

Four Lakes Task Force

Wixom Lake Update

August 3, 2020



Four Lakes Task Force

Agenda

1. Introductions
2. EGLE - Dam Safety Update
3. FLTF - Dam Re-Construction Concept Update
3. Erosion Control Update
4. Invasive Weeds
5. Question and Answer

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Wixom Lake – EGLE Dam Safety Update

Dan DeVaan, P.E.
August 3, 2020



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Wixom Lake - Reconstruction Estimate Summary

Ron Hansen, P.E., P.S.
August 3, 2020



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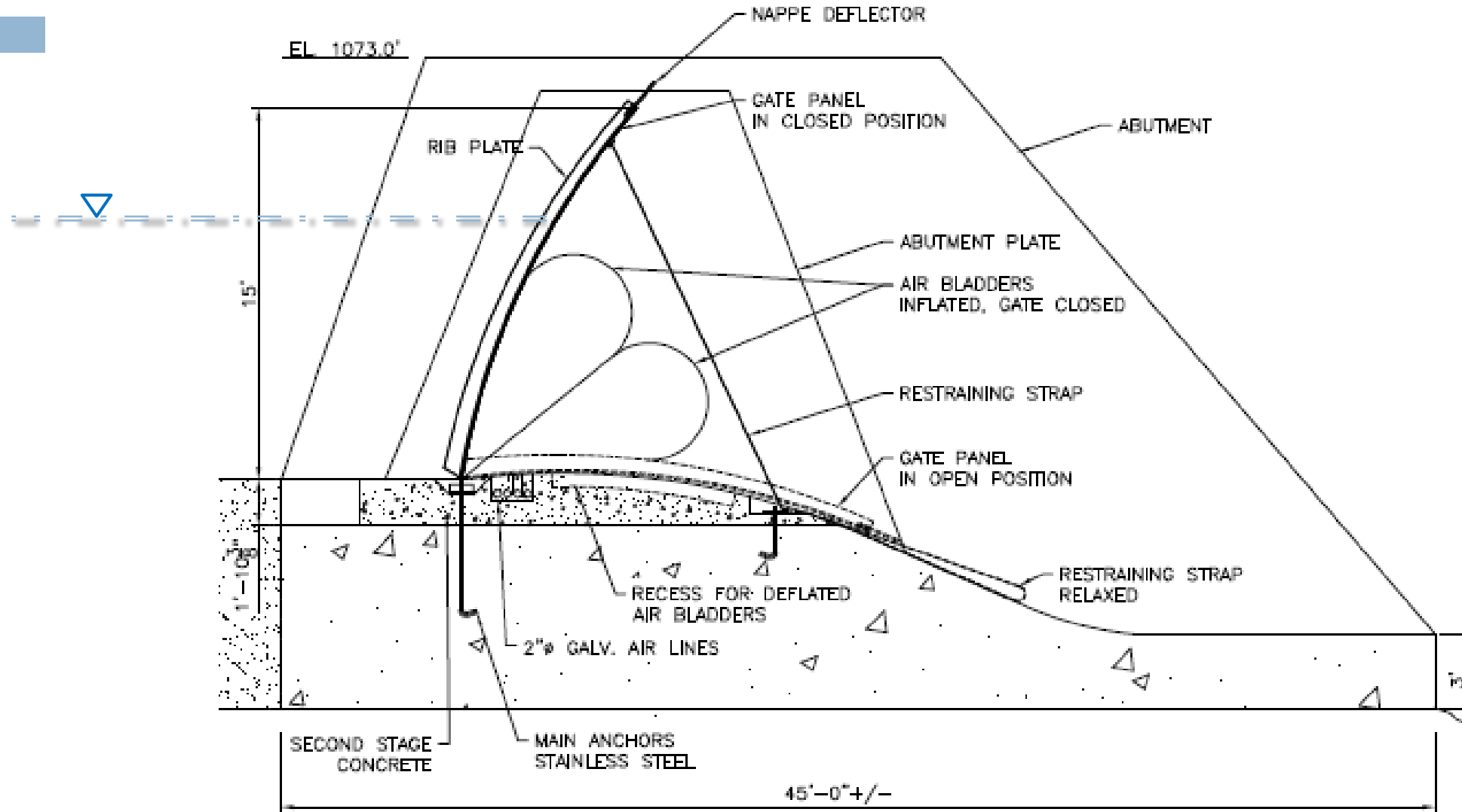
Summary of GEI Consulting Report

