



**Canal
Corporation**

DeRuyter Reservoir Dam Rehabilitation Project

June 6, 2019

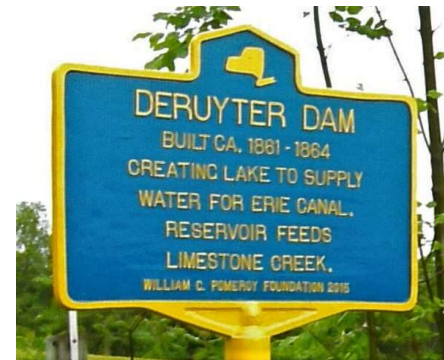
NYS Canal Corporation

Agenda

- Introduction
- DeRuyter Reservoir History & Statistics
- Infrastructure Overview
- Rehabilitation Scope
- Reservoir Levels
- Community Impacts
- Updates and Next Steps

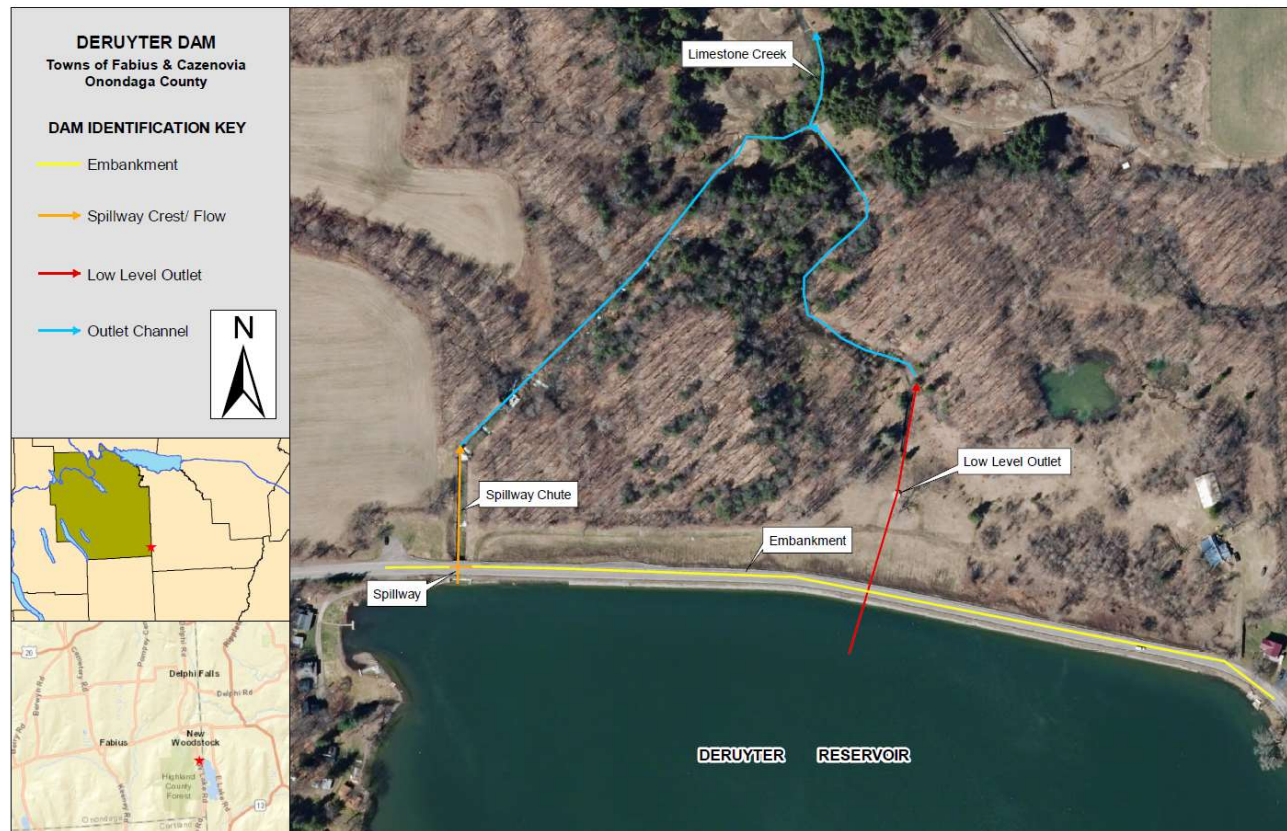
DeRuyter Reservoir History & Vital Statistics

- Built in 1861-1864 to supply water to the Old Erie Canal.
- Reservoir was constructed with an inlet diversion channel from an adjacent watershed to supply water needed for navigation.
- Water is no longer used or necessary for Canal operation and diversion is no longer active.
- Significant year-round residential population with important quality-of-life benefits for local residents.



