Haverhill's MVP Action Grant: Little River Dam Removal Feasibility Study

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Julianne Busa, PhD, CSE, Senior Environmental Scientist, Fuss & O'Neill
Phil Moreschi, PE, CFM, Vice President, Fuss & O'Neill

Presenters

Julie Busa, PhD, CSE

- Senior Environmental Scientist in the Water and Natural Resources Group of Fuss & O'Neill.
- Certified Senior Ecologist with 10+ years of experience in the areas of global biodiversity and forest conservation, sustainability, and ecological modelling.
- Works extensively with municipalities on MS4 compliance and the MVP program.

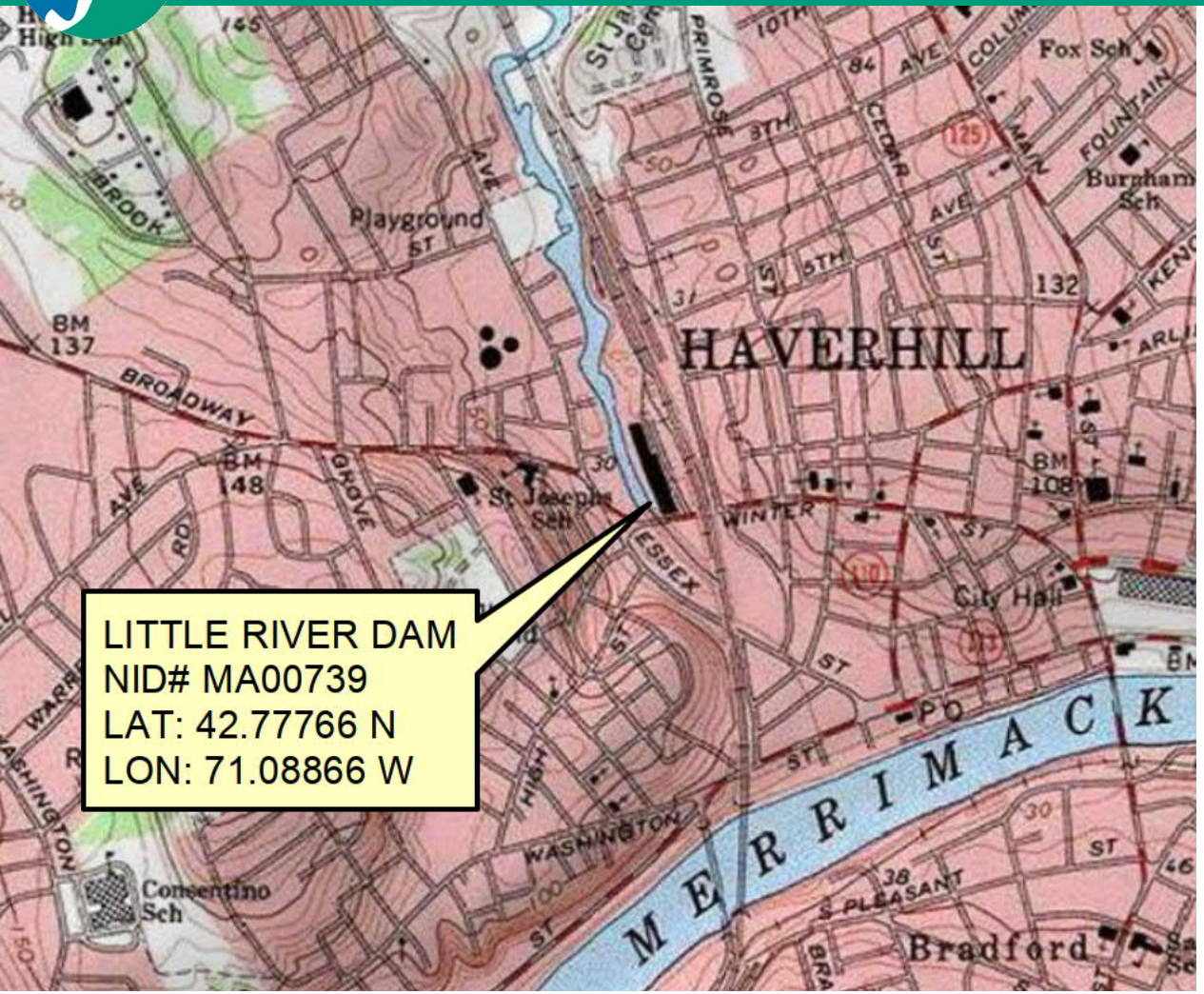
Phil Moreschi, PE, CFM

- Vice President in the Water and Natural Resources Business Line of Fuss & O'Neill.
- 30+ Years of dam restoration, lake dredging, watershed management, stormwater quality and quantity management, flood control, river restoration, environmental impact evaluations, petroleum services, and site design experience.

