



Mill Pond Dam Feasibility Study

Oyster River Dam at Mill Pond

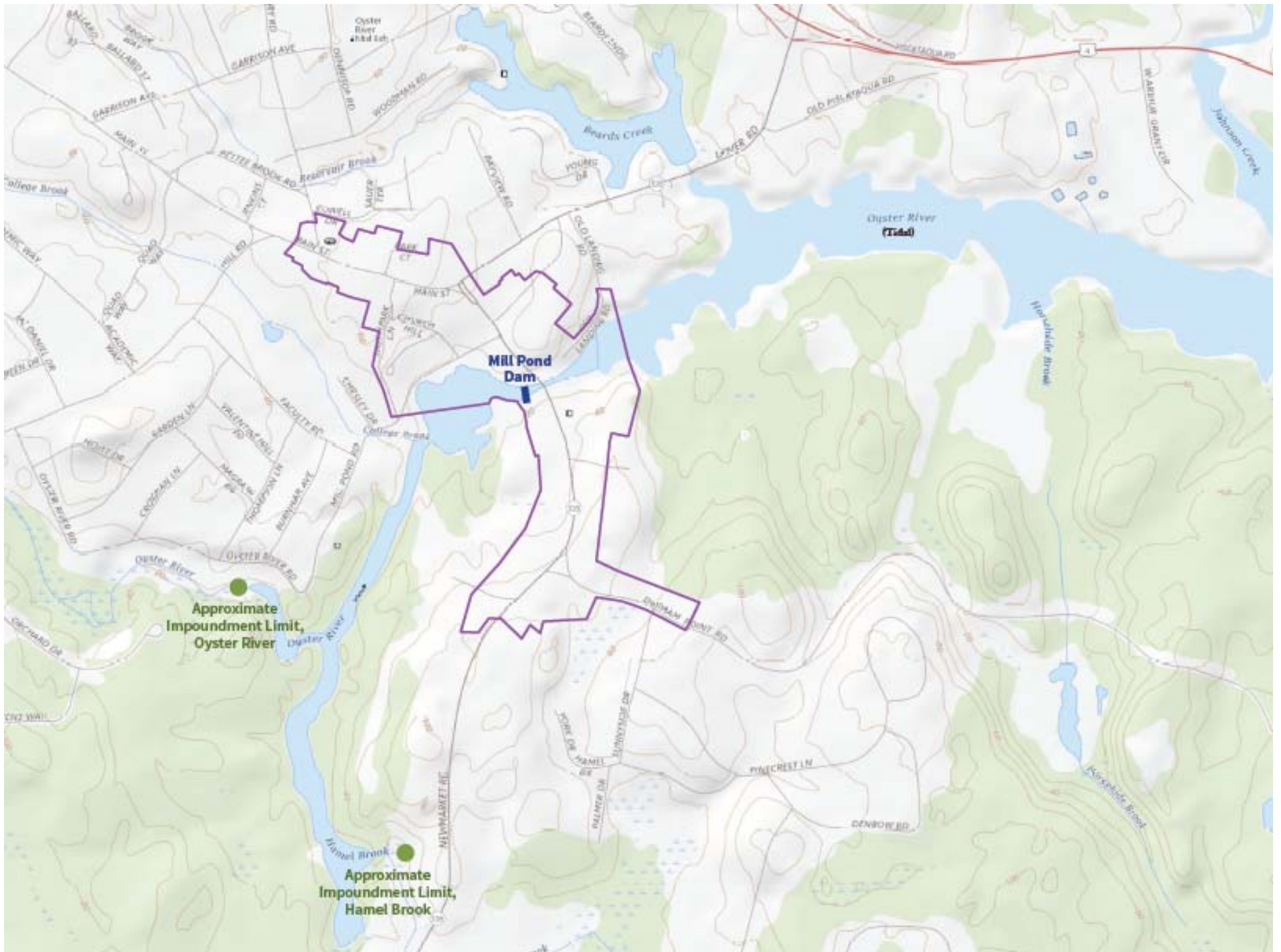
Durham Conservation Commission
February 24, 2020