- *After the May 19th event, Four Lakes Taskforce requested GEI Consulting to prepare a report for planning purposes. This was done with Spicer Group and Essex Partnership input and Review.*
 - This Presentation summarizes that report, which is posted on the FLTF website.
 - Report is for planning level purposes and include design concept assumptions
 - Detailed engineering and studies must be completed to confirm assumptions
- **Restoration Assumptions**
 - Reconstruction Edenville Dam
 - New spillways and gates
 - Embankment – reconstruct and repair
 - No Hydro Power, based on Economics and time, but potential future option
- **Design Criteria Assumptions includes:**
 - Provide 75+ year service life
 - Meet current standard of practice for dam engineering
 - Meet State dam of 1/2 Probable Maximum Flood (PMF)

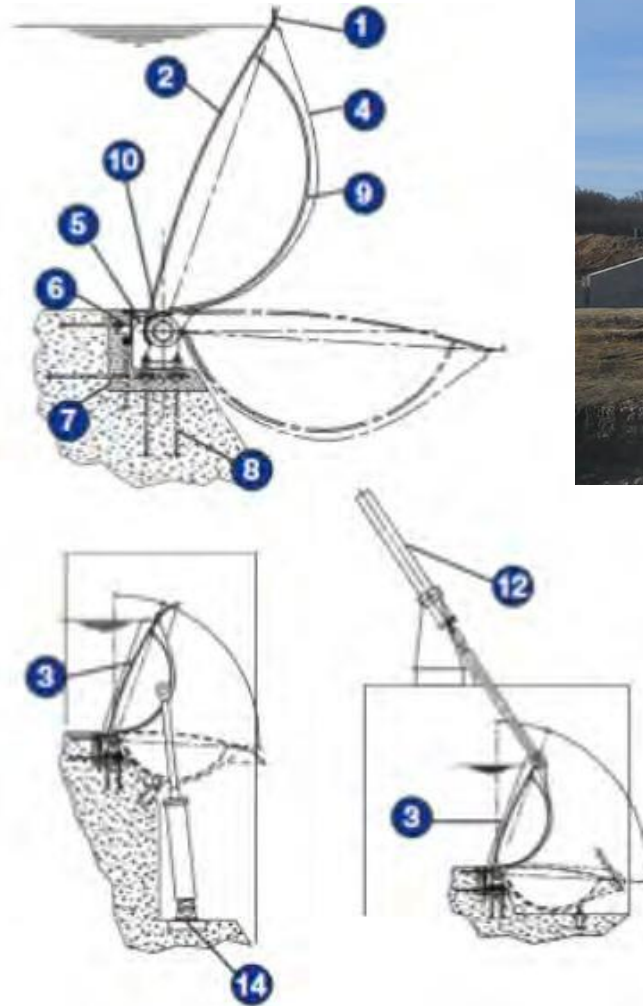
Concepts for Reconstruction

- Edenville Dam
 - ▣ Demolish existing gated spillways and powerhouse
 - ▣ Construct primary spillway
 - Three 24-foot wide Obermeyer or Crest Gates – Tittbawasee side
 - Three 22-foot wide Obermeyer or Crest Gates – Tobacco Side
 - Primary spillways to pass the combined 100-year storm (minimum).
 - ▣ Raise, reconstruct, repair the embankments
 - ▣ Construct new auxiliary spillways
 - 125-foot-wide Labyrinth Spillway – Tittabawassee side
 - 125-foot-wide Labyrinth Spillway – Tobacco side

