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Orland Village Dam Engineering Evaluation and Feasibility Study

Informative Public Meeting
Project Update

June 17, 2026

Project Background

Welcome and Introductions
Background Information
Presentation by Verdantas
Next Steps
Q & A



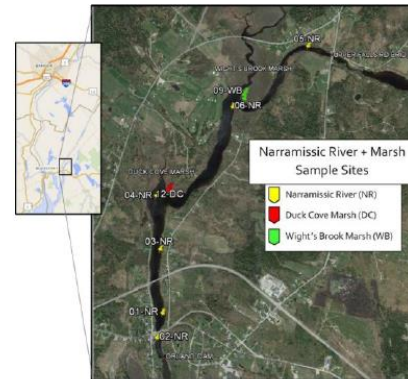
Project Background

- Orland Village Dam originally constructed in early 1900s
- The Town of Orland acquired the dam in 2010
- Assessments of dam completed by Stantec in 2013 and 2016
- Town of Orland 2016 vote to keep the dam
- 2025: Funding received for Engineering Evaluation and Feasibility Study



Project Background

- **Project funded by Penobscot Estuary Beneficial Environmental Projects Trust**
 - **Managed by the Greenfield Trust**
 - **\$310,000 in project funding**
- **Project began in July 2025 and needs to be completed by January 2027**
- **Work completed July '25 – January '26**
 - **Scoping Document preparation**
 - **Preparation of Request for Qualifications**



Project Background

OUTSIDE of the scope of this engineering evaluation and feasibility study:

- Consideration of a nature-like fishway
- Consideration of whether or not the dam will stay
- The alewife harvesting area
- Processes surrounding the dams at Toddy Pond and Alamoosook Lake

Study Purpose

- Evaluate dam condition
- Develop feasible rehabilitation options
- Evaluate fish passage alternatives
- Support Town decision making



Orland Village Dam

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Project Goals

Address critical structural and ecological challenges

- Improve dam resiliency
- Provide effective fish passage
- Reduce dam overtopping during higher tides
- Preserve water supply for fire suppression