Andrew Herlihy

- City of Haverhill
- Andrew manages state and federal grants for the City including the Cares Act; MassWorks Infrastructure Grants; Community Development Block Grants (CDBG); Parklands Acquisitions and Renovations for Communities (PARC) grants for Cashman Field renovation; GAR Park enhancements and construction of numerous playgrounds.

Site Background and Larger Context



Project Background

- Awarded MVP Planning Grant in 2020
- Completed Planning Process in Spring/Summer 2020
  - Near-unanimous Stakeholder Support for Little River Dam Removal Feasibility as Top Priority Project
- Awarded MVP Action Grant for FY2021
  - Little River Dam Removal Feasibility Study

What Is the MVP Program?

Engage Community → Identify Climate Change Impacts and Hazards → Assess Vulnerabilities and Strengths → Develop and Prioritize Actions → Take Action

Project Objectives

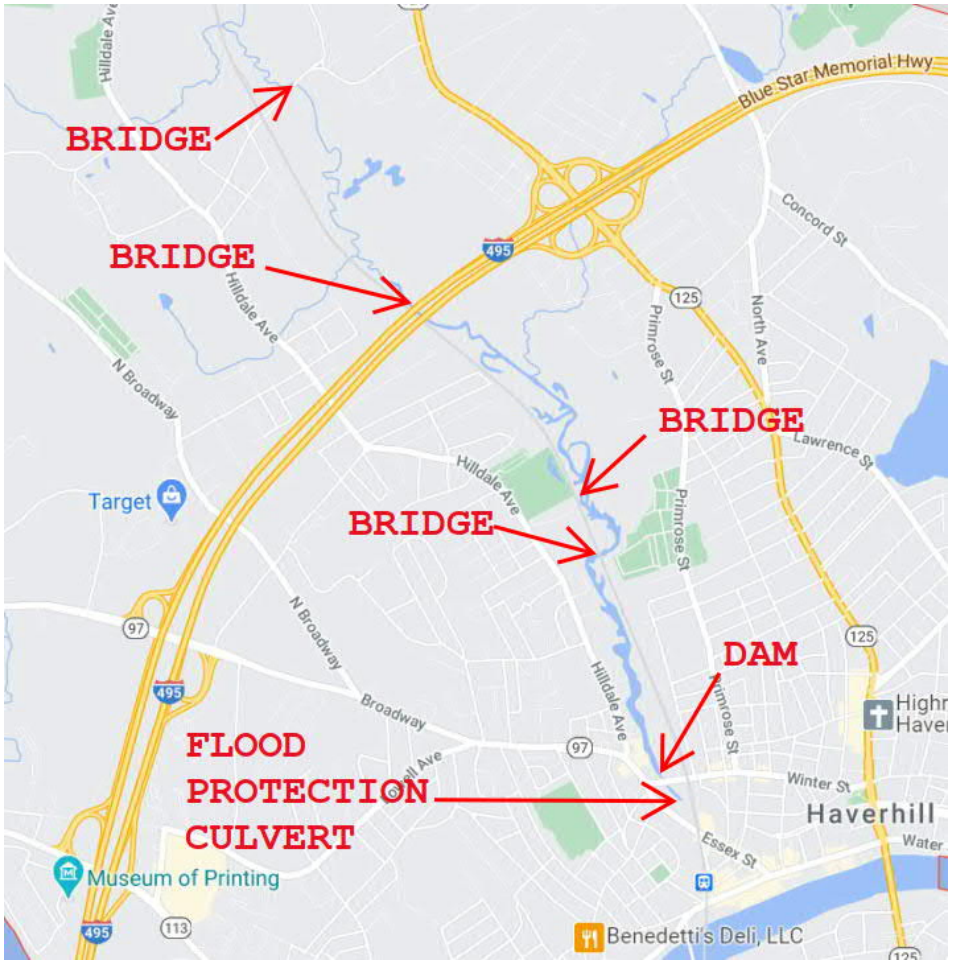
- Reduced flooding risk in an environmental justice neighborhood.
- Increased river access point and public green space amenity.
- Increased tree cover in the downtown area.
- Increased marketability of the Stevens Mill property.
- Address concerns related to ownership transfer to the City.
- Removal of a barrier to aquatic organism passage.
- Demonstration site for nature-based solutions for riverbank restoration and stabilization.
- Jumping-off point for larger urban river revitalization effort.