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DeRuyter Dam Infrastructure Overview



- Dam consists of:
 - 1600 ft long earthen embankment
 - Overflow spillway crest, spillway chute and energy dissipater
 - Low Level Outlet (LLO) works and an LLO sluice channel.

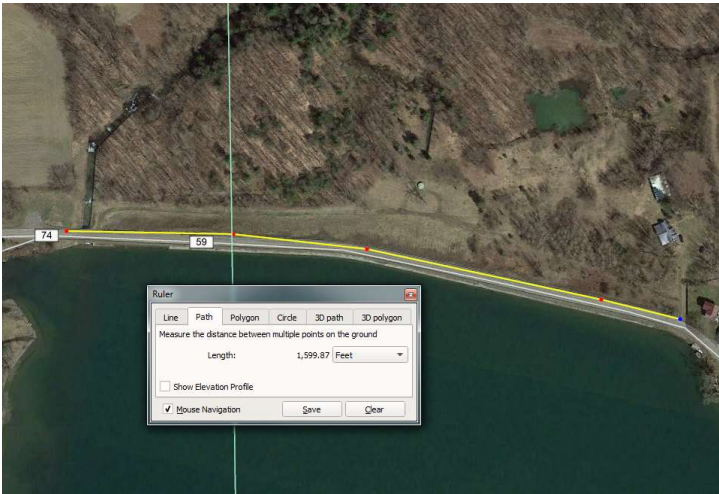
Why We Are Here

- Dam Classified as large “High Hazard” according to NYSDEC.
- Sudden failure of the dam would likely result in loss of life to downstream residents, and widespread substantial economic and environmental loss.
- Public safety is the top priority of the Canal Corporation and NYPA



Why the Project Is Needed – Embankment

- Stumps remaining from 2018 tree removal must be removed and backfilled with appropriate materials.
- The dam embankment has calculated stability deficiencies based on the design, geometry, and known material properties.
- Dam embankment exhibits ongoing seepage and wet areas exist throughout the embankment with variable rates of seepage.



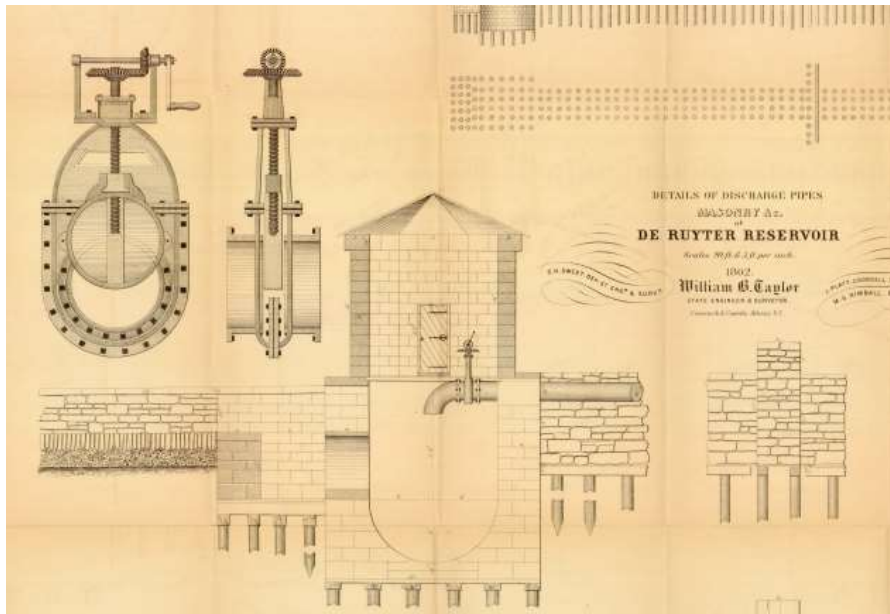
Why the Project Is Needed – Spillway

- On-going erosion and deterioration of the masonry spillway chute and failure of spillway terminus.
- Spillway chute is unable to contain high flows within the spillway training walls during high flow/flood events.
- Spillway chute construction is susceptible to damage during high flow events.