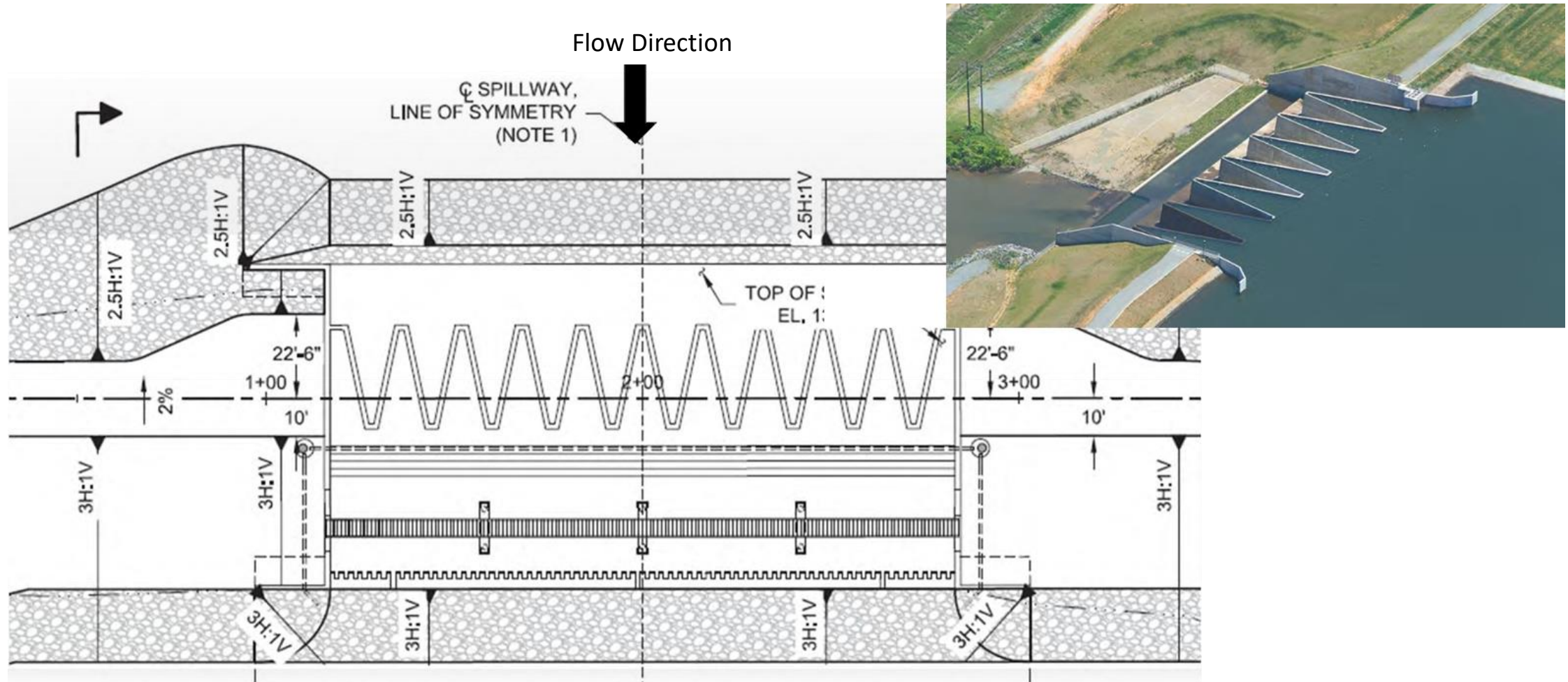
Typical Obermeyer Gated Spillway Section



Typical Crest Gate Detail



Typical Labyrinth Auxiliary Spillway Detail





Client

PLT

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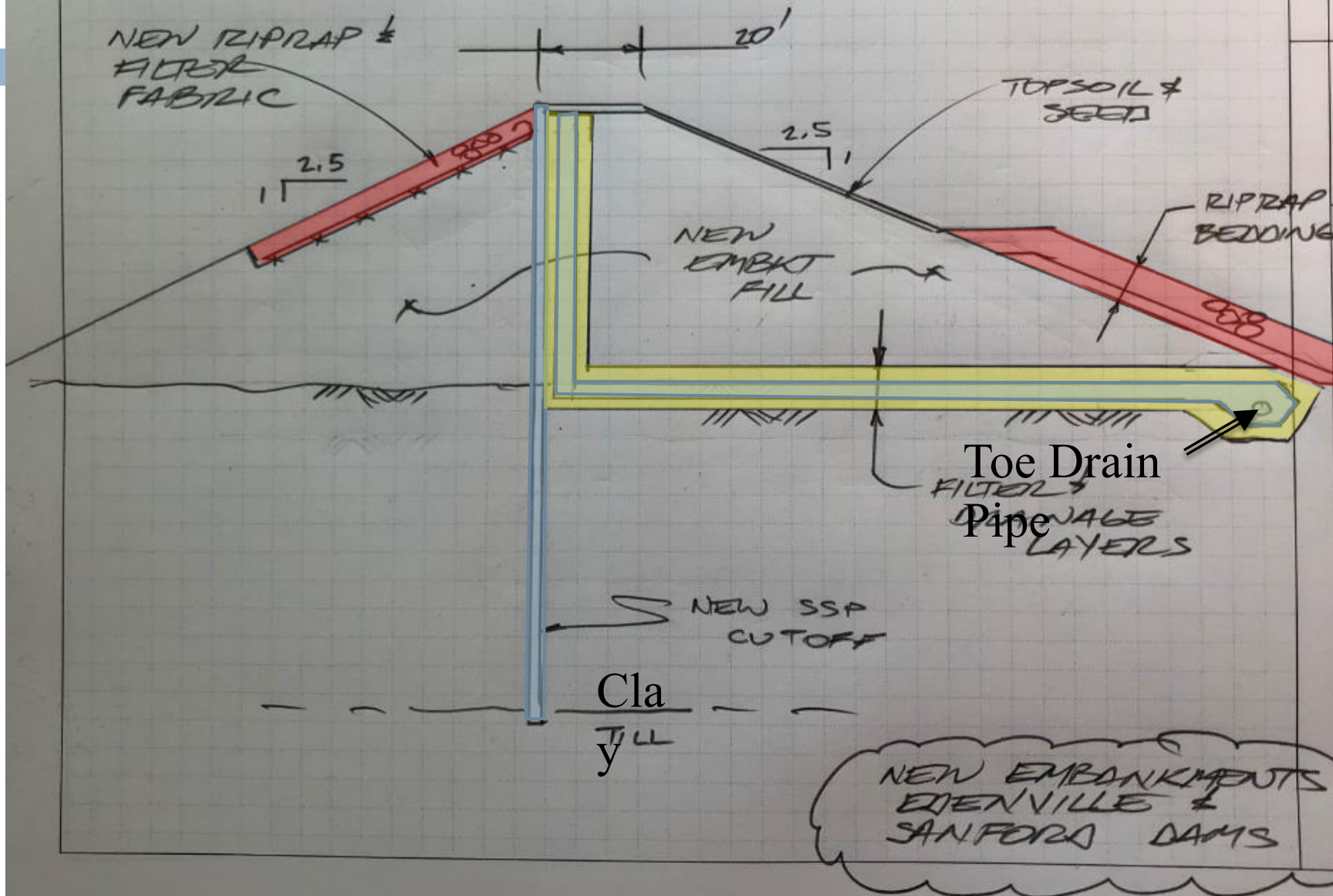
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Planning Level Opinion of Costs