Little River Dam, Haverhill

Little River Dam, Existing Conditions
March 2020

Rendering of Future Conditions:
Dam Removal

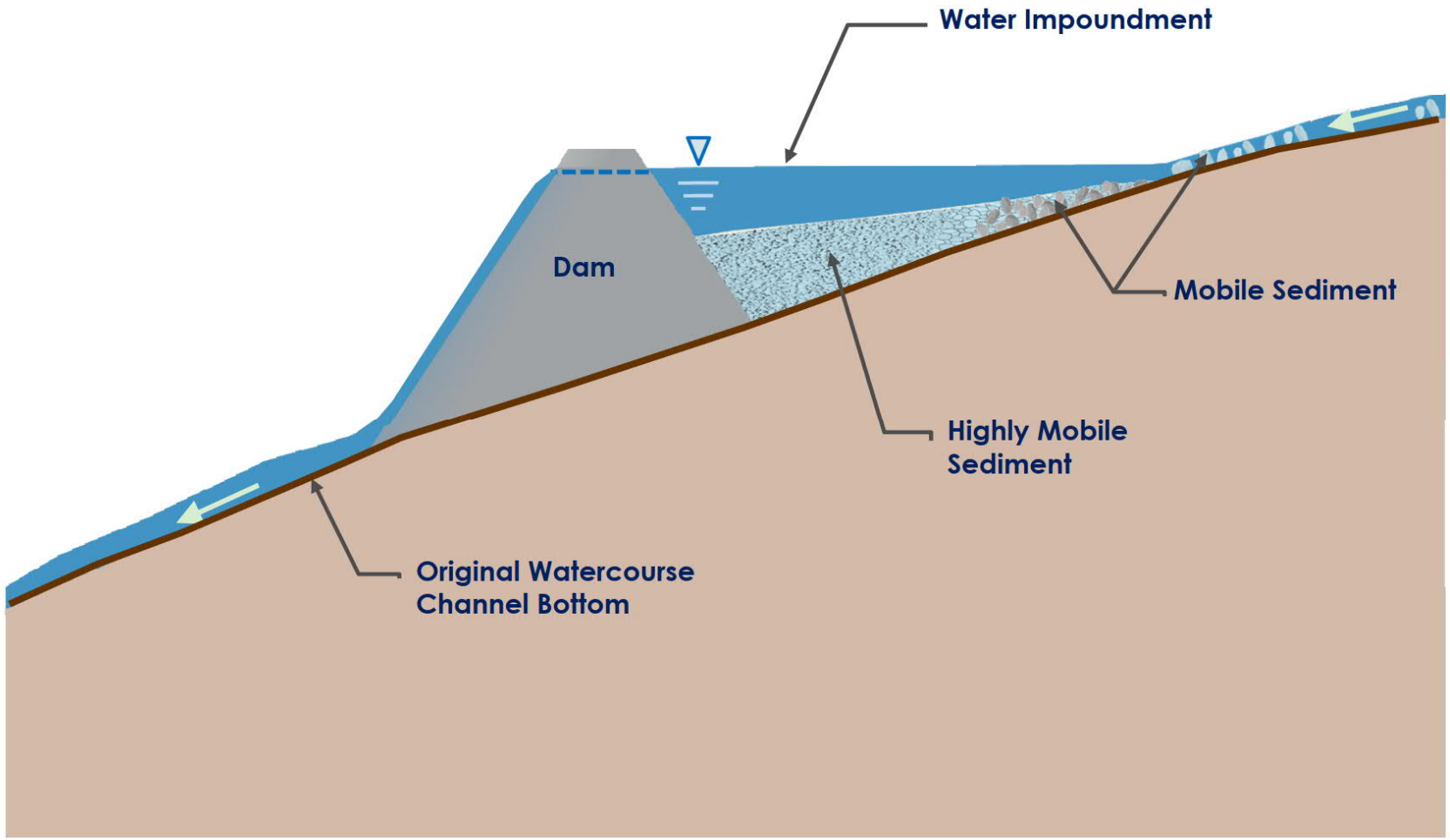
Project Area



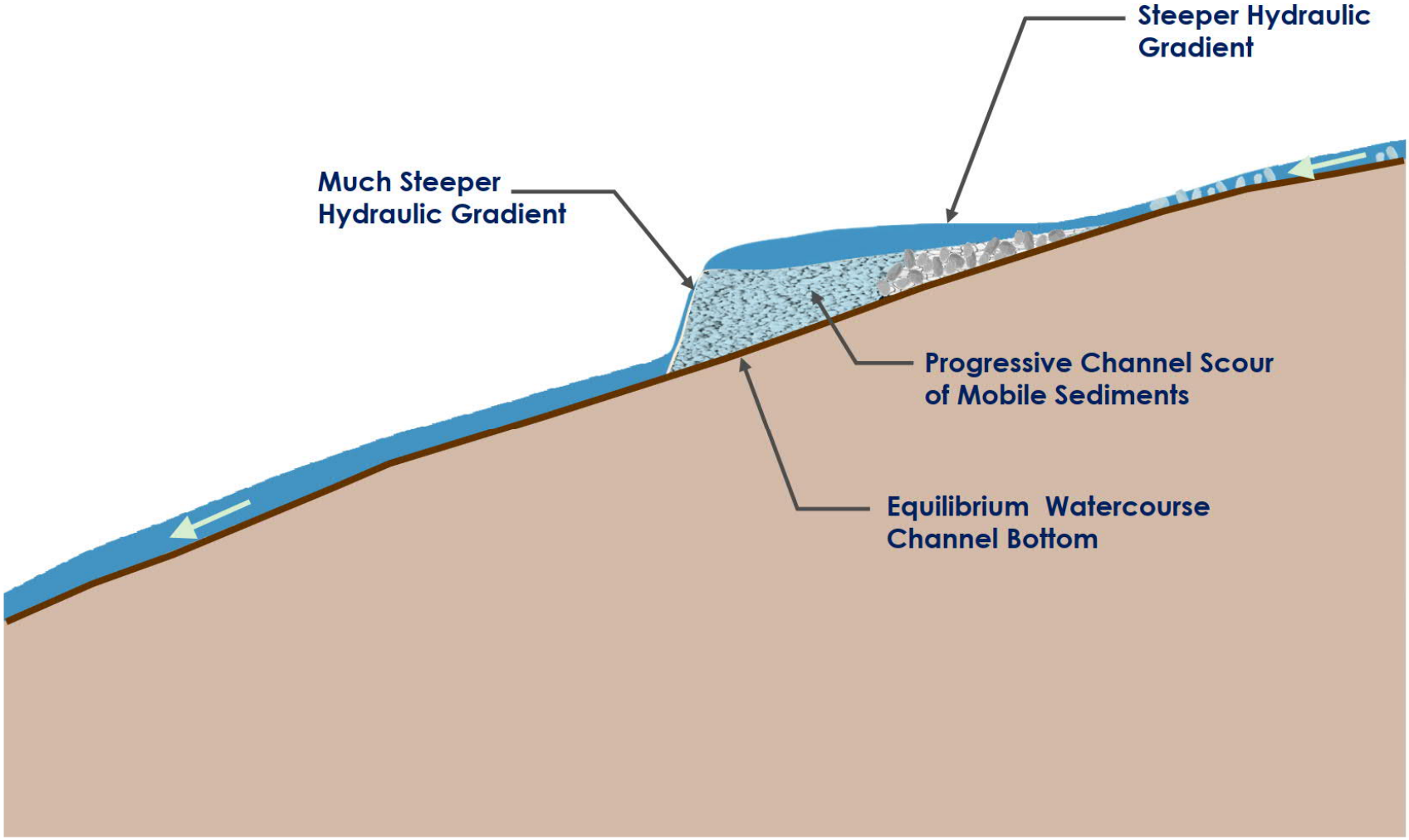
Potential Impacts of Dam Removal

Hydrologic	- Increased Flow
Hydraulic	- Increased Velocity
Infrastructure	- Exposure, Undermining
Sediment	- Quality, Movement
Wells	- Lower Groundwater Levels
Wetlands	- Lower Normal Water Levels
Recreation	- Reduced Depth
Aesthetics	- Pond to River