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Work Completed

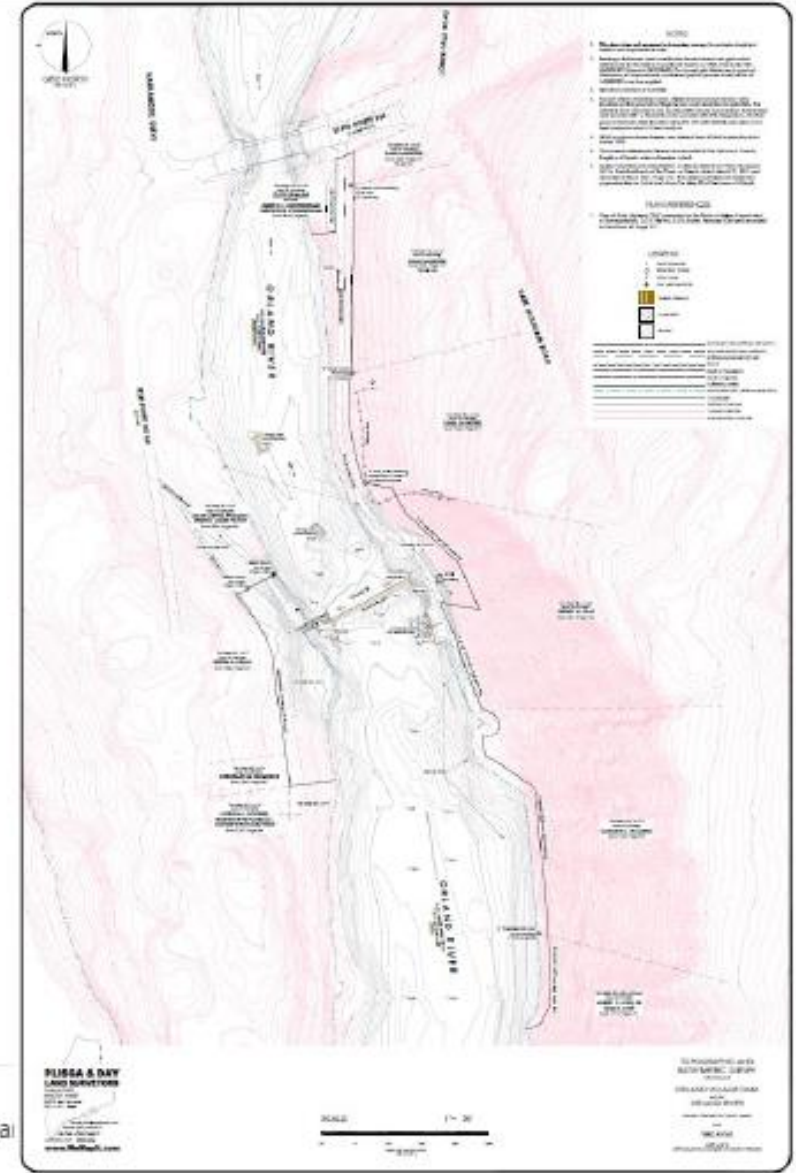
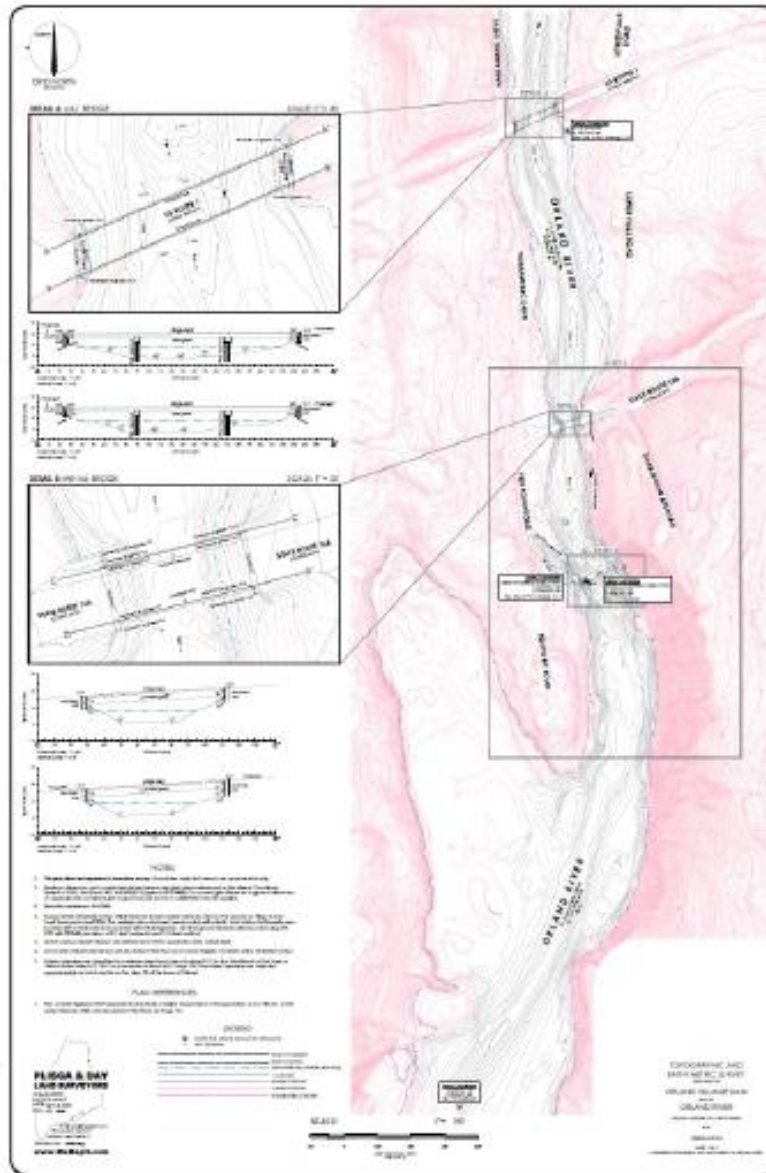
Update on our progress to date:

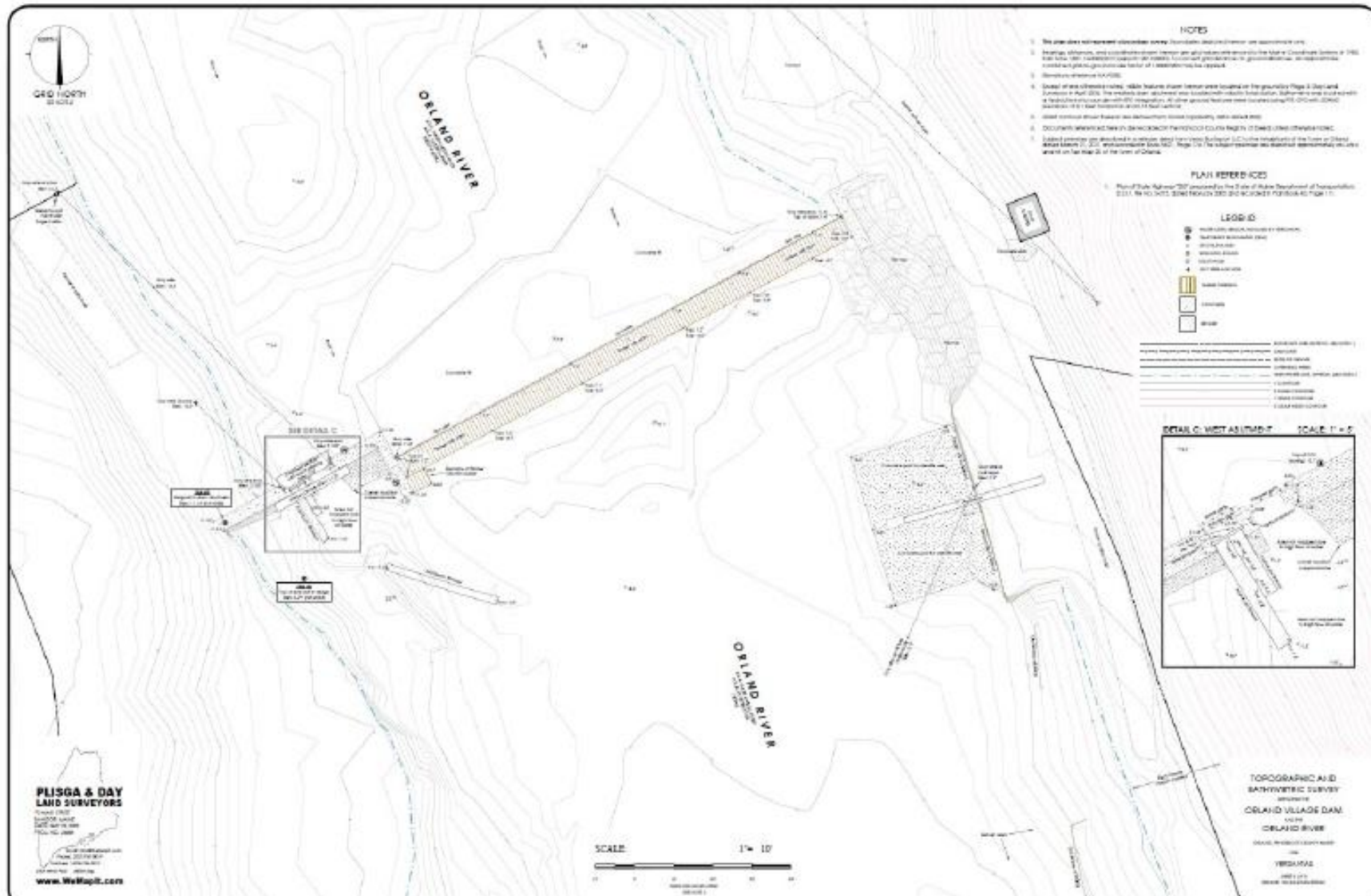
- Existing data and study review
- Dam and river surveys
- Water level sensors installation
- Dam inspection



