



NY Power
Authority | Canal
Corporation

Madison Reservoir Dam Rehabilitation

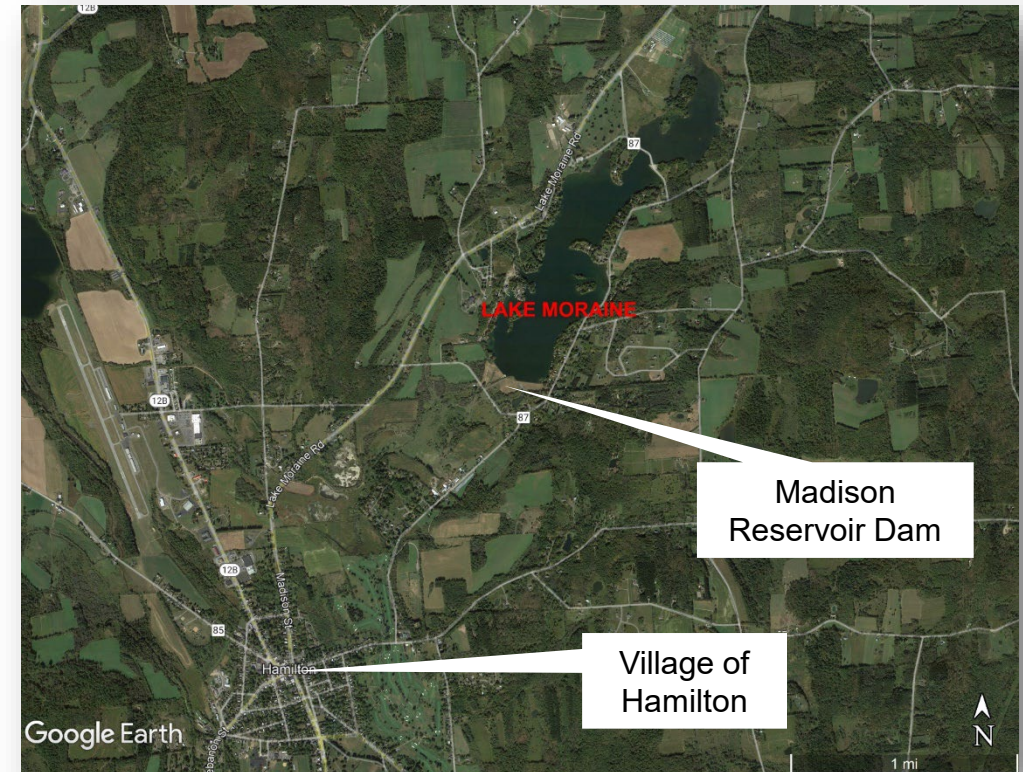
Public Information Session



July 23, 2024

Presentation Agenda

- Welcome and Introductions
- History and Background
- Dam Overview
- Project Purpose and Need
- Rehabilitation Project
- Schedule
- Public Engagement
- Q/A



Why now?

New York State
Canal Corporation

State of Good Repair
Resilience
Risk Reduction

Public Safety
Public Benefit

Historic (*Supplemental*) \$50 Million Investment in NYS Canal System

Projects to be funded with the \$50 million may include, but are not limited to, the following:

- Rehabilitation of reservoir dams built in the 19th and early 20th century to supply water to the Enlarged Erie Canal (1836 – 1918) and other canals.

“Nearly 200 years ago Governor DeWitt Clinton opened the original Erie Canal connecting the Great Lakes with the Atlantic Ocean and now we are making a significant investment **to ensure the current Erie Canal and the entire canal system remain safe and a vibrant part of our state’s fabric,**” Governor Hochul said. “As a lifelong boater who has plied the canal waters, I know firsthand that the canalway means so much to our communities. **This commitment of funding will allow our historic canals to be part of New York’s story for generations to come.**”

<https://www.governor.ny.gov/news/governor-hochul-announces-historic-50-million-investment-new-york-state-canal-system>



Canal
Corporation

Historic \$50 Million Investment in NYS Canal System Announced

Gov. Kathy Hochul today announced a historic \$50 million capital investment into the New York State Canal system as part of the FY 2025 Enacted Budget.

Today’s announcement coincides with the 200th consecutive seasonal opening of navigation on the Erie, Champlain, Oswego, and Cayuga-Seneca Canals. Watch [a video of today’s first vessels](#) below:



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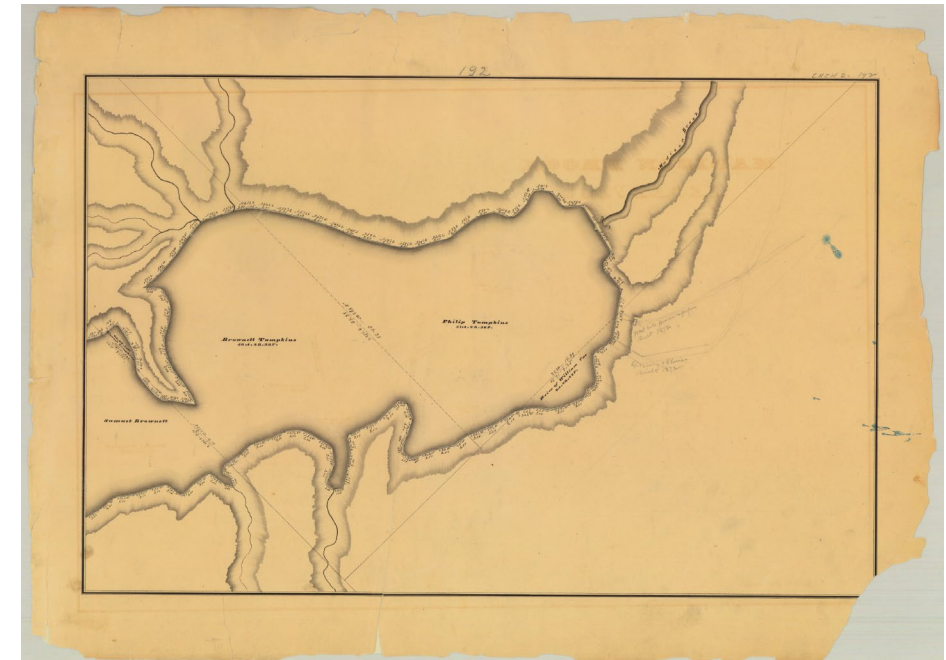
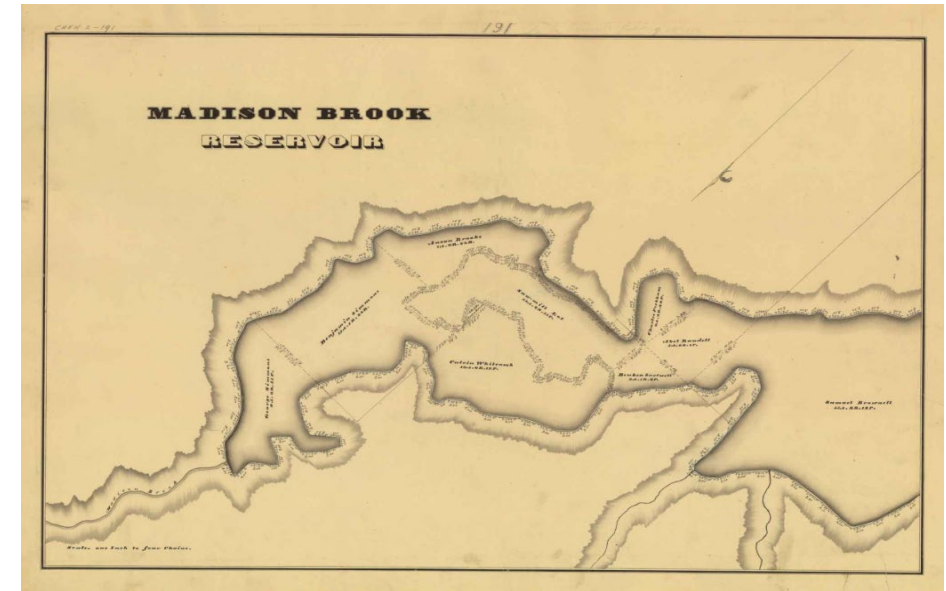
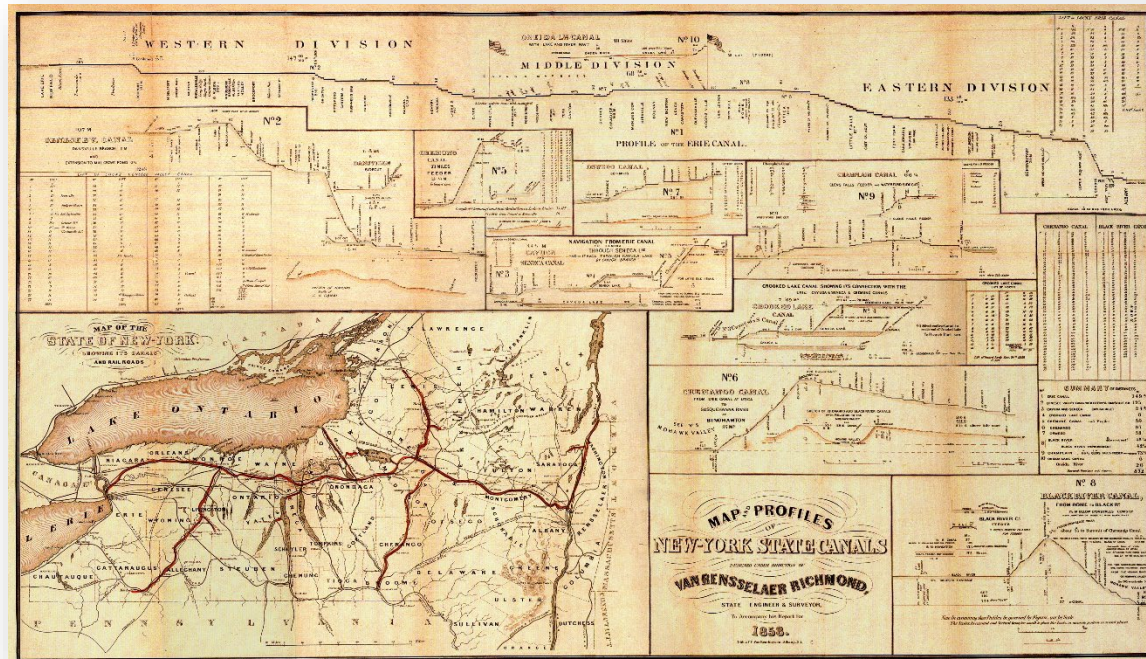