Why the Project Is Needed – Low Level Outlet

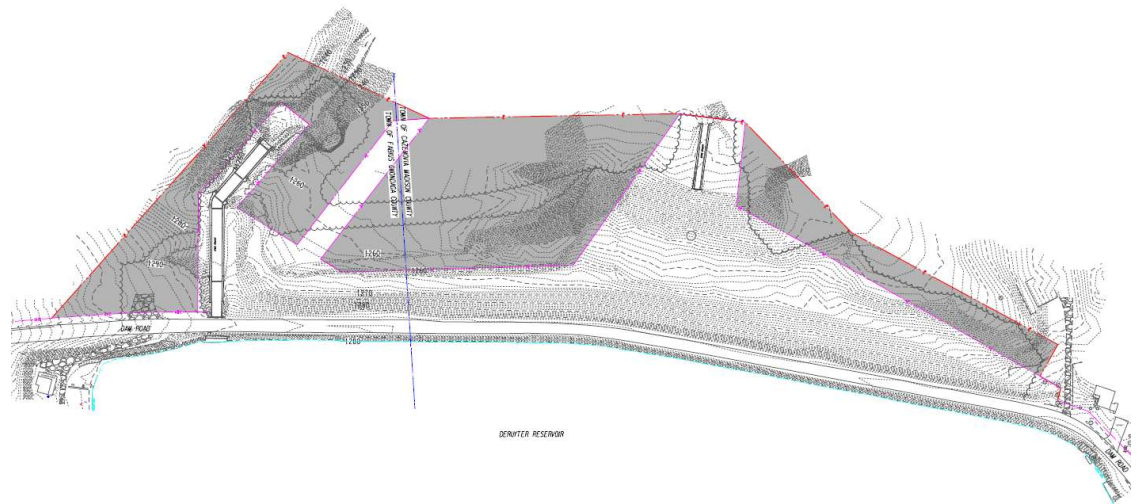
- At 155 years, existing Low Level Outlets have exceeded their useful life and are planned to be sealed in place and replaced with a shallow pipe/ siphon system.



- The Low Level Outlets are used to regulate water levels below the spillway crest and provide the yearly winter reservoir drawdown.
- The valves have been replaced in prior rehabilitations.

Rehabilitation Scope

Property Acquisition: The NYSCC has already acquired (4) parcels of land comprising portions of the dam that were formerly under private ownership.

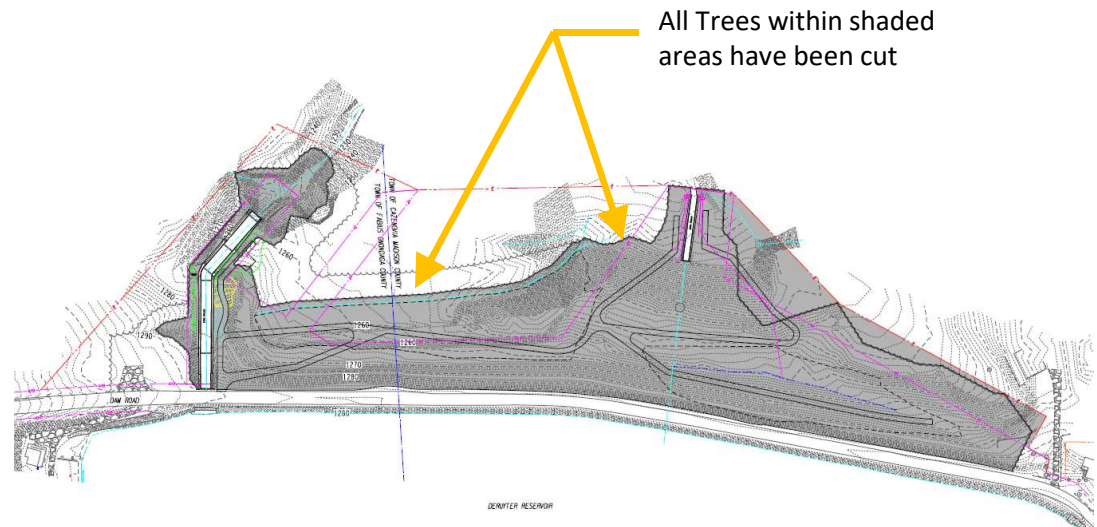


Rehabilitation Scope

Property Acquisition: The NYSCC has already acquired (4) parcels of land comprising portions of the dam that were formerly under private ownership.