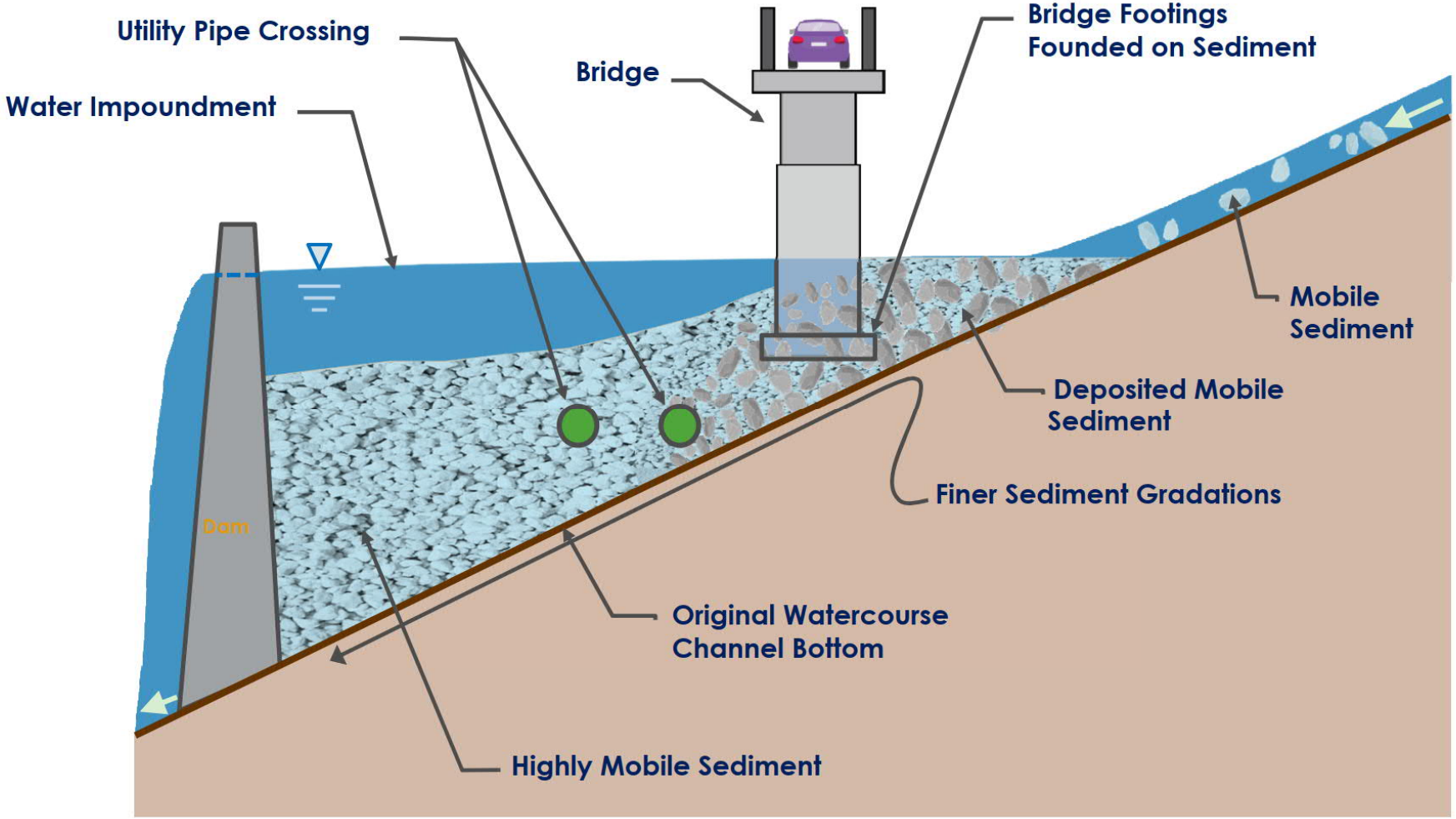
Existing Dam



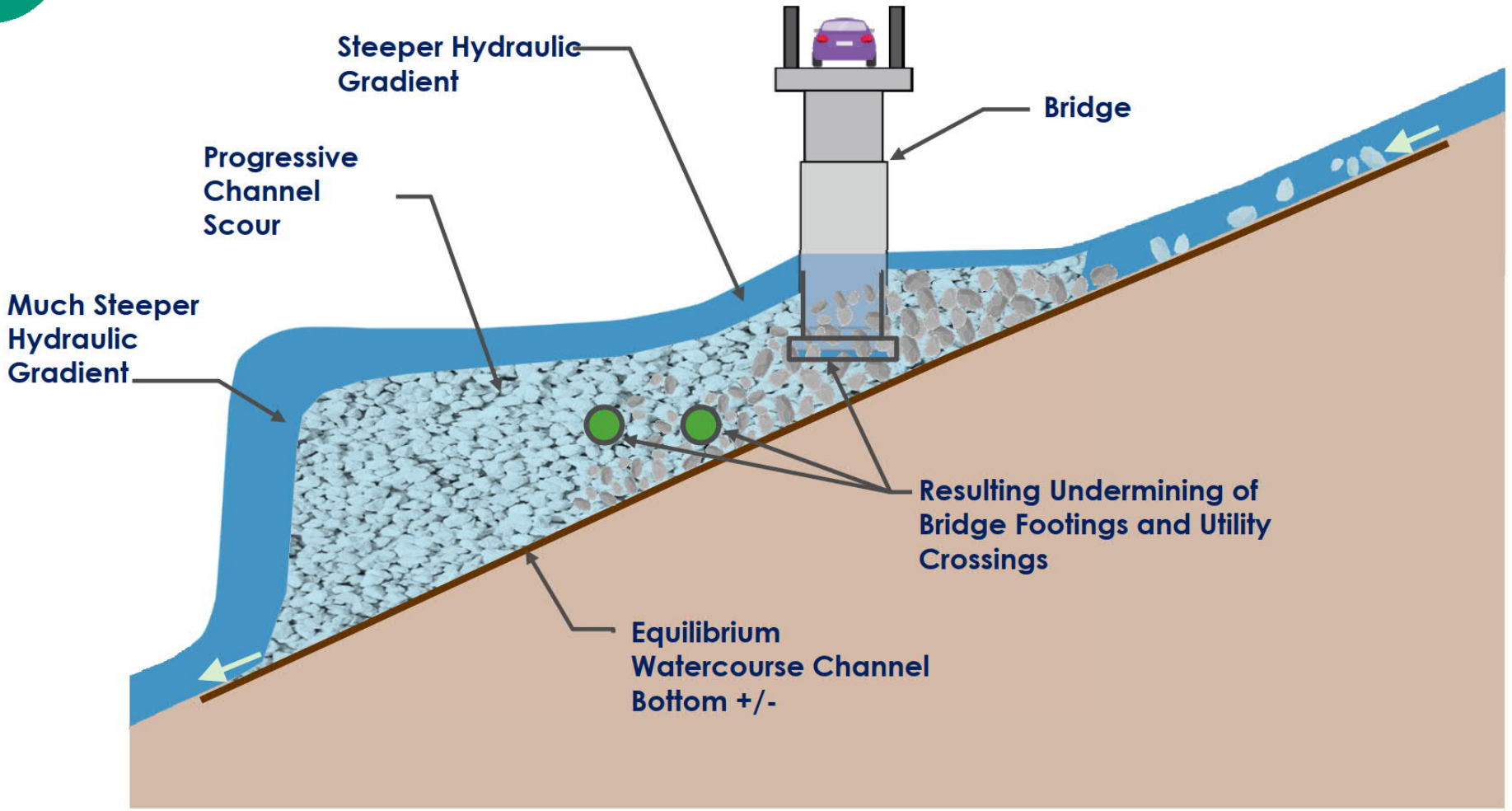
Removal of Dam



Existing Dam with Infrastructure



