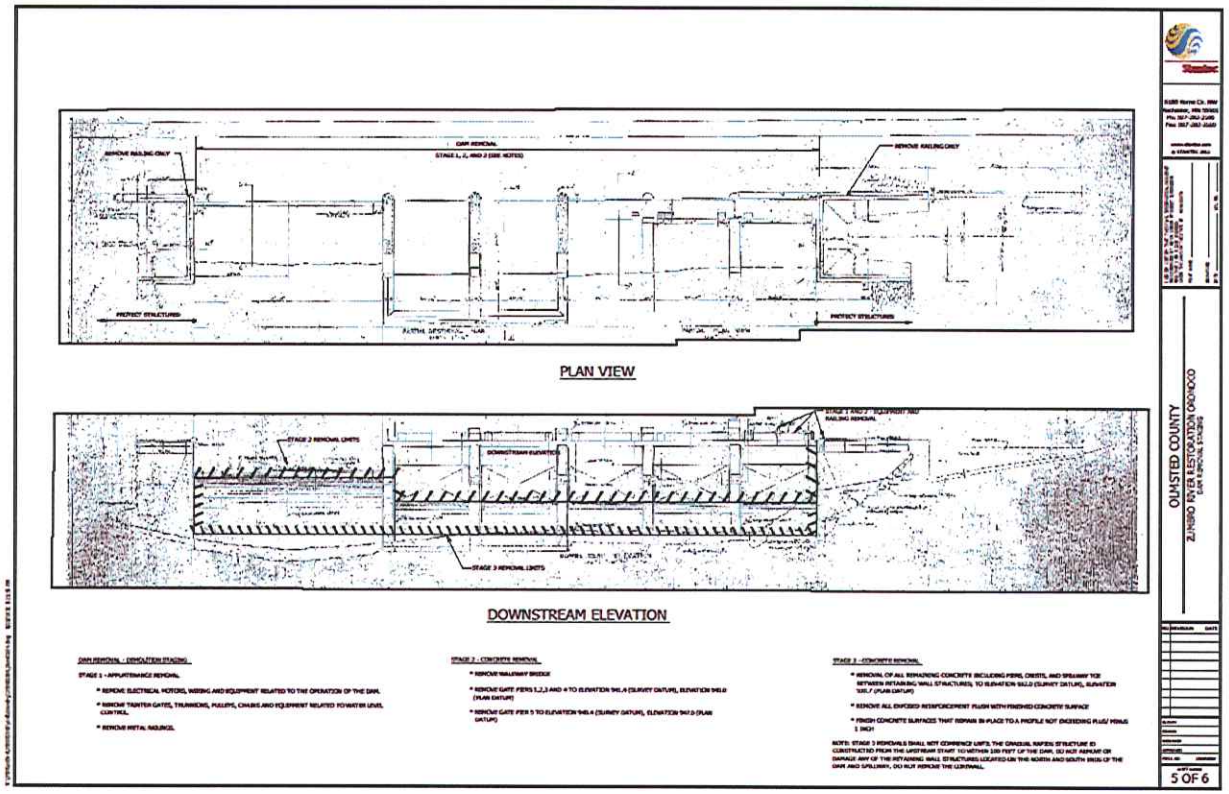
1. Zumbro River Restoration Engineering and Design

C. Dam Removal

- Breach dam in stages
- Use upstream side of dam as a sediment catchment
- Phase construction
  - Partial dam removal
  - Construct grade control structure in stages
  - Construct upstream river channels
  - Remove remainder of the dam
  - Clean Sediment Basin & complete grade control structure

1. Zumbro River Restoration Engineering and Design

C. Dam Removal



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2. Cultural Resources Study Update

- Cultural Resources Study – required component of the EAW (Environmental Assessment Worksheet)
- County solicited proposals and selected Summit Envirosolutions, Inc. in May 2012
- Scope of Work (within APE)
  - Archaeological Phase I survey
  - Architectural Phase I survey