Tree Cutting: In the early part of 2018, the trees on the dam embankments and toe were cut to mitigate the risk of windthrow to provide better line-of-sight for inspections.

Stump Removal: Remove stumps & roots in the dam embankment & backfill.



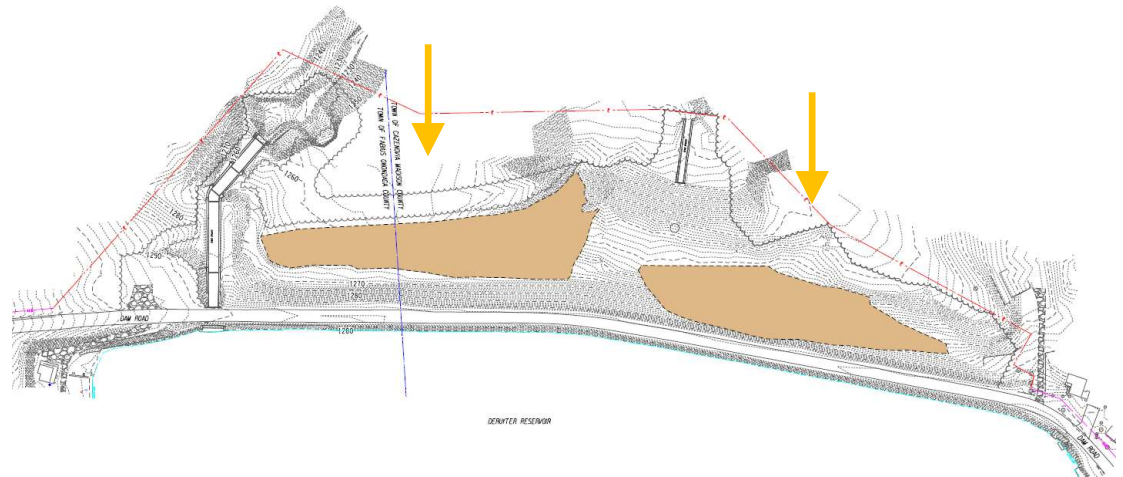
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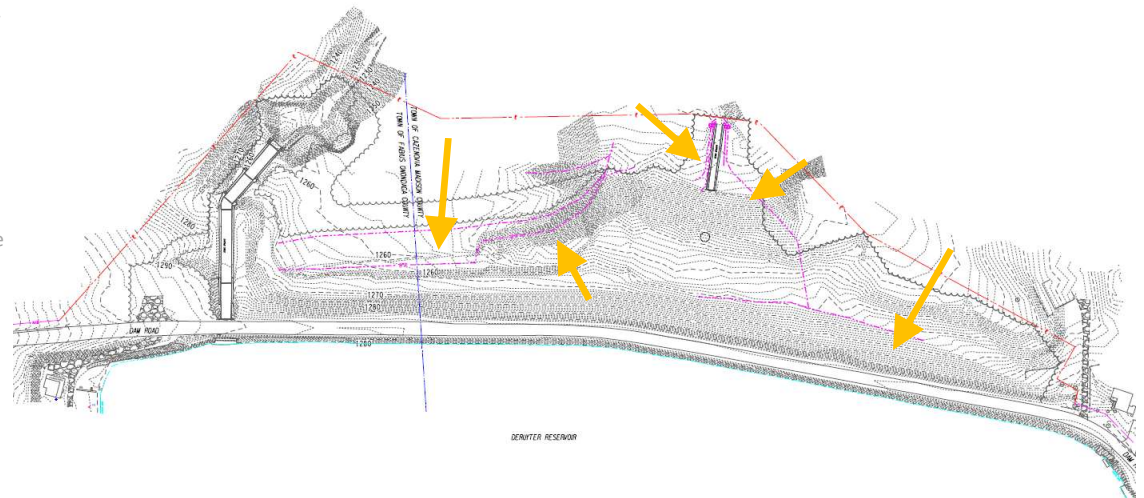
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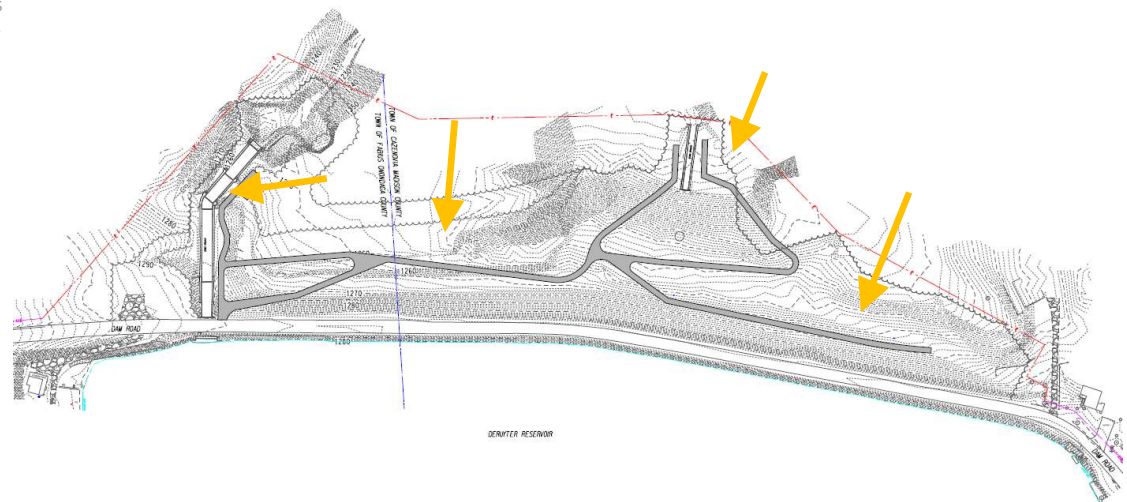