Orland Village Dam

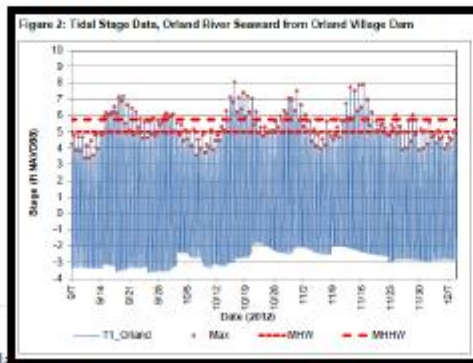
River Surveys



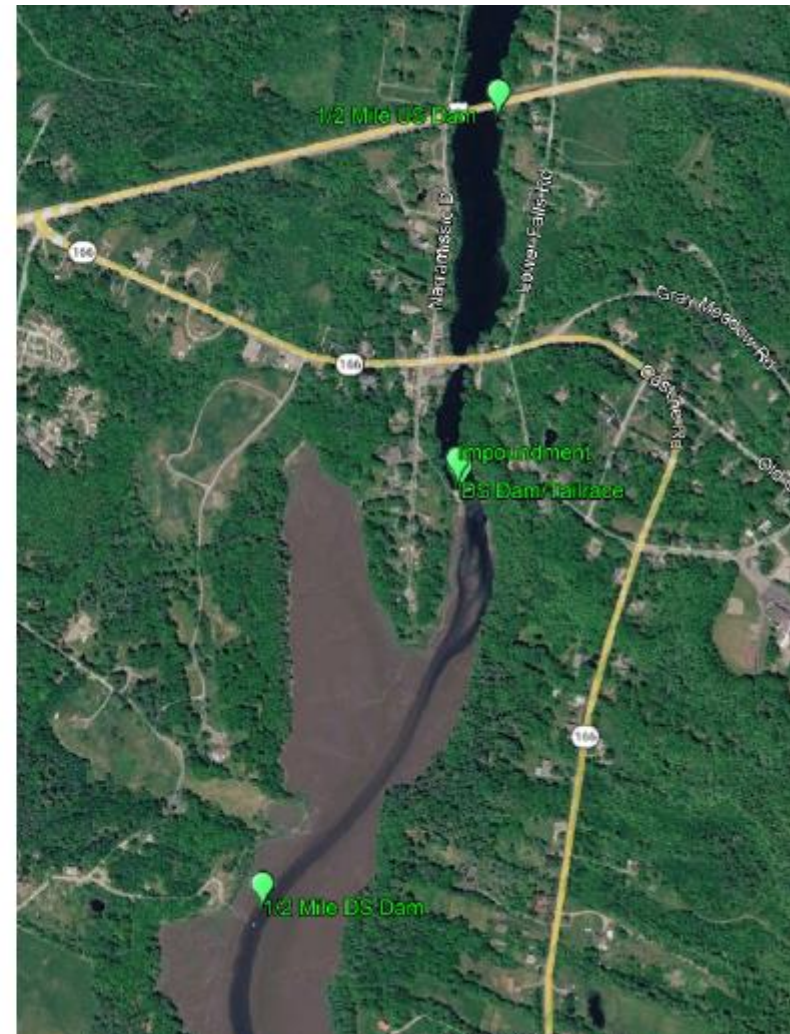


Water Level Monitoring

- Installed sensors to determine tides and correlate water level with river flow
- 5 sensors deployed upstream and downstream of the dam
- Valuable data to calibrate hydraulic models and develop design criteria



Orland Village



Dam Inspection Findings

- Inspected on 4/21/2026
- No immediate safety concerns
- Timber crib shows widespread deterioration
- Damaged and deteriorating crest boards
- Voids and gaps observed in abutment interfaces and dam structures



Dam Inspection Findings

- Concrete structures in fair to poor condition
- Gate structures in poor condition