  APE – Area of Potential Effect = project area + 1-mile buffer

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2. Cultural Resources Study Update

- Summary of Results
  - Phase I Archeological Study

	Status
Background research	✓ completed
Field work (visual reconnaissance w/shovel tests)	✓ completed
Draft technical report	✓ 75% complete
Phase II Archaeological Evaluation is most likely <u>not</u> required	✓ completed

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2. Cultural Resources Study Update

- Summary of Results
  - Phase I Architectural Study

	Status
Background research	✓ completed
Architectural History Survey (descriptions, photographs, inventory data)	✓ completed
Draft technical report	✓ 50% complete
Phase II Architectural History Evaluation is most likely required	✓ TBD

2. Cultural Resources Study Update

- Summary of Results
  - Phase II – formal evaluation of Oronoco Park may be recommended and may be eligible for listing in the National Register of Historic Places (NRHP).
  - The Oronoco Dam had previously been determined eligible for listing
  - The park and dam are linked through their association with WPA programs in Minnesota

3. Asbestos Cleanup

- Transite (cement based board material with confirmed asbestos content)

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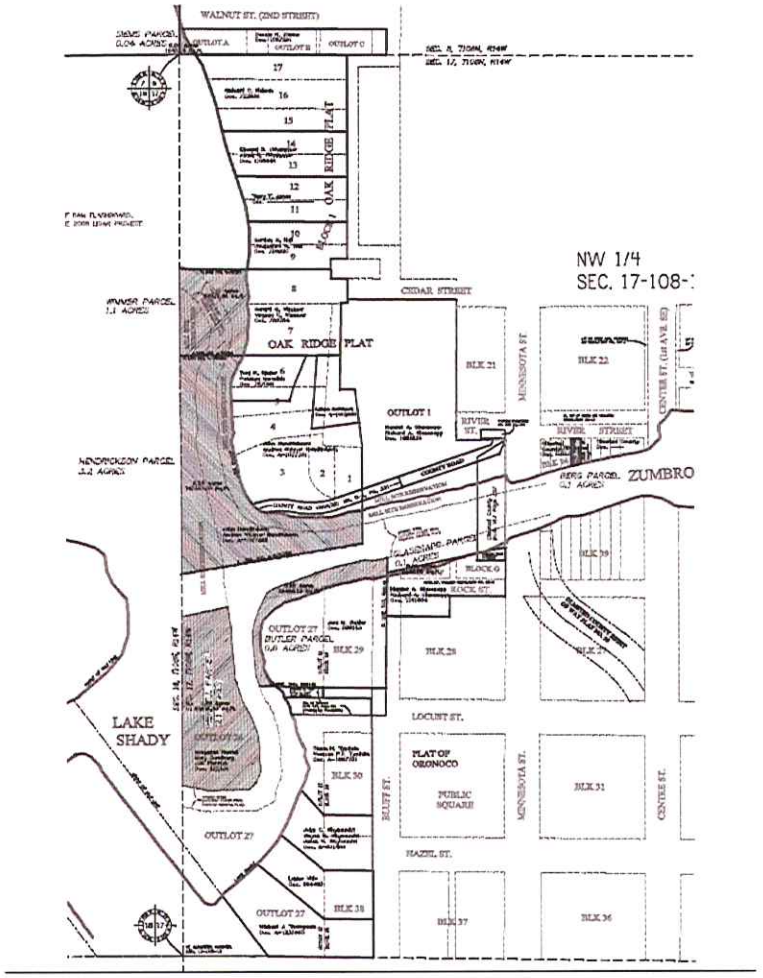
3. Asbestos Cleanup

- An asbestos Abatement Project Workplan was prepared to direct the cleanup
- County solicited proposals for cleanup and selected Mavo Systems
  - Initial cleanup – February 22
    - Cleanup amounted to about 1 ½ barrels
  - Second round cleanup – March 8
  - Final walk through by County and Designer – April 25
  - Follow up site visit by County & cleanup – June 25

3. Asbestos Cleanup

- Significant resources and cost have been expended for cleanup
- Some remnants of Transite may still exist
- Threat to the public and the environment is extremely low
- County has suspended efforts for additional cleanup unless large discoveries are made.