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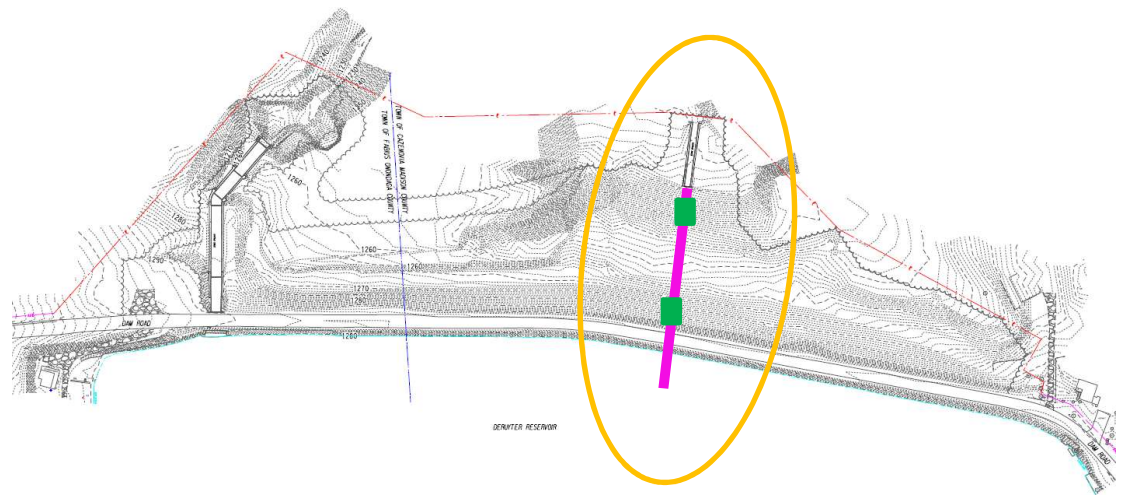
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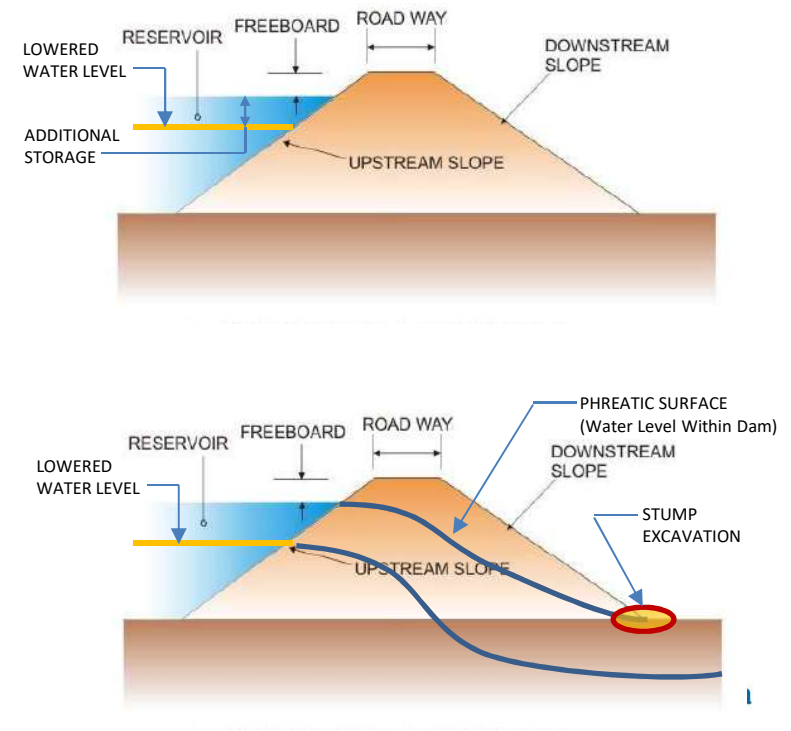
Low Level Outlets: Abandon existing pipes and outlet channel in place filling with materials to prevent future leakage. Construct new shallow pipe system to provide the same functionality. Install new valve control buildings