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➤ Existing Dam Improvements

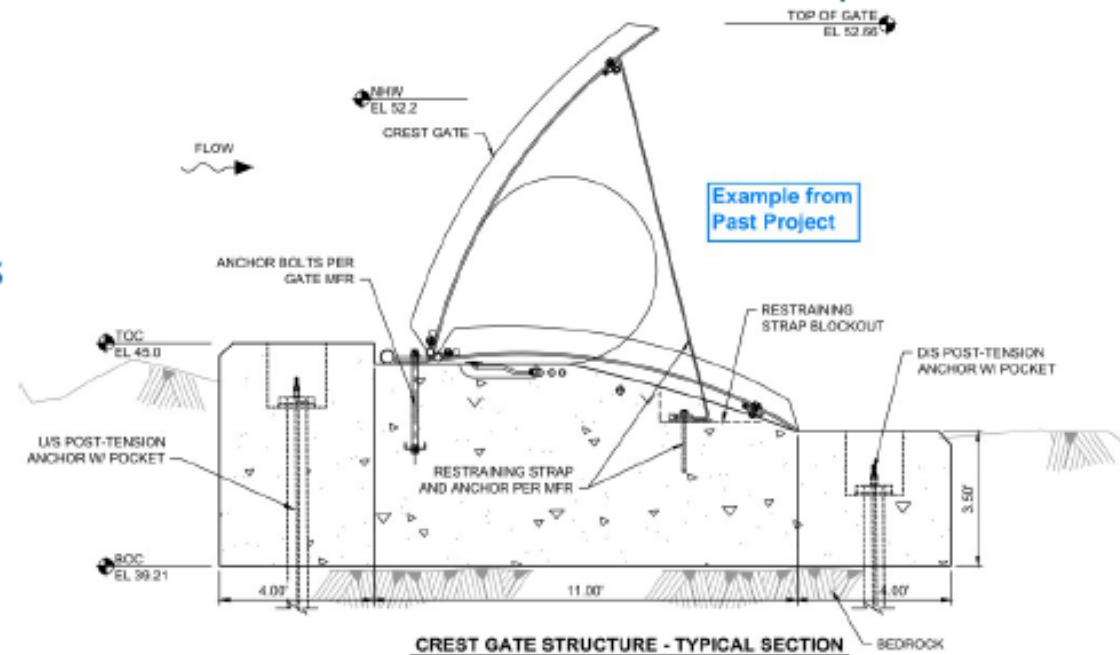
- ## Timber crib rehab example



Dam Rehabilitation Options

- Dam Replacement
 - ❑ New Concrete Dam
 - ❑ Optional addition of Crest Gates or Wooden Flashboards

New Low Head Dam w/ Crest Gate example



Example Flashboards, Crest Gates & Inflatable Dams

Potential options to mitigate dam overtopping during extreme high tides



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Fish Passage Alternatives

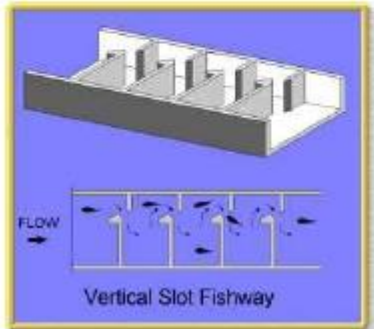
- Denil Ladder
- Vertical Slot Ladder
- Pool and Chute Ladder