History and Background Madison Reservoir Dam

October 3, 2025

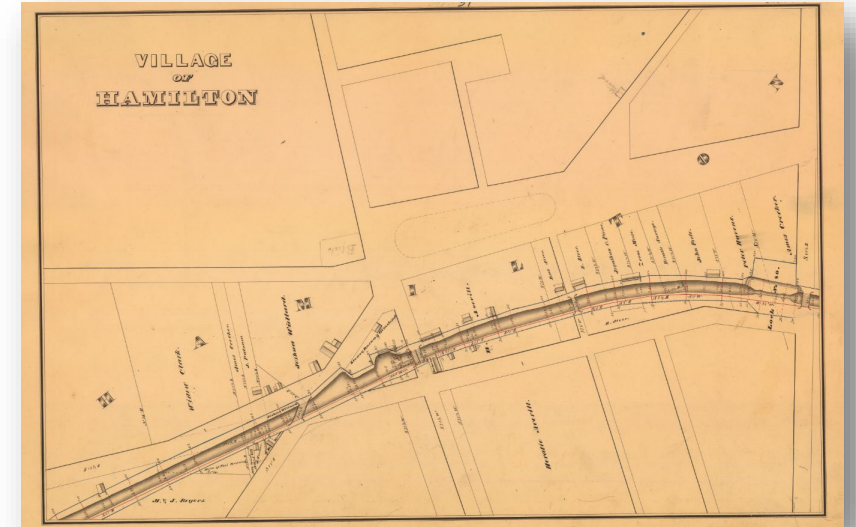
Dam History

- Dam constructed in 1836
- Impoundment of Madison (Payne) Brook
- Constructed as part of Chenango Canal



Chenango Canal

- Utica to Binghamton – “Connecting the Erie Canal with the Susquehanna River”
- Madison Reservoir served as a Chenango Canal feeder until 1878
- One of seven feeder reservoirs at the summit section



CHENANGO 1837 CANAL 1878



CHENANGO CANAL



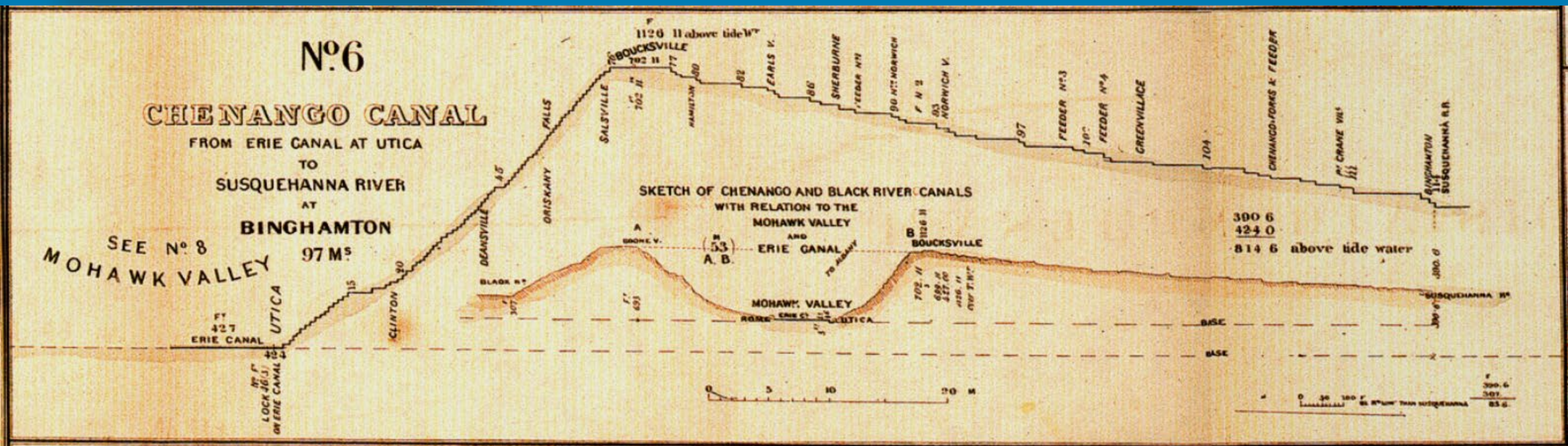
HAMILTON CANAL EXCHANGE BUILDING



LOOKING NORTH
THE LATCH SL BRIDGE
(WIPPLE TRUSS)



DAVID GRACE



Modern Day Use and Context

- No longer used or needed for Canal operations
- Water flows out to Payne Brook, a tributary to the Chenango River
- Water levels are managed seasonally to support recreational uses. Levels are also managed to conduct dam inspections and maintenance.
- Highly developed with seasonal and year-round residences
- Businesses - Lodging, dining, and related accommodations



Modern Day Use and Context

- Serves primarily as a recreational and ecological public asset
- Fishing, boating, swimming, and watersports recreation