4. Lakebed Property/Easement Acquisition



20 letters sent to property owners

8 purchase offers made for 7.2 acres at a total cost of $12,582 (~1/2 is grant reimbursable)

Preliminary discussion with owner of 67.4 acre lakebed parcel

Total acquisition cost: $135,000 and $225,000

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5. Project Costs & Funding

- Phase I – River and Lakebed Restoration
  - Dam removal, grade control rapids construction, and preliminary engineering $1.5M
  - Stream channel restoration $1.31M
  - Lakebed /wetland restoration $1M
  - Lakebed / Park Area Passive Recreational and Access Improvements $1.39M
- TOTAL PHASE 1 ~$5M

5. Project Costs & Funding

- $1M Dam Safety Grant:
  - Expenditures to date: $229,041
  - Reimbursements to date: $161,084

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6. Potential Grant Submittals

- Lessard-Sams Outdoor Heritage Council – DNR is submitting a request for an additional $1.4M (total of $2.5M)
  - Requires that the lakebed be in public ownership – estimated cost is $135,000 to $225,000
- Other Clean Water Legacy Fund and DNR Conservation Partners Grant require a 25% local match
  - The $135,000 and $225,000 spent on property acquisition could be used to match grant funding of $400,000 to $675,000 for wetland, forest, and prairie restoration.

Master Plan

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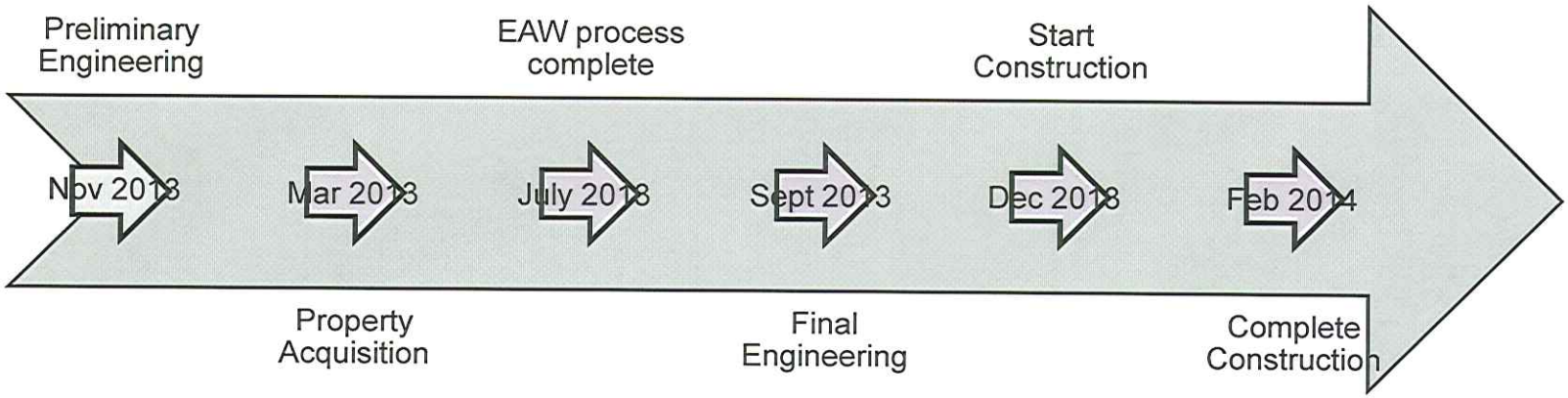
7. Project Schedule



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Zumbro River Restoration Project

Thank you

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