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Fish Ladder Examples



Vertical Slot



Denil



Pool & Chute



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Fish Passage Alternatives

Denil Ladder

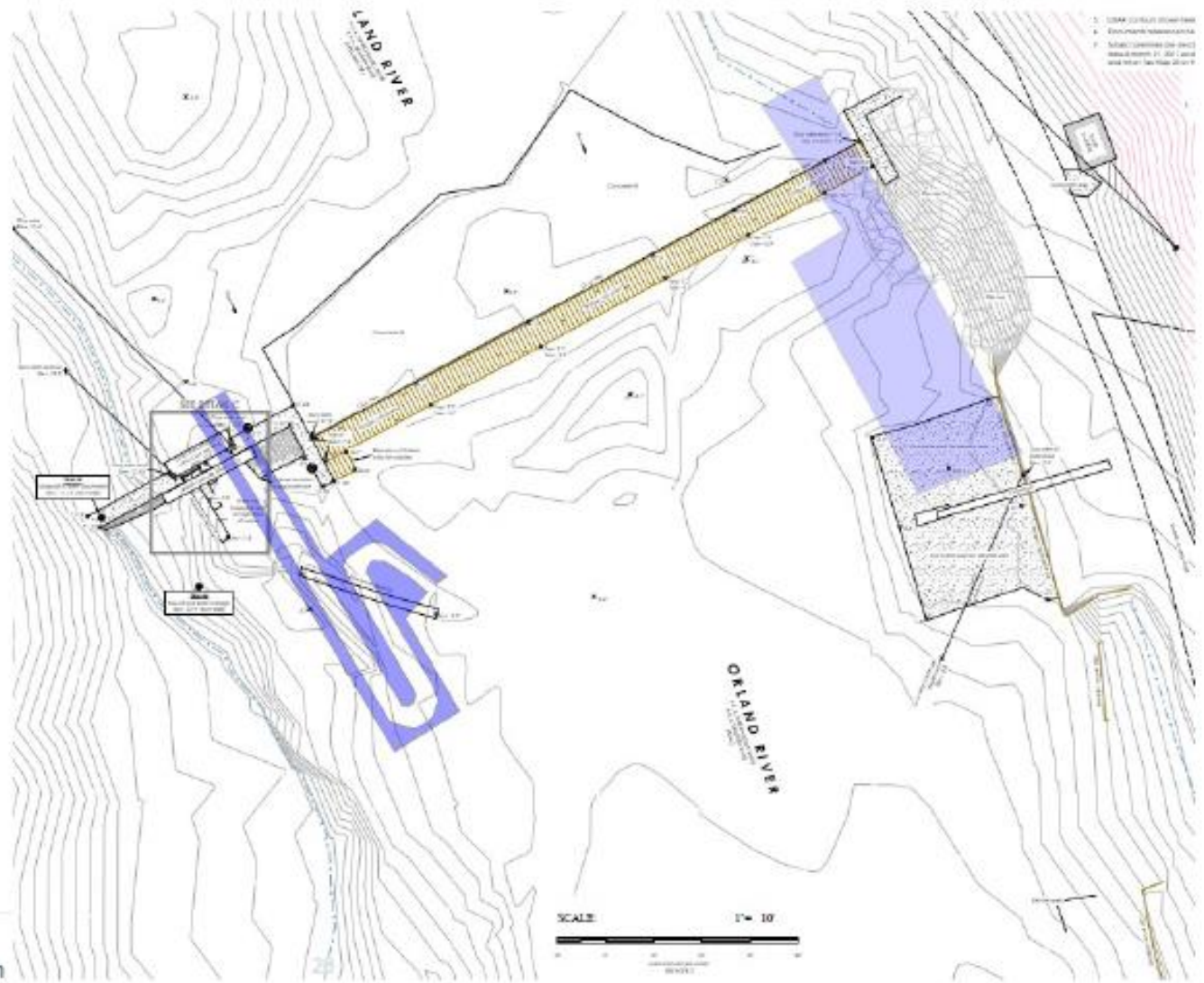
Potential for either side of river

Footprint: 85 ft L by 15 ft W

Channel: 24 baffles 4 ft W
(standard Denil design)