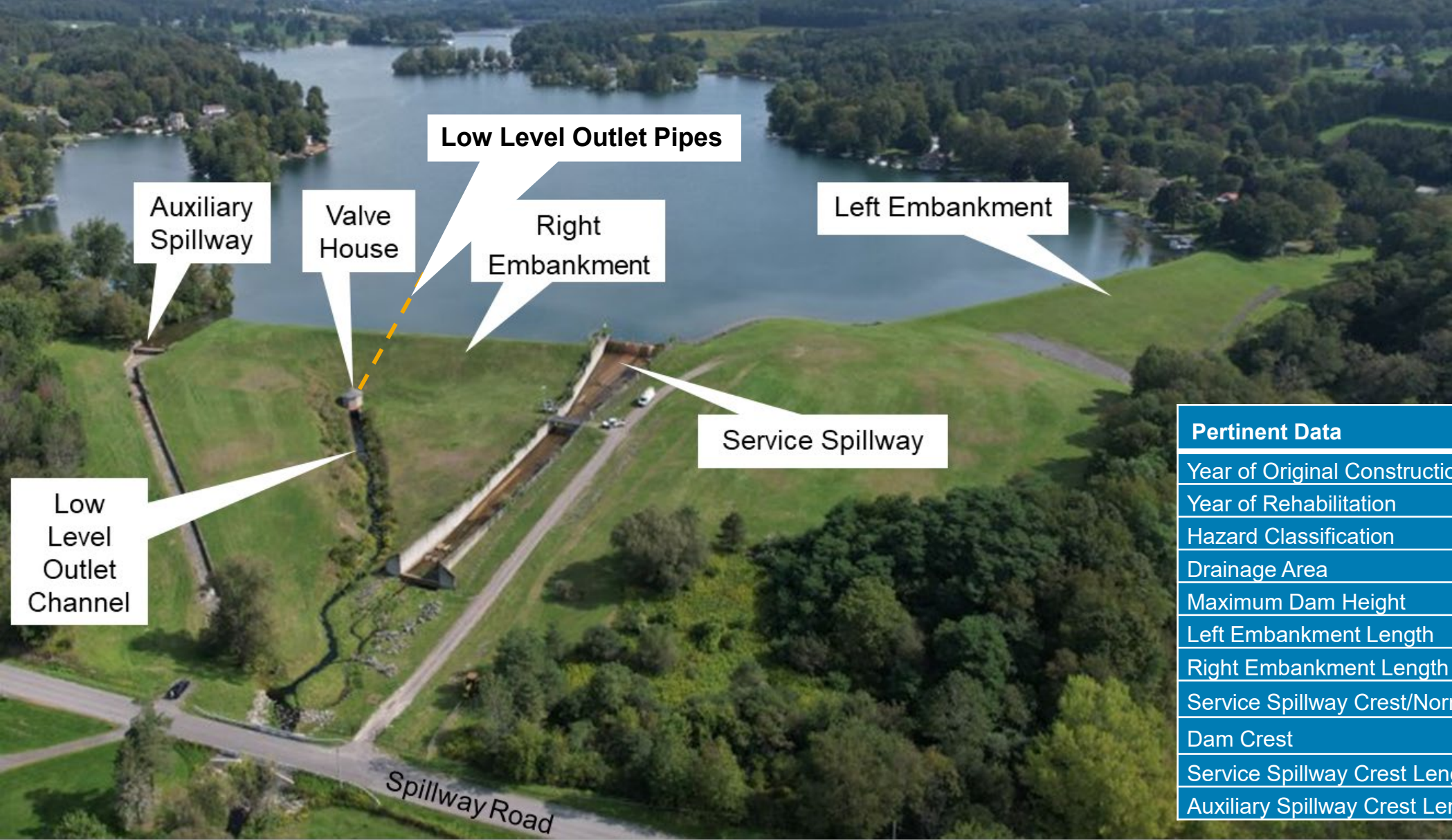


Dam Overview

Madison Reservoir Dam

October 3, 2025

Dam Infrastructure and Features



Pertinent Data	
Year of Original Construction	1836
Year of Rehabilitation	1983
Hazard Classification	High
Drainage Area	8.14 sq. Mi.
Maximum Dam Height	57 Feet
Left Embankment Length	800 Feet
Right Embankment Length	600 Feet
Service Spillway Crest/Normal Pool	1,211.0 Feet
Dam Crest	1,217.0 Feet
Service Spillway Crest Length	70 Feet
Auxiliary Spillway Crest Length	35 Feet

Dam Features

Earthen Embankments



- Approx. 1,400 ft long, total
- Right Embankment (western)
 - Approx. 600 feet long
- Left Embankment (eastern)
 - Approx. 800 feet long

Low Level Outlet Works



- Intake structure within reservoir
- Two, 16-inch pipes through reservoir
- Valve House, controlled at downstream end
- Stone masonry discharge channel
- Regulates water surface and flow
 - Minimum flow to Payne Brook
 - Seasonal/winter drawdown
 - Reservoir drawdown in case of emergency

Spillways



- Service (primary) Spillway
 - 70-foot wide, concrete
- Auxiliary Spillway
 - 35-foot long, stone masonry
- Crests are approximately 7 feet lower than top of dam embankment
- Discharge to Payne Brook

Dam Features – Concrete Service Spillway



Dam Features – Masonry Auxiliary Spillway

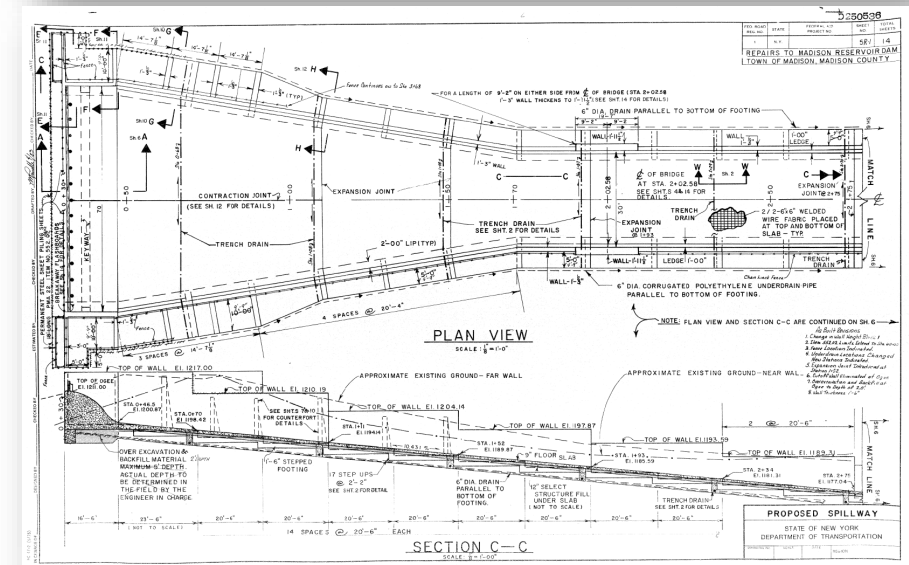
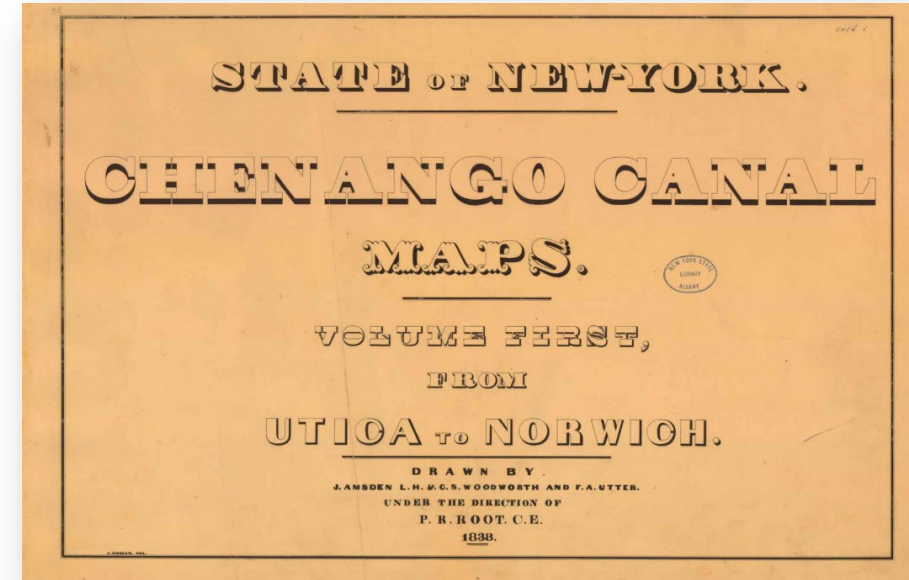


Dam Features – Low Level Outlet Valve House



History of Improvements

- 1836 – Original Construction
- 1870s – Modifications to feed the Erie Canal
- 1962 – New Low Level Outlet Valves
- 1983 – Major Improvements
 - Concrete Service Spillway
 - Crest Raised and Widened
 - Stone Masonry Tunnel at Abandonment (left embankment)
- Recent Improvements (~2010s to present)
 - Valve House Stabilization and Roof Replacement
 - Enhanced Monitoring and Instrumentation
 - Reservoir and groundwater levels
 - Seepage monitoring
 - Spillway Repairs