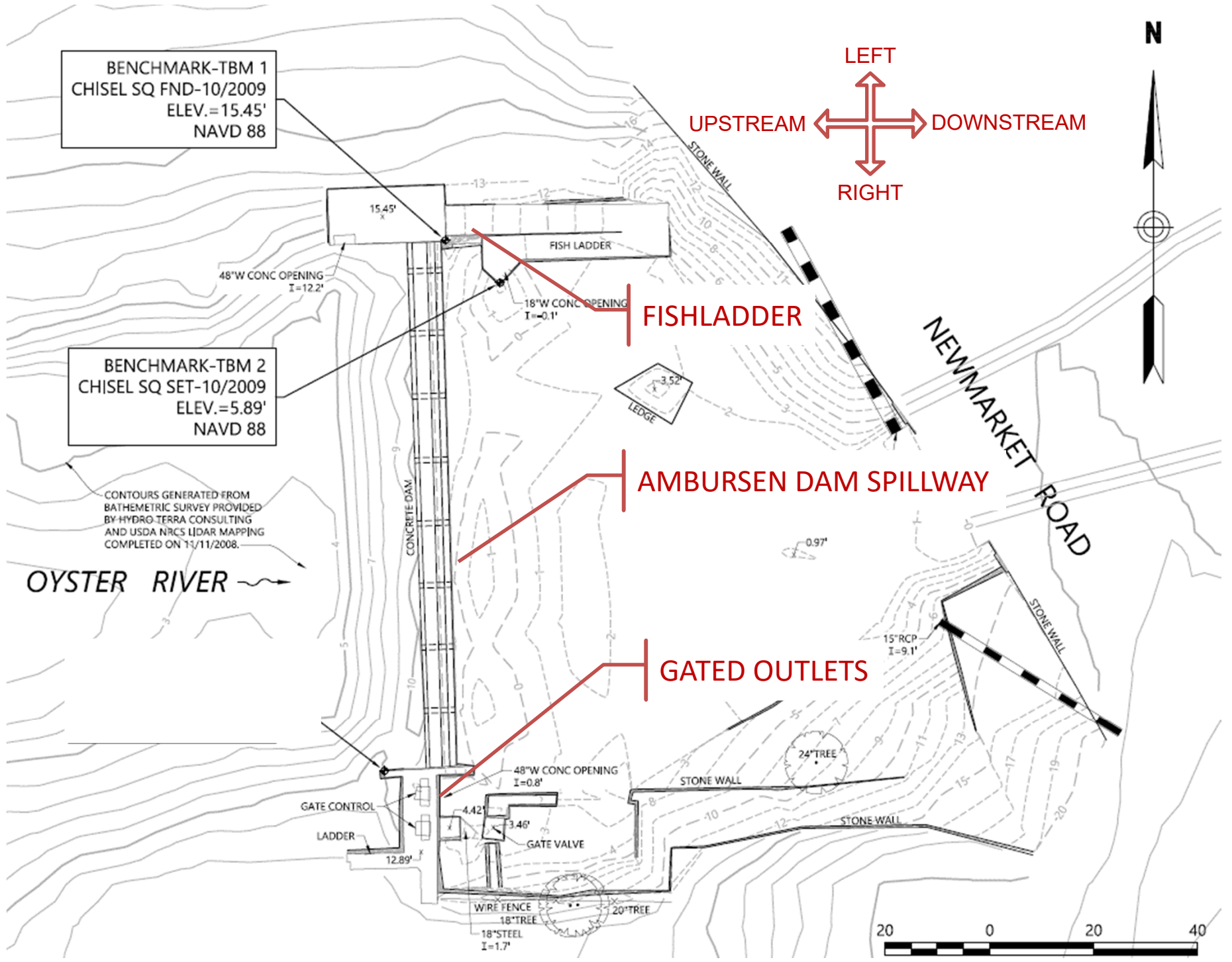


Agenda

- Study Scope & Approach
- Project Schedule
- Questions and Discussion







BENCHMARK-TBM 1
CHISEL SQ FND-10/2009
ELEV.=15.45'
NAVD 88

BENCHMARK-TBM 2
CHISEL SQ SET-10/2009
ELEV.=5.89'
NAVD 88

CONTOURS GENERATED FROM
BATHYMETRIC SURVEY PROVIDED
BY HYDRO TERRA CONSULTING
AND USDA NRCS LIDAR MAPPING
COMPLETED ON 11/11/2008.