Impacts of Dam Removal on Infrastructure



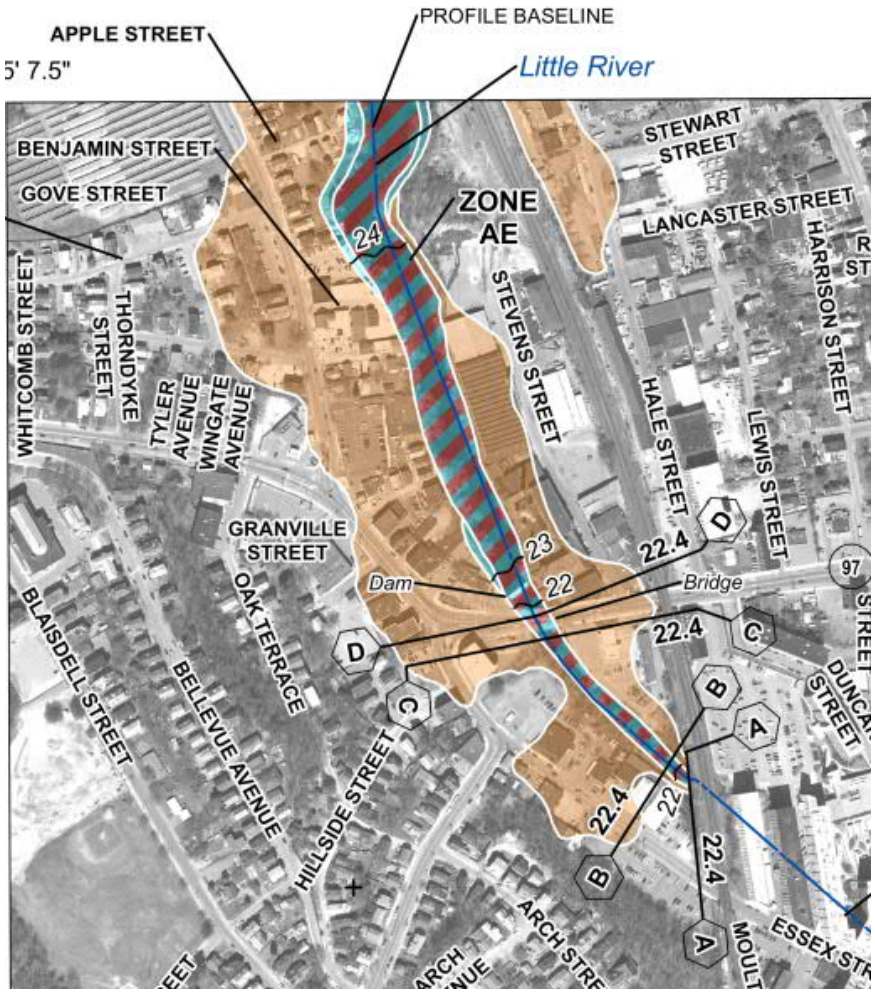
Historical Document Research

- Structural Integration of Dam and Mill Building?