Project Purpose and Need

Madison Reservoir Dam

October 3, 2025

Project Purpose and Need



Public Safety



Longevity – Maintain Asset
for Public Benefit



State of Good Repair



Risk Reduction -
Downstream
Consequences

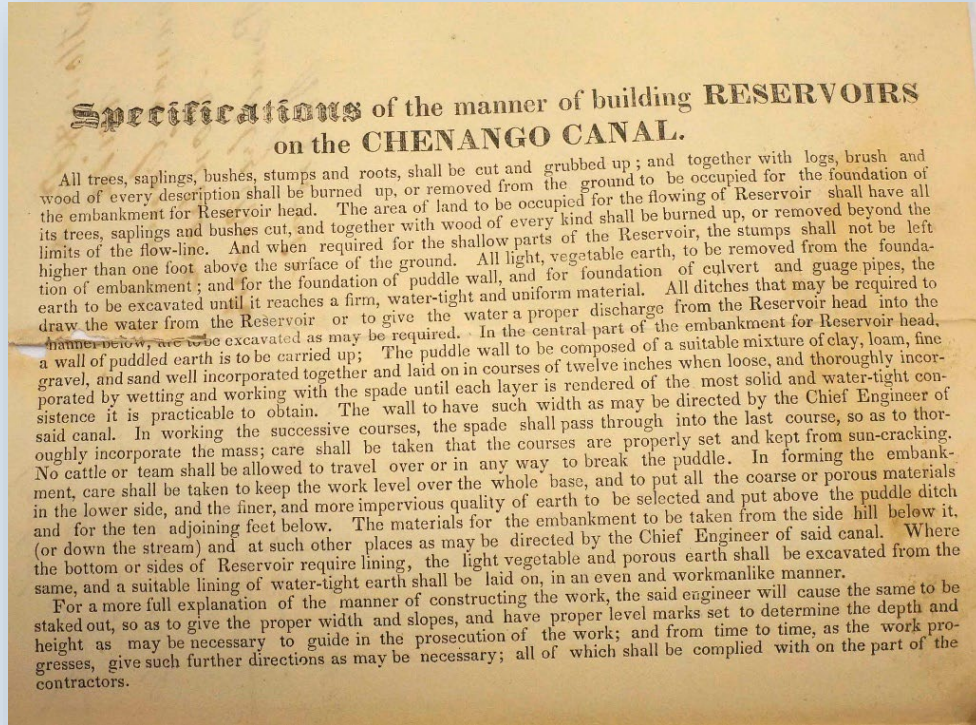


Resilience – Current
Regulations and
Standards

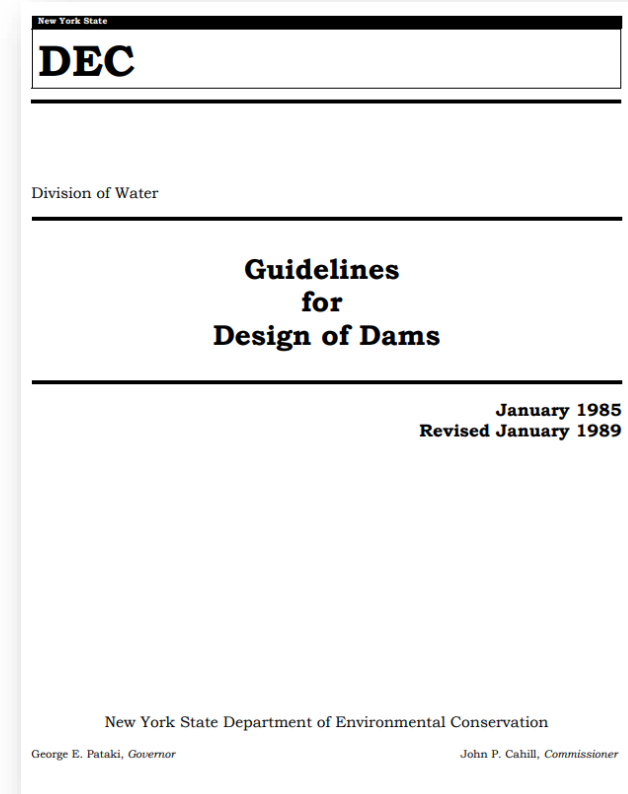


Current Conditions
and Deficiencies

Evolution of Engineering and Dam Safety



1836 - Specifications of the Manner of Building Reservoirs on the Chenango Canal

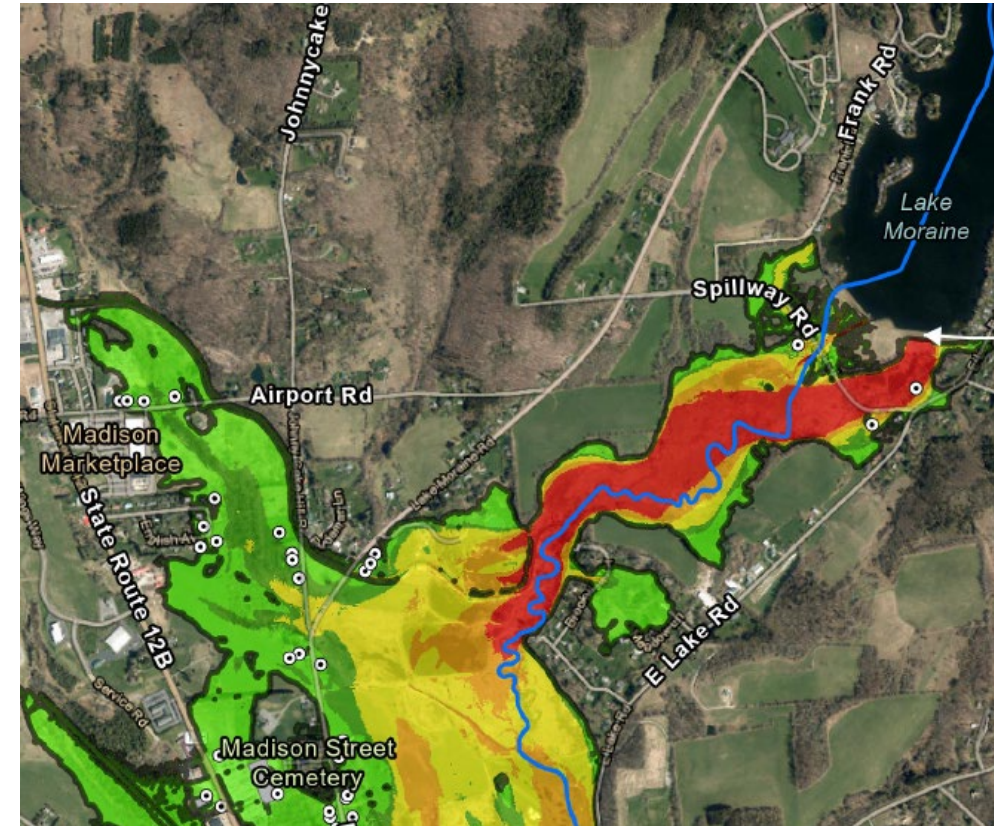


Modern Day – DEC Guidelines and Industry Standards



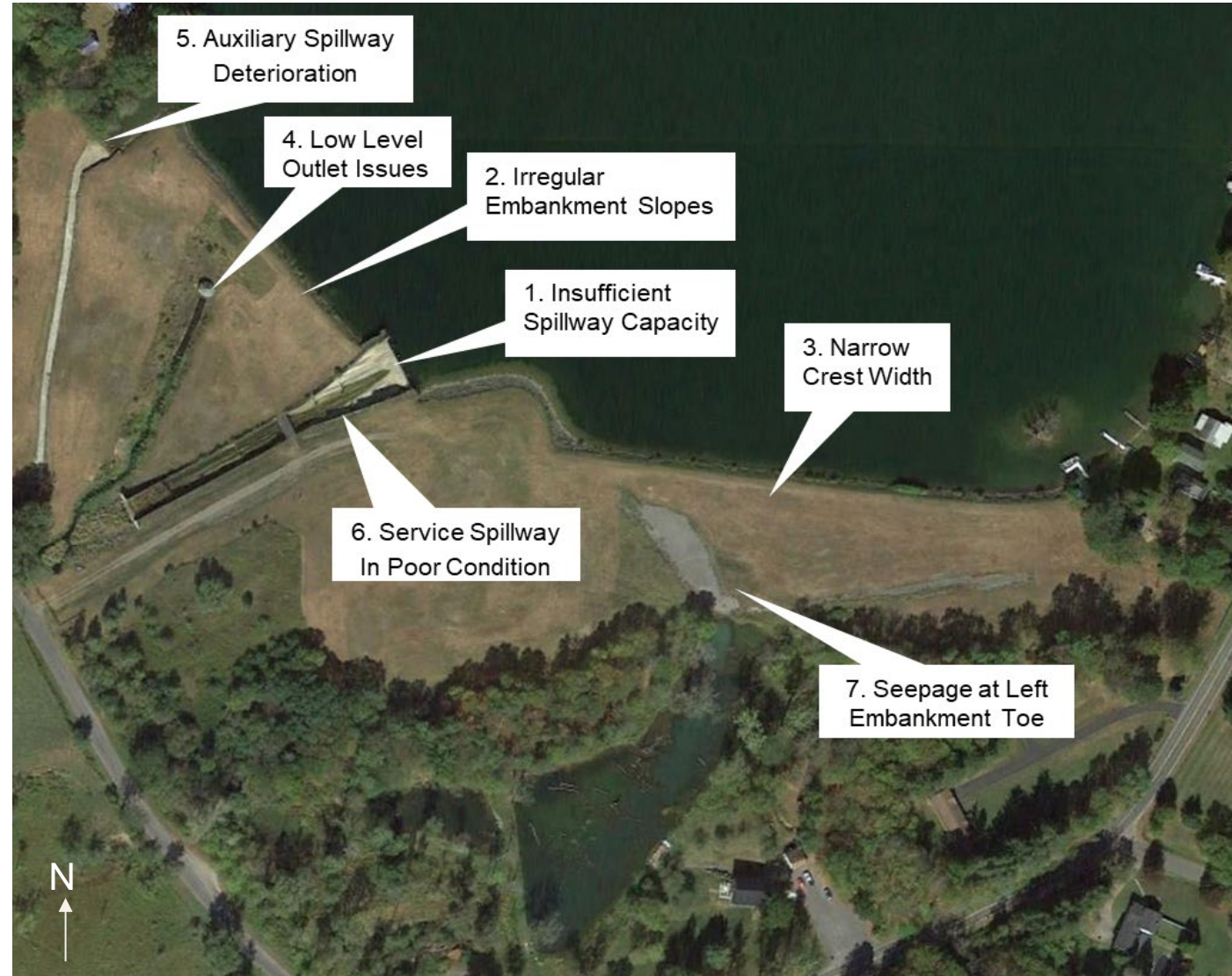
Hazard Classification and Condition

- DEC has classified Madison Reservoir as a High Hazard Dam
- Class C or high hazard dam - A dam failure may result in widespread or serious damage to home(s); damage to infrastructure, and/or important utilities; or substantial environmental damage; such that the loss of human life or widespread substantial economic loss is likely.
- ***“The hazard class of a dam is an indication of the estimated consequences if the dam were to fail. It is not an indication of the condition of the dam.” – DOW 3.1.5 Guidance for Dam Hazard Classification, NYSDEC***
- Madison Dam is formally inspected annually by Canals Dam Safety Consultants and NYPA Dam Safety Engineering Team. The dam is currently monitored frequently.
- November 2023 DEC Inspection: “Unsound – Deficiencies Recognized”
 - Inadequate slope stability
 - Inadequate spillway and low-level outlet capacity
 - Low-level outlets are controlled at the downstream end
 - Seepage at valve house and service spillway
 - Rehabilitation needed to bring the dam into conformance with applicable dam safety criteria
- **The dam is not at risk of imminent failure**