OYSTER RIVER

LEFT
UPSTREAM
DOWNSTREAM
RIGHT

FISHLADDER

AMBURSEN DAM SPILLWAY

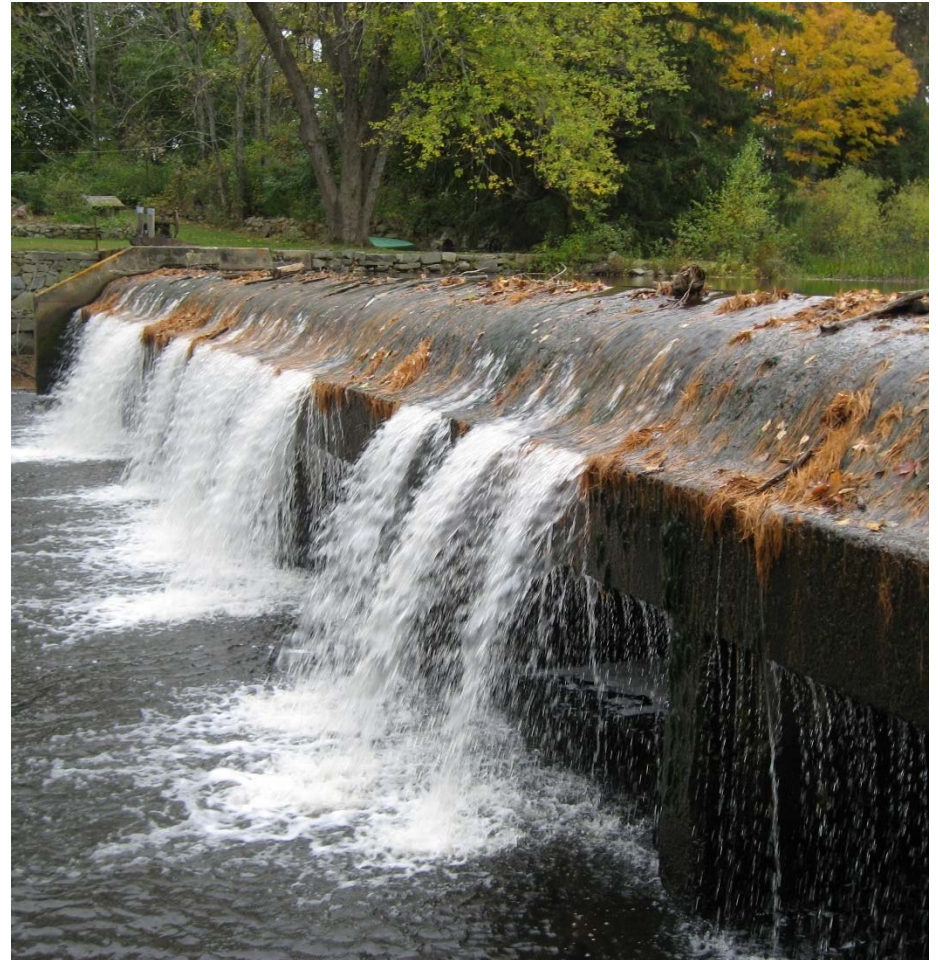
GATED OUTLETS

NEWMARKET ROAD

20 0 20 40

Dam Safety

- Current Classification “Low Hazard Structure”
 - Does not meet discharge capacity requirements
 - Known structural deficiencies
- NHDES Letter of Deficiency
 - Original Letter 1999
 - Revised Letter 2002
 - New Letter 2018



The background is a solid blue color with a complex, abstract pattern of white lines. The pattern consists of various geometric shapes, including squares, rectangles, and curved lines, arranged in a way that creates a sense of depth and movement. The lines are thin and light, blending into the blue background.