Reservoir Levels

To maintain a safe condition, rehabilitation of the dam will require temporarily lowering the reservoir's water surface.

1. Work on the main spillway chute will mean there is no capacity to carry inflow due to storms, necessitating an alternate means to pass or store water that flows into the reservoir is required during spillway work.
 - Reservoir is drawn down to provide capacity within the reservoir to handle inflows from storms.
2. Work on the embankment (stump pulling/excavation) is invasive. Reducing the pool level provides safety.
 - Reservoir is drawn down to reduce the water level within the embankment and to reduce the water level below known seepage paths.



Reservoir Lowering

Potential Impacts & Proposed Mitigation for Residents and Visitors:

- Adverse impacts to Private Water Supply Intakes (from the reservoirs and potentially shoreline wells also).
 - *Provide portable washing/bathing facilities.*
 - *Mitigation for private wells/ reservoirs including water deliveries.*
- Recreational Boating including access to boats (docks will not extend deep enough).
 - *Provide temporary secure docking facilities?*
- Potential for more frost heave (unknown).
 - *Opportunity to perform maintenance for features normally submerged.*
- Potential odor from exposed lake bed.
 - *Bulk of work performed in the winter which should help minimize impact.*

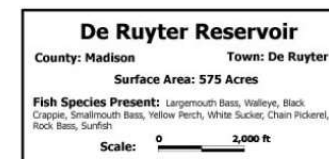
New York State Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources
Lake Map Series

Region 7

De Ruyter Reservoir



Not For Use in Navigation



Canal Corporation

Reservoir Lowering – Reservoir Full

(through Labor Day, 2019)



Timing of reservoir lowering and refilling dependent on hydrologic and other weather factors. Also assumes rehabilitation and use of former inlet channel.

Reservoir Lowering – Reservoir -10 ft

(January, 2020)



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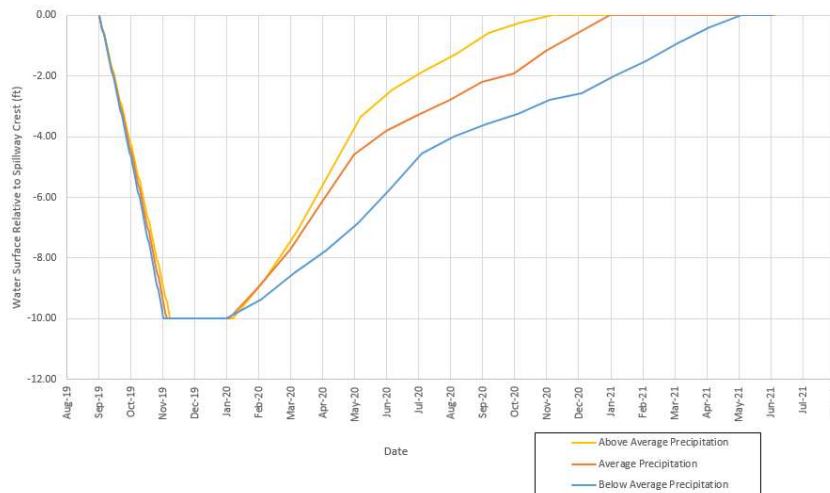
Inlet Diversion Feasibility Review