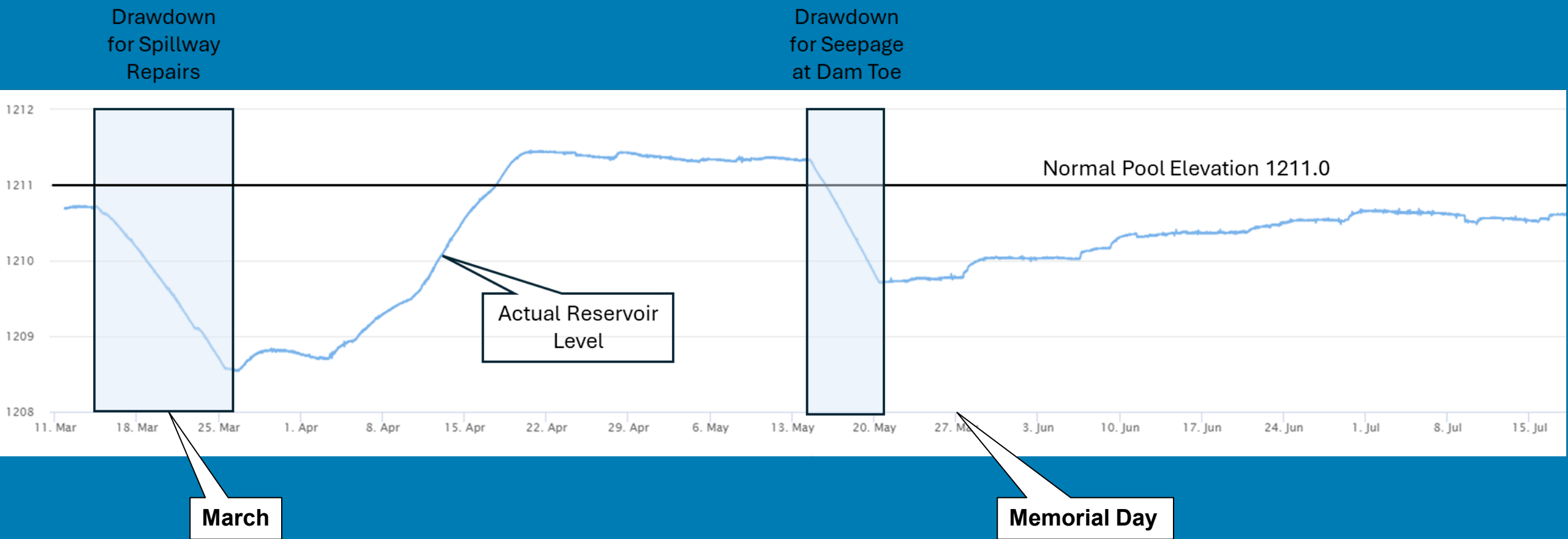


Overview of Primary Deficiencies

1. Insufficient Spillway Capacity
2. Steep and Irregular Embankment Slopes
3. Narrow Embankment Crest
4. Low Level Outlet Works Issues
 - Insufficient draw-down capacity
 - Lack of upstream controls
 - Original cast iron pipes
 - Seepage at Valve House
5. Auxiliary Spillway Deterioration
6. Service Spillway in Poor Condition
7. Seepage at Left Embankment Toe



Current State and Conditions





Rehabilitation Project

Madison Reservoir Dam

October 3, 2025

Project Approach and Goals



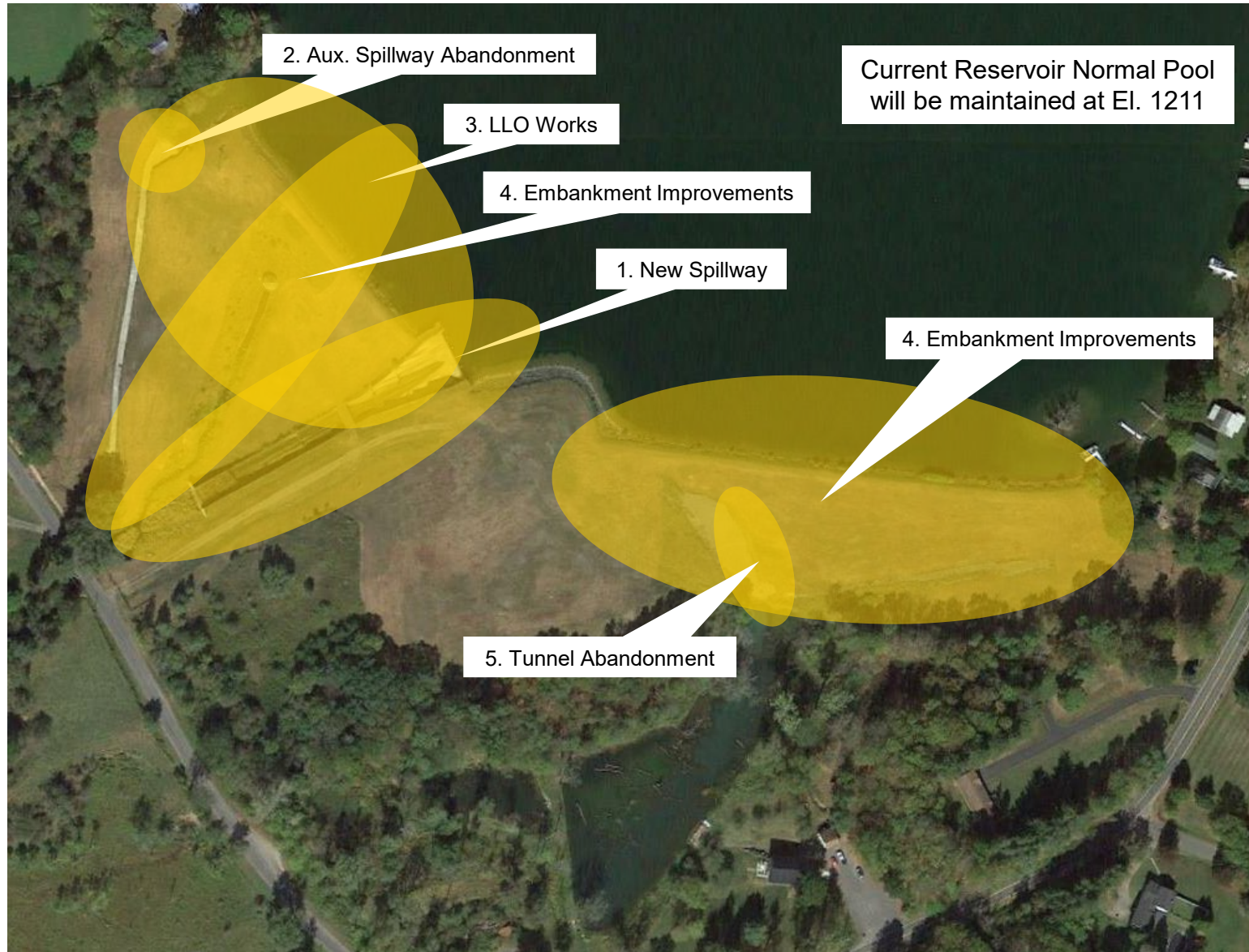
Address all
Deficiencies

NYSDEC Guidelines
and Industry
Standards

State of Good Repair

Comprehensive Rehabilitation

Major Project Components



1. New Spillway
 - Remove/replace existing
 - Sufficient capacity to pass SDF with appropriate freeboard
2. Auxiliary Spillway (existing) - abandonment
3. Low-Level Outlet Works
 - Shallow Siphon System
 - Pipes, valves, and appurtenances
 - Intake structure
 - Outlet structure and channel – repositioning existing valve house
4. Embankments
 - Crest – widening
 - Inboard and Outboard slopes – regrading and flattening
 - Seepage Control - Filter blankets and toe drains
5. Tunnel Abandonment – left embankment
6. Site Improvements
 - Vegetation management, tree clearing
 - Site security
 - Access ways
7. Enhanced Monitoring and Instrumentation

Please note that the project is in the design phase and is subject to change.