- \$208 million to have dams pass 1/2 PMF
 - ▣ Meets or exceeds State requirements
 - ▣ Confidence Levels at this phase are between -30% to +50%
- Planning level opinion of cost includes:
 - Site Investigations
 - Engineering
 - Dam Safety Permitting
 - Construction
 - Construction Management
 - Contingency

Factors That Could Impact Costs

- Increasing spillway capacity to full PMF will increase costs
- Basin wide flood studies could:
 - ▣ Establish an Inflow Design Flood (IDF) which would decrease costs
 - ▣ Identify the need to armor embankments which could increase costs
 - ▣ Identify flood protection measures for downstream communities
- Findings of the Independent Forensic Investigation Team could identify additional operational or physical measures.
- Value Engineering – opportunity to optimize design and reduce costs
- Environmental restoration

Erosion Report

Gladwin and Midland County Four Lakes

Dave Rothman and Terry Kram

FLTF Board Member and FLTF Leader on Erosion Control



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Shoreline Erosion

- ❑ Four Lakes Task Force hosted two Erosion Engineering fairs, one in Midland and one in Gladwin counties
- ❑ FLTF is collecting data on properties with erosion damage in the Midland County GIS system
- ❑ If you attended the erosion fair and spoke to an engineer, your property is already entered in GIS
- ❑ NRCS will inspect those properties for funding eligibility
- ❑ FLTF volunteers will contact property owners when FLTF has plans for approved sites and cost estimates

Contact for Shoreline Erosion

- ❑ FLTF encourages individuals with Erosion Concerns that have not already reached out to do so ASAP
- ❑ Email is the preferred method of communication:
kaylas@fourlakestaskforce.org
 - ❑ In your email please include your name, address, phone number and a brief description of your erosion concern
- ❑ You may also call: (989) 941-3005

Cost Sharing

- ❑ Working on preliminary engineering cost estimates
- ❑ 75/25 Cost Sharing on NRCS funds
 - ❑ Homeowner's should be prepared to pay 25% of erosion expenses
- ❑ Neighborhoods can work together to raise funds
- ❑ SBA Loans 1 ¼ - 2 ½ %
 - ❑ Call SBA (571) 422-8013, (571) 422-6016 or (571) 422-0331

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Invasive Weeds Subsequent to Dam Breach

Don Zakett, Wixom Lake Association
August 3, 2020



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Wixom Lake Invasive Weeds

- Subsequent to dam break



- Terrestrial weeds – rapid growth in shallow bays with silty bottoms



Huge expanses of aspen (Poplar, Popple) seedlings in lakebed and moist soil areas.



Next Steps

- FLTF & WLA discussing options which might be available to control undesirable weed (and tree) growth in the lakebed(s)
- Conversations are underway with regulatory agencies, Lake Improvement Board(s) and Townships.



Questions?