Slope: 1V:8H, 12.5%

Flow: 6 cfs min



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Fish Passage Alternatives

Vertical Slot Ladder

Potential for either side of river

Footprint: 125 ft L by 25 ft W

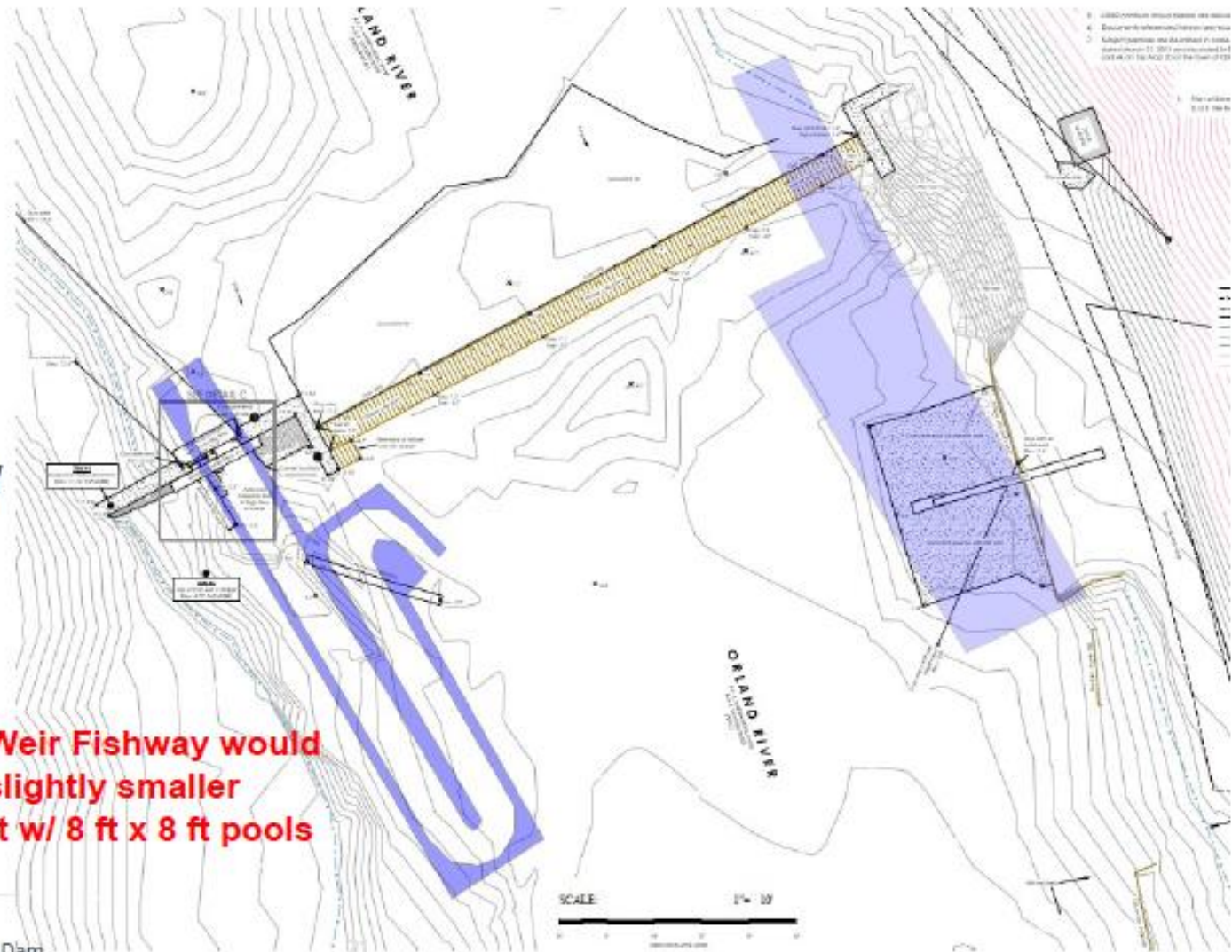
Pools: 10 ft L by 8 ft W

Slot width: 12 inches
(considering larger widths)

Drop per pool: 6 inches

Flow: 20 cfs min

Pool & Weir Fishway would have a slightly smaller footprint w/ 8 ft x 8 ft pools



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Evaluation of Alternatives

Will include a comparison of:

- Effectiveness
- Constructability
- Cost
- Long-term maintenance
- Alignment with goals

Potential Construction Cost Range

- Rehab + fish ladder: \$5M - \$15M
- Replace + fish passage: \$10M - \$20M

Order of magnitude for planning purposes only



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Schedule & Milestones

Item	Description	Completion Date
	Contract and Project Authorization	20-Feb-2026
Task 1	Existing Data Collection and Review	13-Mar-2026
Task 2	Field Investigations	
	<i>Field Surveys</i>	30-May-2026
	<i>Water Level Monitoring</i>	30-Aug-2026
	<i>Dam Condition Assessment</i>	30-May-2026
Task 3	Existing Conditions Update	29-Jun-2026
Task 4	Feasibility and Alternatives Evaluation	30-Sep-2026
Task 5	Selected Design Cost Estimate Update	30-Oct-2026



Next Steps

- Continue data collection and analysis
- Complete hydrology and hydraulic modeling
- Develop conceptual alternatives
- Develop cost estimates
- Comparison of alternatives
- Prepare feasibility report



Orland Village Dam

Communication and Coordination

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Thank You