Project Scope and Magnitude

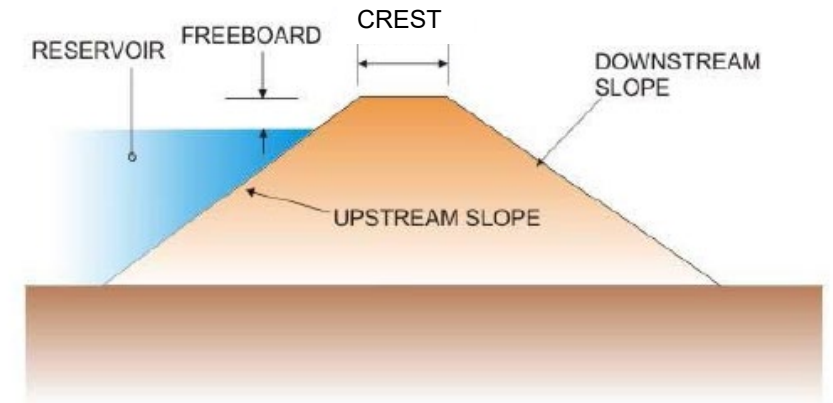
- Major Construction Project
 - Work across the entire site and within the reservoir at the dam
 - Heavy Civil and Marine Construction - Earthwork, Pipeline, Demolition, Concrete Work, Structures
 - Multi-year and multi-phase (2-years is anticipated for construction of major project components)
- Control of Water and Reservoir Drawdown
 - Combination of cofferdams, temporary pumping/siphons, and partial reservoir drawdown
 - Reservoir Drawdown will be required to maintain safe conditions and to facilitate efficient completion of the project.
 - Impacts – Public Safety, Construction Risk, Community and Reservoir Users, and Environmental impacts



Construction Photo of the DeRuyter Reservoir Dam Rehabilitation Project

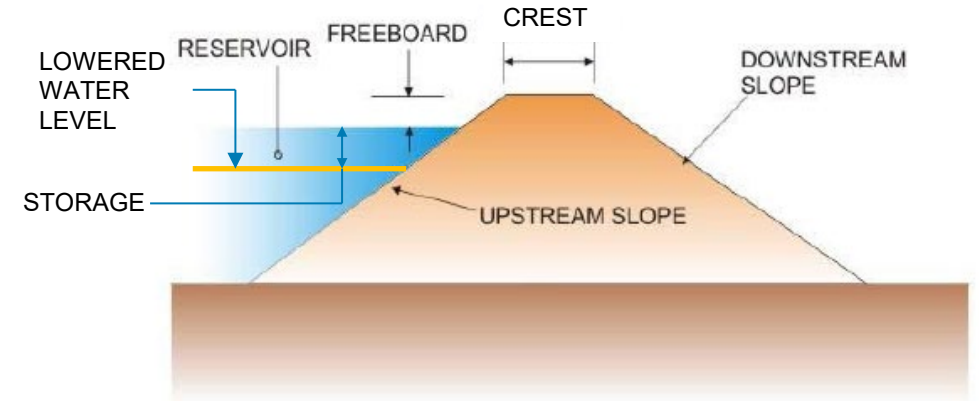
Why is a Reservoir Drawdown Required?

1. Existing Spillway Demolition, New Spillway Construction -
There will be no means to pass storm inflows.



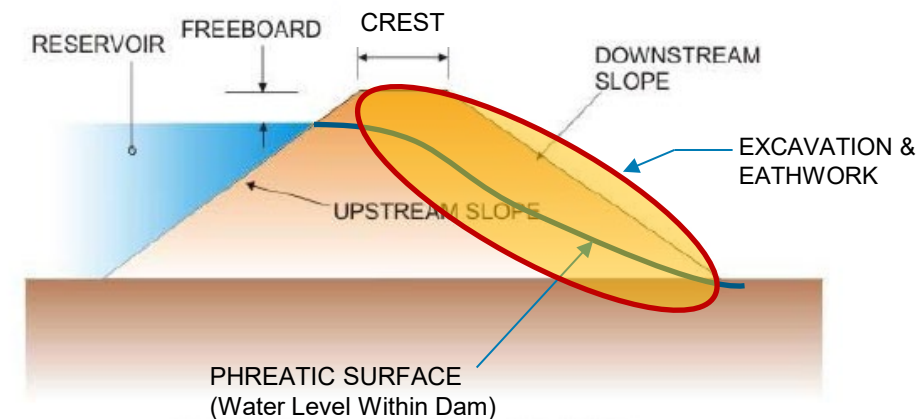
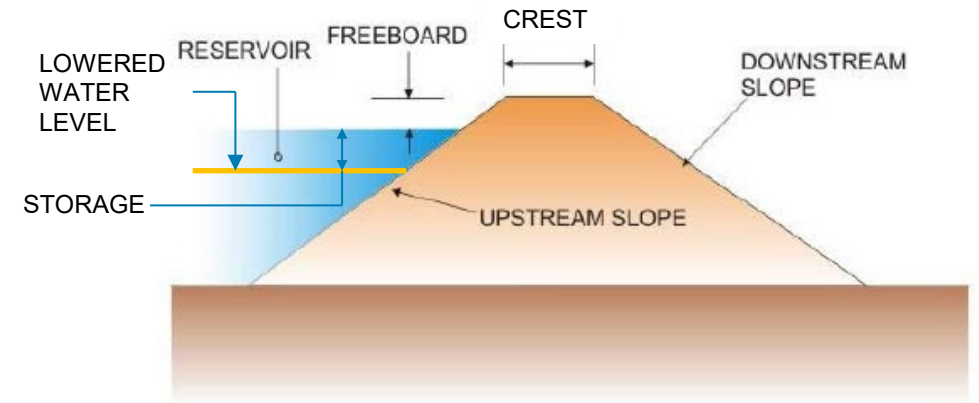
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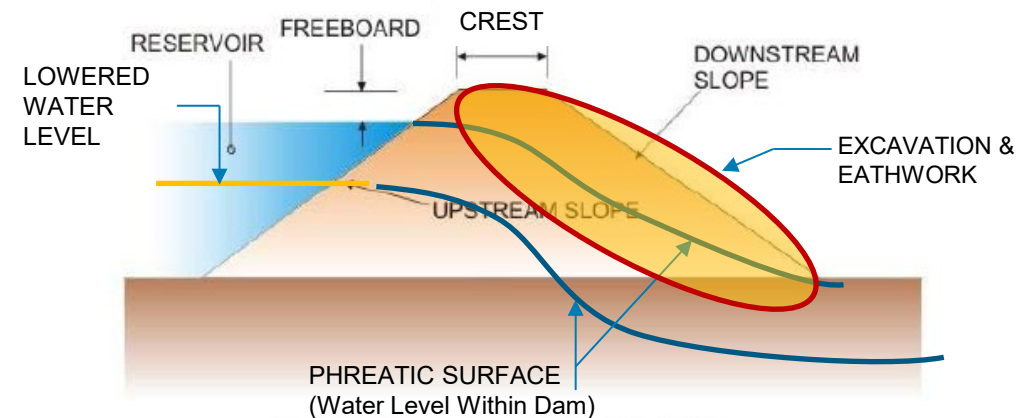
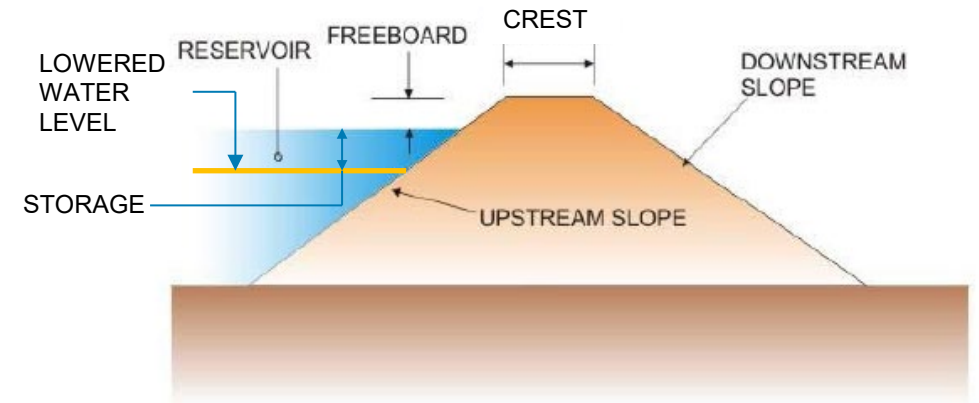
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2. Embankment Improvements – Invasive excavations will be required to address seepage and complete earthwork. This work cannot be safely completed at normal pool and the corresponding embankment phreatic level.
 - Reservoir drawdown reduces the phreatic level within the embankment so this work can be completed safely.