Why reactivate the inlet? Reduces time at lowered pool levels mitigating recreational, environmental and other impacts to the reservoir and surrounding community

Canals is coordinating inlet diversion activation with local residents along inlet channel and Susquehanna River Basin Commission and NYS DEC

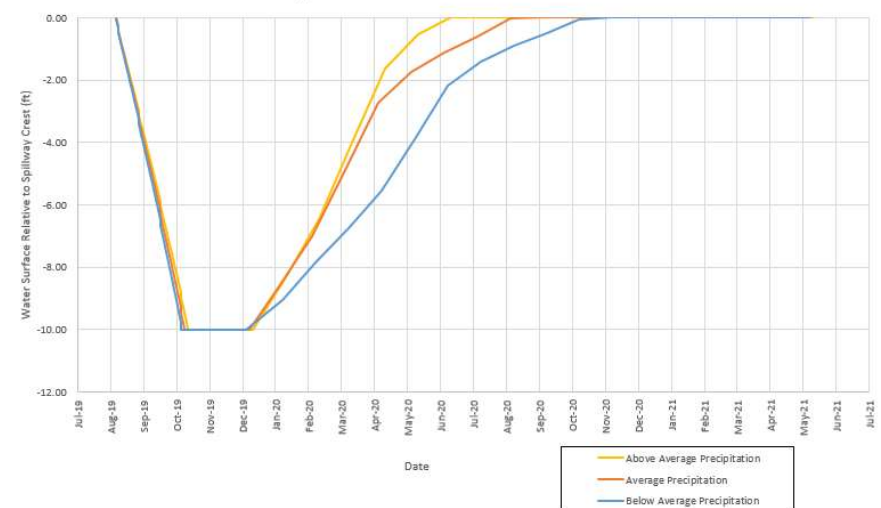
DeRuyter Drainage Basin Only

Approximate Reservoir Refill & Drain Rate



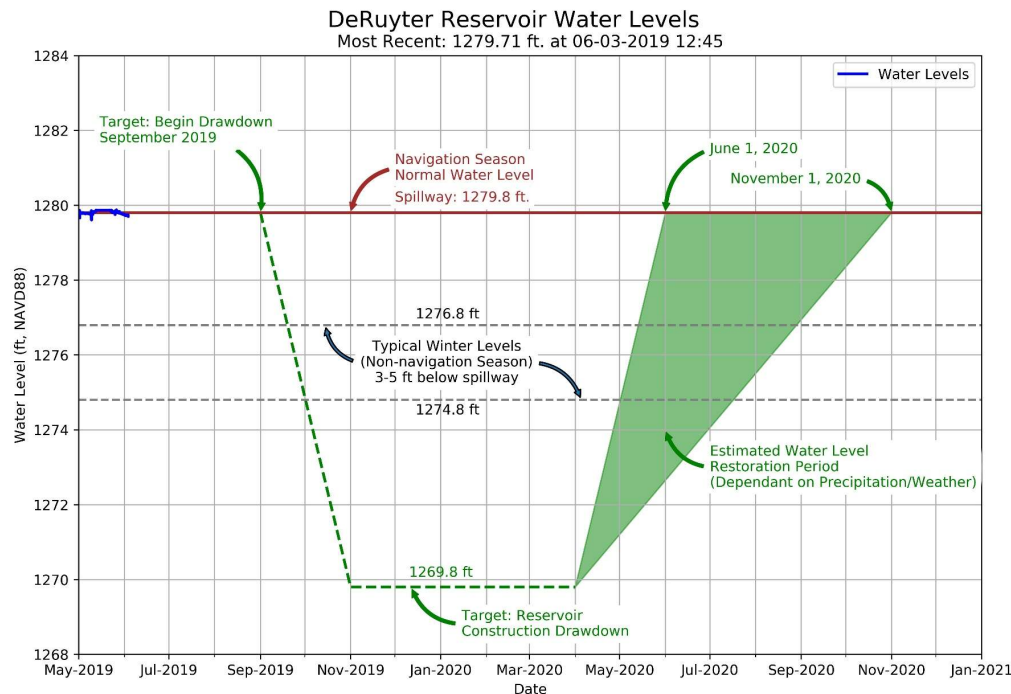
W/ Tioughnioga Creek Diversions

Approximate Reservoir Refill & Drain Rate



Inlet Diversion Feasibility Review - Update

- Secured permission with adjacent landowners to activate inlet
- Working with State and Federal agencies to complete the permitting process