Structural Research and Evaluation

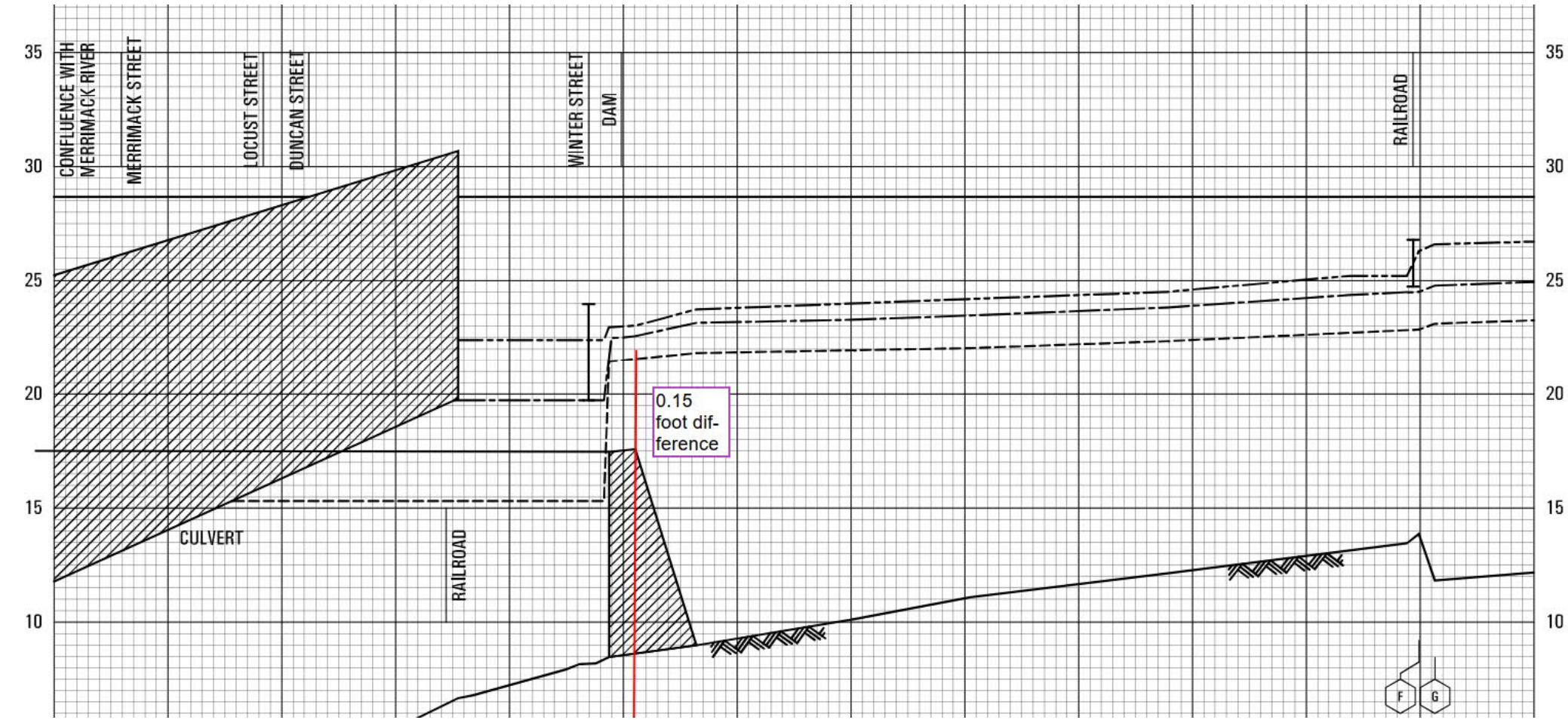
- Structural Integration of Dam and Mill Building?