Drawdown Impacts

Community and Reservoir User Impacts

- Residential properties and businesses – shoreline and islands
- Recreation
 - Boating and Watersports
 - Swimming
 - Fishing and Ice Fishing
 - Dock and Boat Launch Access
- Water Use – Potential impacts to domestic water supplies (wells and direct withdrawals)



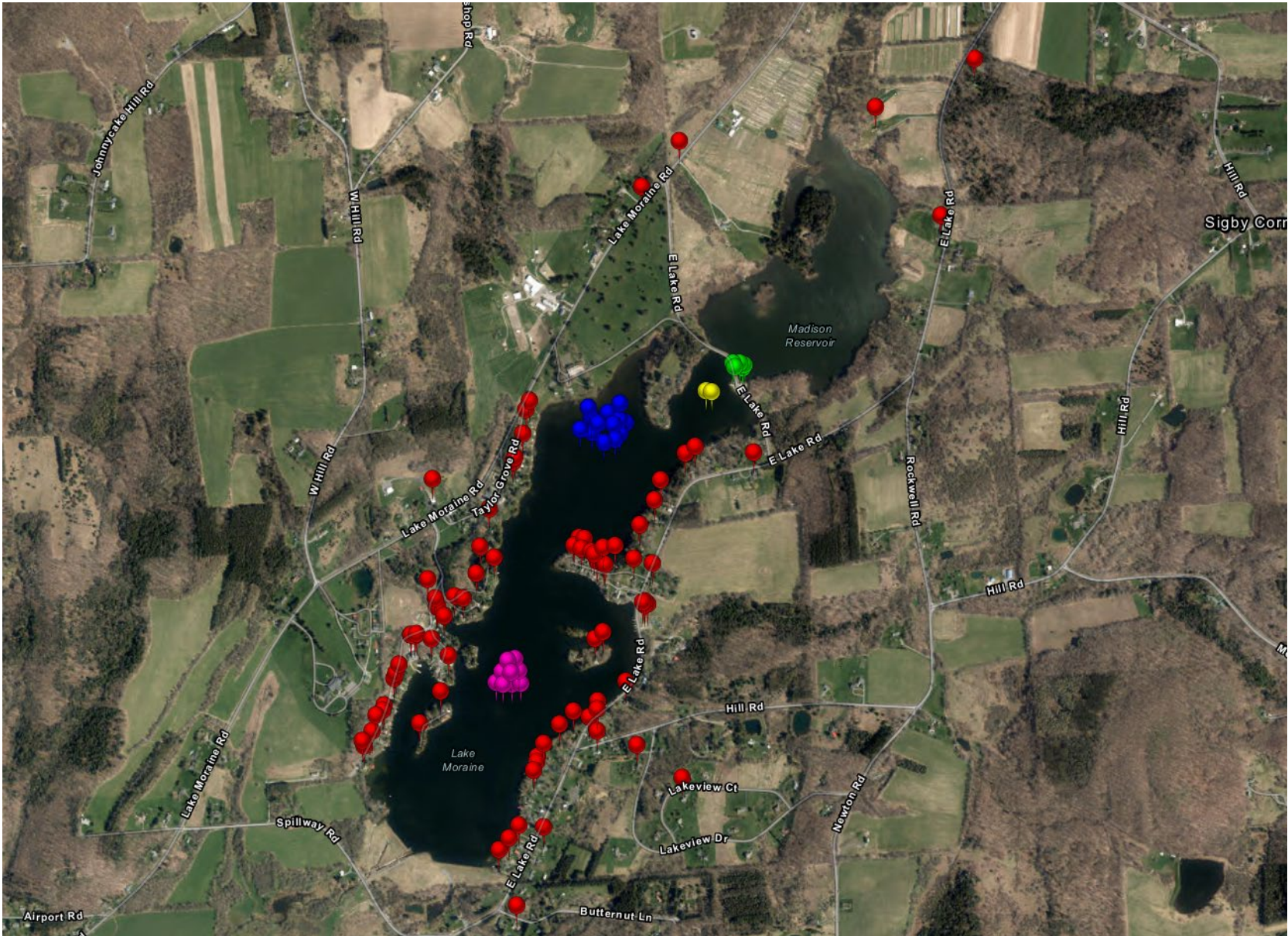
Environmental Impacts

- Reservoir Level – Potential impacts to fish, aquatic life and vegetation
- Reservoir Outflow – Downstream flow in Payne Brook will be maintained throughout construction
- Wetlands – Altered conditions during the drawdown

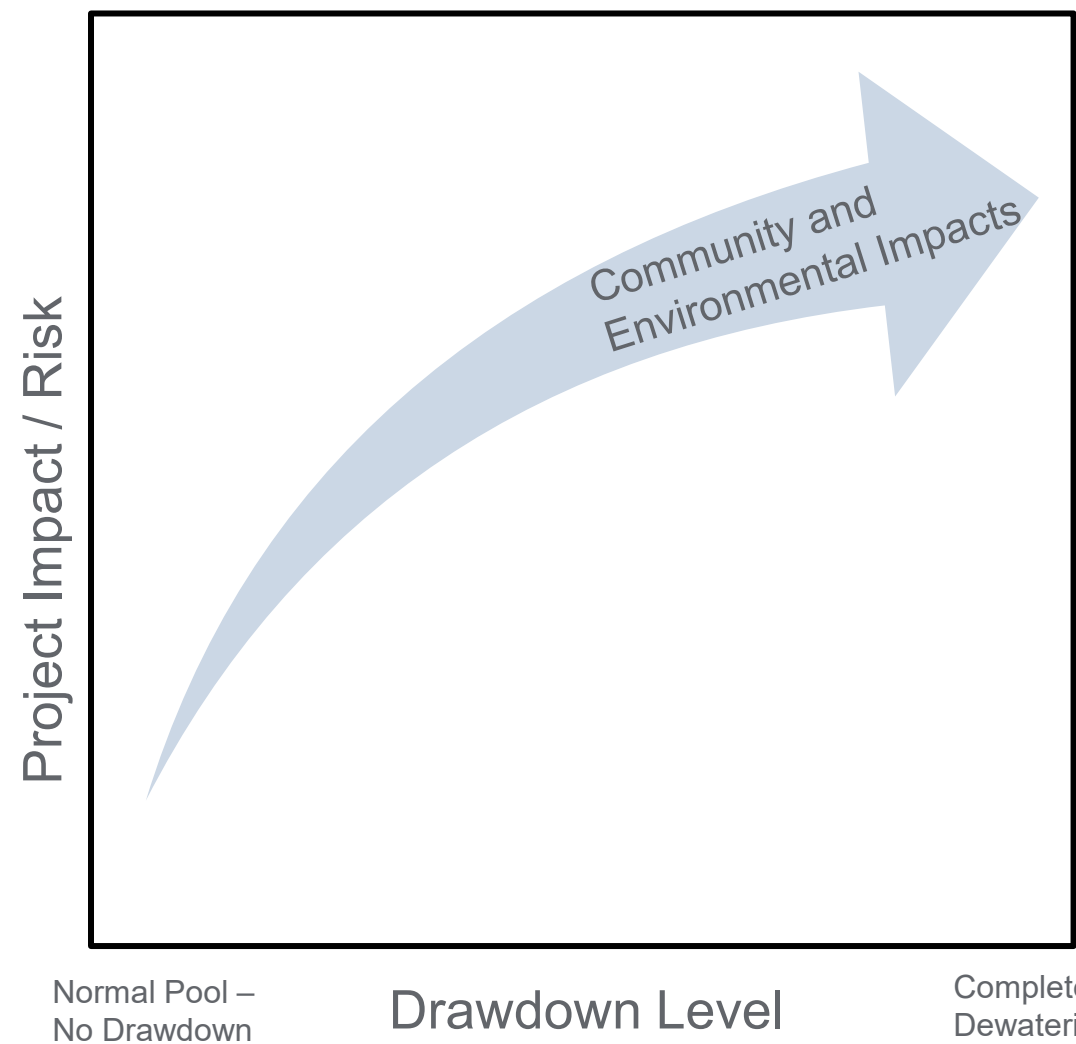
Public Safety and Construction Risk

- Safety – Worker and Public, at site and downstream
- Schedule
- Complexity
- Cost