Water level information will be displayed on
[www.canals.ny.gov/DeRuyter Dam/water_levels.html](http://www.canals.ny.gov/DeRuyter_Dam/water_levels.html)

Temporary Community Impacts

This project will have varying impacts to people with connections to the dam:

1. **Reservoir Residents and Renters**
2. **Downstream Residents**
3. **Recreational Users** (Fishing, boating, birding, swimming, kayaking, etc.)

Balancing the impact to these groups is the goal.

1. **Reservoir Residents and Renters** – Water level of the reservoir is likely the largest impact overall. Construction traffic, lighting and noise will have varying impact depending on location.
2. **Downstream Residents** – Provide for safety both for the dam in its permanent condition and during construction.
3. **Environmental/Recreation/Nature** (Fishing, Kayaking, Birding, etc.) – Minimize impact on wildlife during construction and after the project.

Other Construction Impacts

Road Impacts/Traffic – The project requires a significant amount of fill material to be placed on site to buttress/fortify the embankment.

- *We anticipate including language and payment items to direct the contractor to minimize the impact in construction and repair any damage inflicted on local roadway infrastructure.*

Construction Noise and Light – There will be temporary changes to noise levels and lighting due to increased activity and the use of machinery.

- *The contract will include provisions such as work hour restrictions and machinery requirements to minimize the impact on the surrounding public.*

Dust & Debris – There will likely be some level of additional dust generated.

- *One of the important requirements for earthwork on a dam is the moisture content of the soil.*

New York State Department of Environmental Conservation
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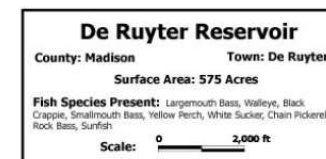


Region 7

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Not For Use in Navigation



Canal Corporation

Project Benefits

- Project will correct deficiencies with the spillway, low-level outlets and dam embankments
- Project will improve Canals ability to inspect, maintain and operate DeRuyter Dam
- Long term preservation of historic community asset for future generations
- Protection of public safety for downstream communities and residents in the Limestone Creek Valley

Environmental Permitting and Water Quality Testing

- SEQR and permitting is underway and on track
- Canals has established lead agency in the SEQR process
- Continuing to work with ACOE and SRBC
- Water quality testing of the Reservoir inlet and outlet as well as Tioughnioga Creek continues
- Results do not indicate a concern at this time with impacting the Reservoir from diverting the Middle Branch Tioughnioga Creek
- Sampling will continue through end of project and refill
- Coordinating with Lake Association to improve sampling locations and Parameters, leaning on their local knowledge and experience sampling the Reservoir through the CSLAP program
- Residents planning work along the shoreline or in the bed of the dewatered reservoir should contact NYSDEC Region 7 for more information on applicable permits at (315) 426-7400 or r7dep@dec.ny.gov



Survey Results and Outreach

- Survey/Questionnaire distributed to residents
 - Total of 81 responses received
 - 73 respondents have boat docking/mooring that may be impacted
 - 66 respondents have well water, 15 have reservoir intakes
 - 41 respondents have concrete or masonry seawalls or retaining walls along their shoreline
 - 69 respondents have septic/leach field facilities
- Drone video of the reservoir shoreline is scheduled for Summer 2019 and post-construction
- Follow up visits have been made by Canals/NYPA engineering staff to potentially impacted residents.
- Follow up visits will be scheduled if desired with residents that have direct Reservoir water intakes over the course of next several months before construction to assess potential impacts and mitigation

Next Steps

March 7, 2019 – Public information meeting

June, 2019 – Second public information meeting

June, 2019 – Project Bid Advertisement (mid-June) and long-lead time equipment procurement

June-August, 2019 – Site visits to potentially impacted residents

August, 2019 – SEQR and Permit Review Process Completion

August, 2019 – Contract Award

September, 2019 – Begin Reservoir Drawdown and Mobilization

Summer, 2020 – Reservoir water level restored (with inlet diversion)

Fall 2020 – Reservoir water level restored (without inlet diversion)

Contact Us

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