FEMA Flood Zones

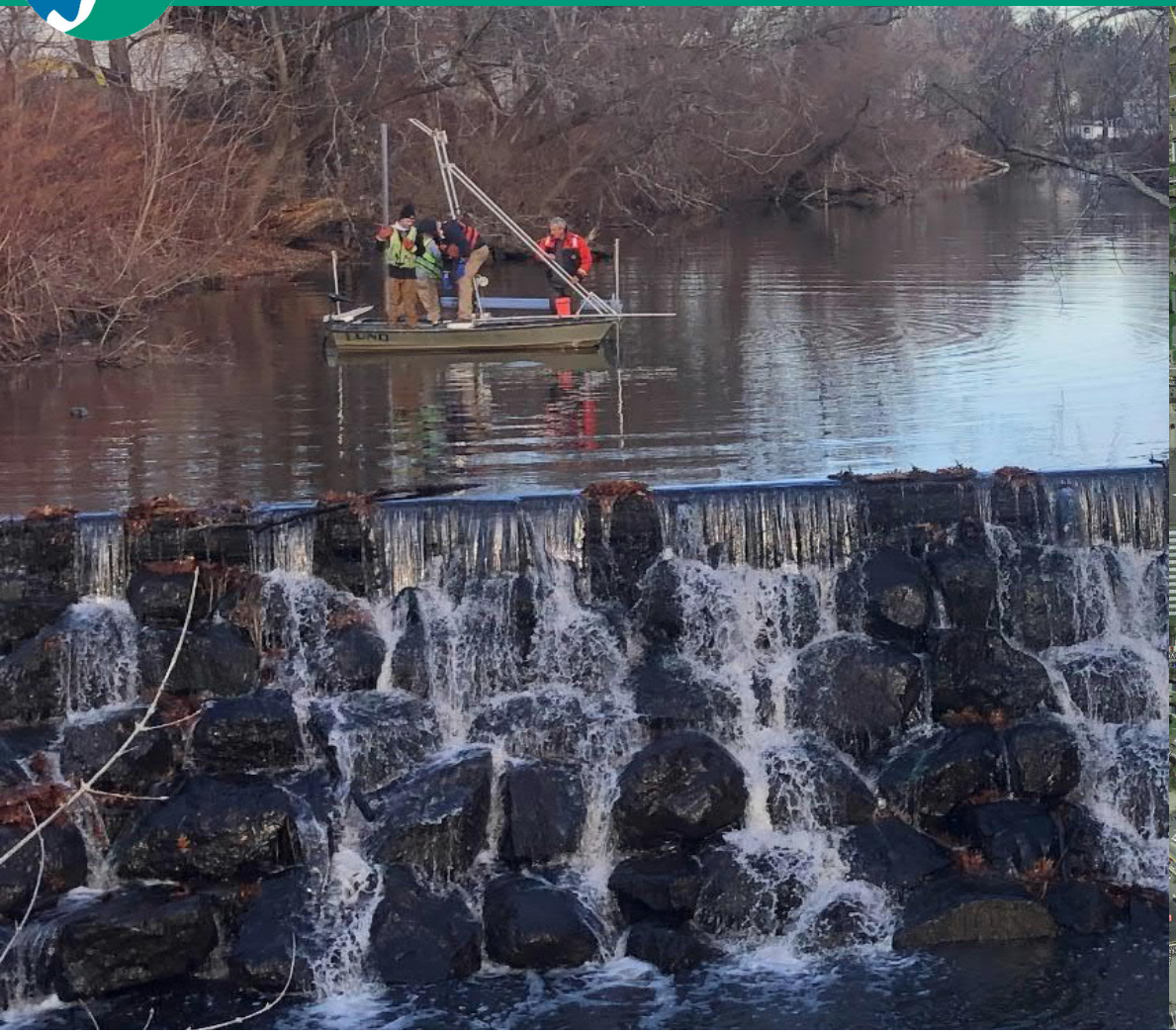


- Flood backwater created by dam.
- Merrimack River backwater.
- Reduce upstream flood extents.

FEMA Flood Profiles



River Reach Assessments



- Sediment Sampling and Hydraulic Model Sections

Conclusion

- Expected Deliverables
- Current Status
- Future

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