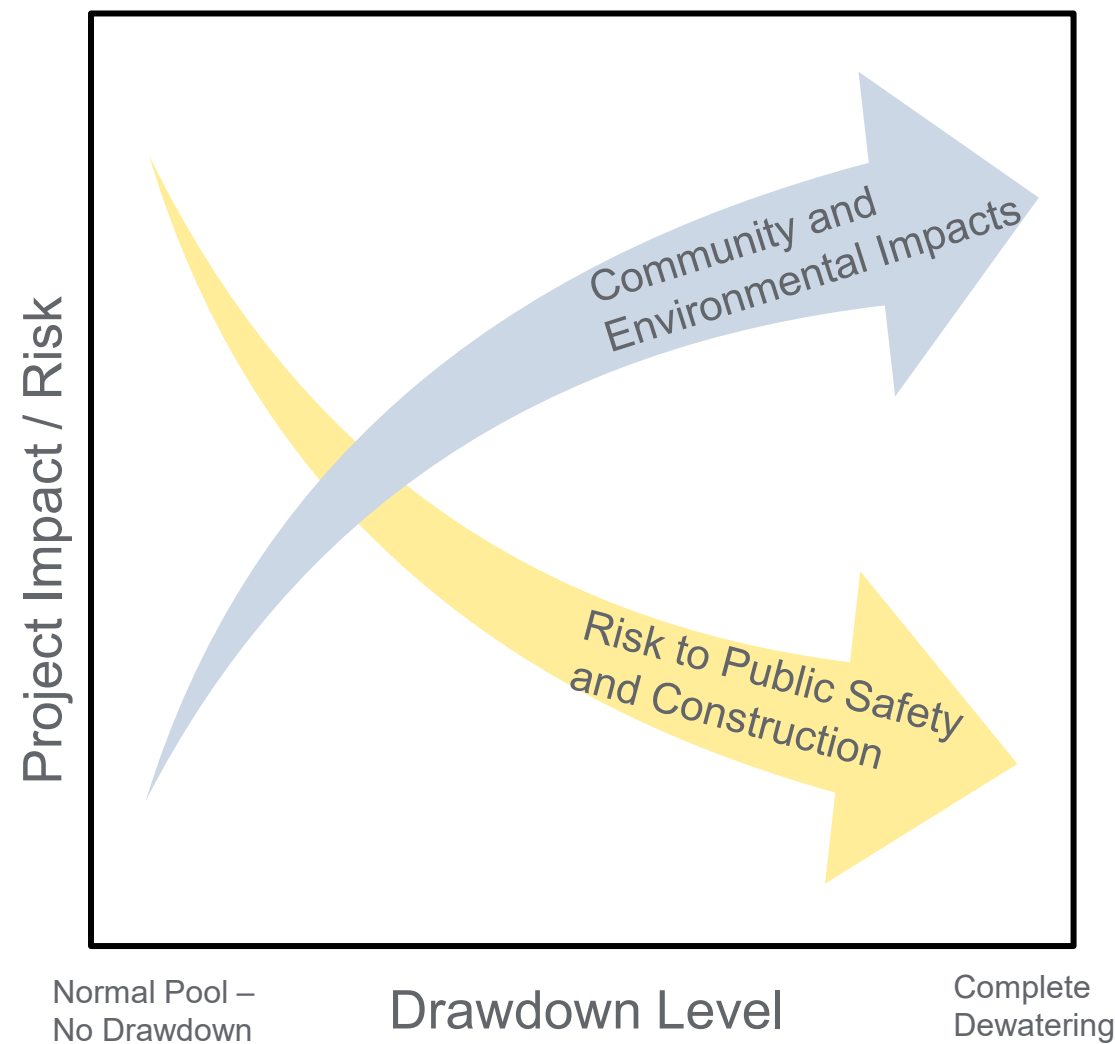
Public Survey



Drawdown – Balancing Impacts with Public Safety and Construction Risk



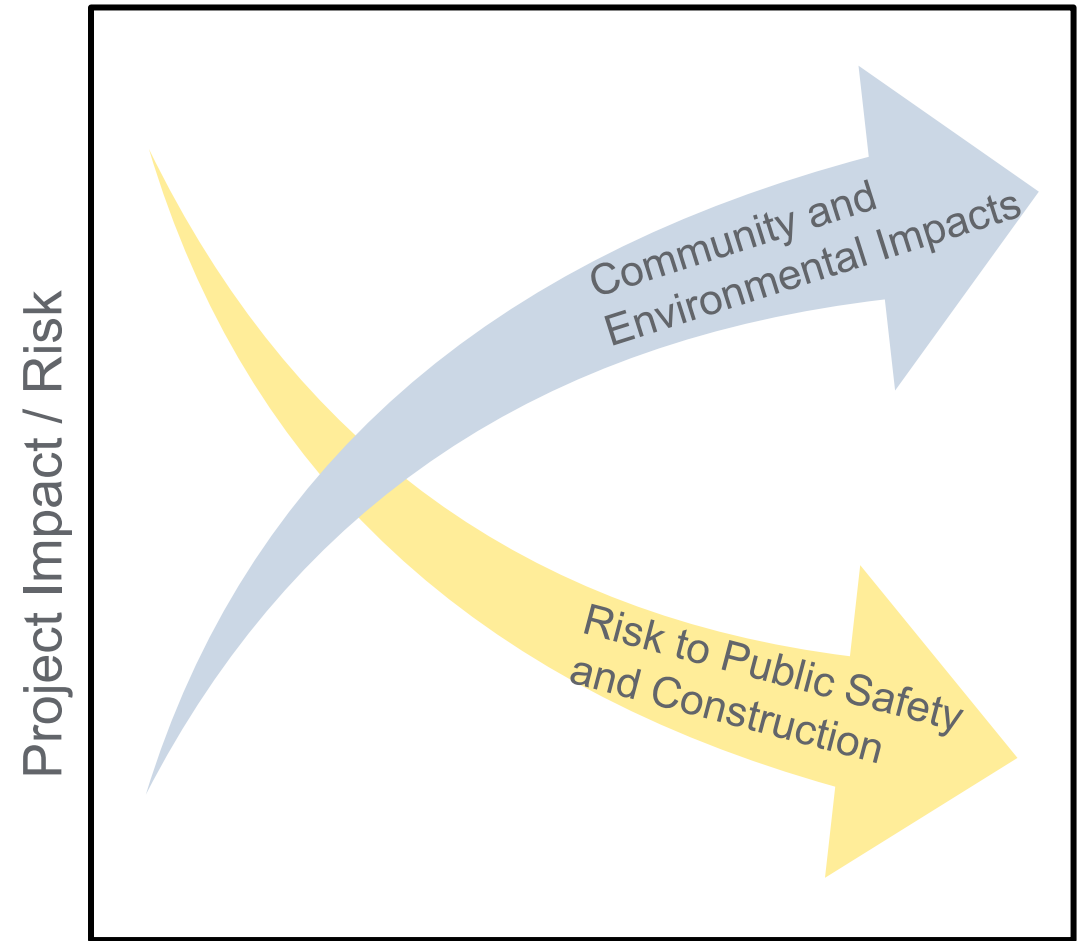
Drawdown – Balancing Impacts with Public Safety and Construction Risk



Drawdown – Balancing Impacts with Public Safety and Construction Risk

10-ft Drawdown will be required for the 2-year duration of major construction

Public Safety is Paramount



Normal Pool –
No Drawdown

Drawdown Level

Complete
Dewatering



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Reservoir at 10-foot Drawdown Target Level, Elevation 1201 BCD



Why will the Drawdown last 2-years?

Preliminary Sequence and Anticipated Durations of Major Project Components

- Site Preparations
- Valve House Relocation
- Valve House Seepage Filter
- Cofferdam for Siphon LLO
- Siphon LLO Construction
- Abandon LLO Pipes
- Left Embankment Improvements
- Cofferdam for Spillway
- Spillway Construction
- Right Embankment Improvements
- Upstream Slope Buttressing
- Auxiliary Spillway Cutoff
- Final Site Restoration



Why will the Drawdown last 2-years?

Preliminary Sequence and Anticipated Durations of Major Project Components

- Site Preparations (*2 months*)
- Valve House Relocation (*2 months*)
- Valve House Seepage Filter (*2 months*)
- Cofferdam for Siphon LLO (*2 months*)
- Siphon LLO Construction (*6 months*)
- Abandon LLO Pipes (*2 months*)
- Left Embankment Improvements (*6 months*)
- Cofferdam for Spillway (*2 months*)
- Spillway Construction (*12 months*)
- Right Embankment Improvements (*6 months*)
- Upstream Slope Buttressing (*6 months*)
- Auxiliary Spillway Cutoff (*2 months*)
- Final Site Restoration (*4 months*)



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- **Right Embankment Improvements (6 months)**
- **Upstream Slope Buttressing (6 months)**
- Auxiliary Spillway Cutoff (2 months)
- Final Site Restoration (4 months)



Drawdown – What to Expect and Suggested Ways to Prepare

Drawdown

- Level - 10 feet below normal pool (spillway crest) – Target drawdown elevation is 1201
- Duration – 2 years, 2026 through 2027

Prepare

- Domestic water - investigate reliability of your source and prepare accordingly
- Shoreline and access – boats and docks

Opportunity

- Shoreline improvements
- Madison County is planning two culvert replacements



Preliminary Project Schedule – Where are we now, and what's ahead?

2024 – Design

2025 – Permitting, Regulatory Review and Approvals, Bidding for Construction

2026 through 2027 – Construction (Major Project Components),
Reservoir Drawn Down (*all of 2026 and all of 2027*)

2028 – Construction (Final Completion),
Reservoir Returned to Normal Pool

When will you hear from us again and how?

- Additional public information sessions are planned to be held through design before the start of construction
- Project updates will be shared to a dedicated website:
 - <https://www.canals.ny.gov/Operations-and-Public-Projects/Project-Work/Madison-Reservoir-Dam-Rehab>
- If you have further questions, comments or concerns, please feel free to contact:

Jackie Schillinger

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Thank You