Study Scope

Data Collection & Review

- Collect and review available data and resource information on file with various agencies.
- The following activities will be completed:
 - Dam Inspection
 - Geotechnical Investigation
 - Field Survey, Property Research, Monument Location
 - River and Impoundment Survey
 - Dam Structure Survey



Alternatives Analysis

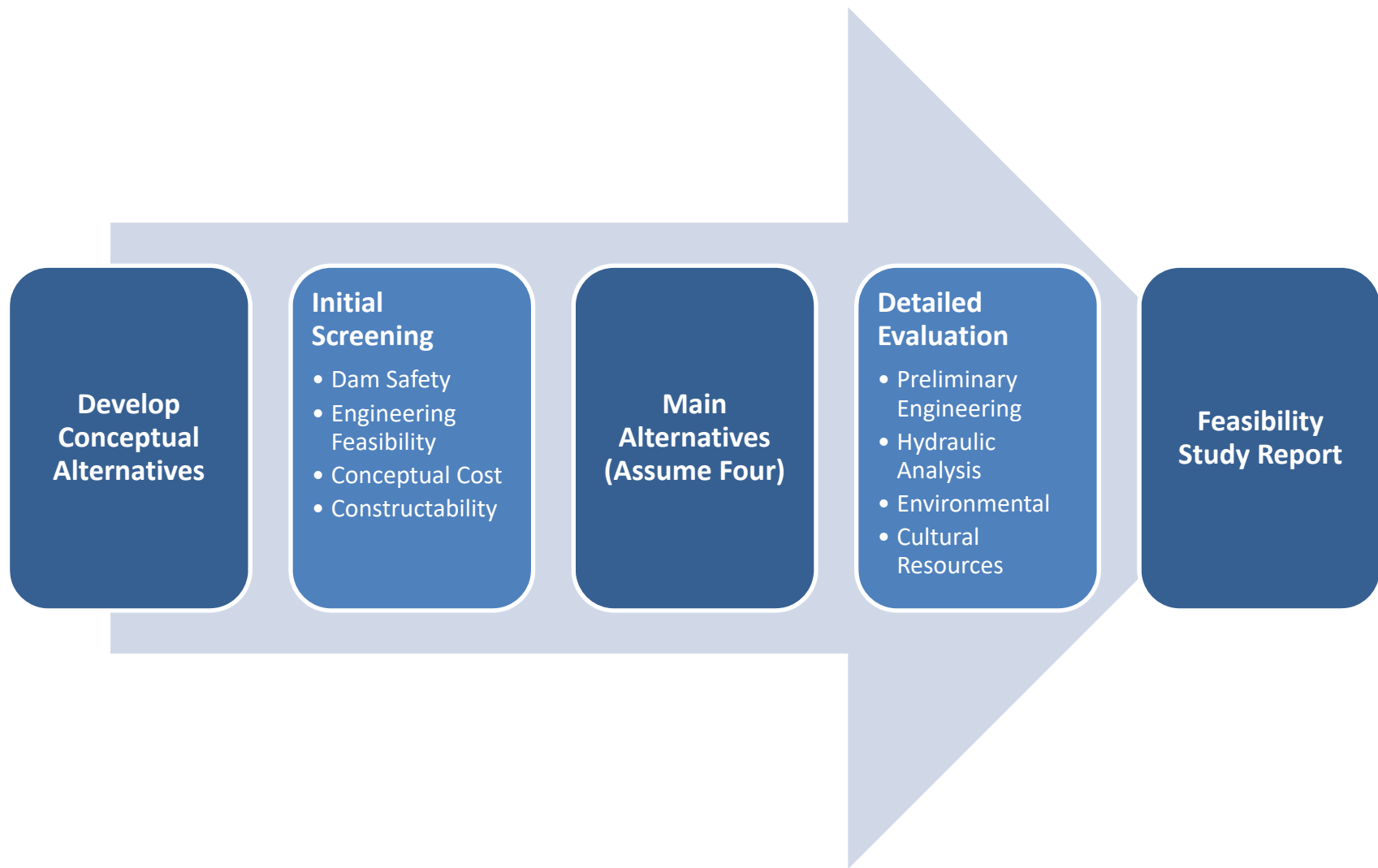
General Alternatives:

- No-Action
- Dam Removal with River Restoration
- NHDES Reclassification
- Repair/Rehabilitation of the Existing Dam
- Reconstruction

Conceptual alternatives will be narrowed to a short list for detailed study.

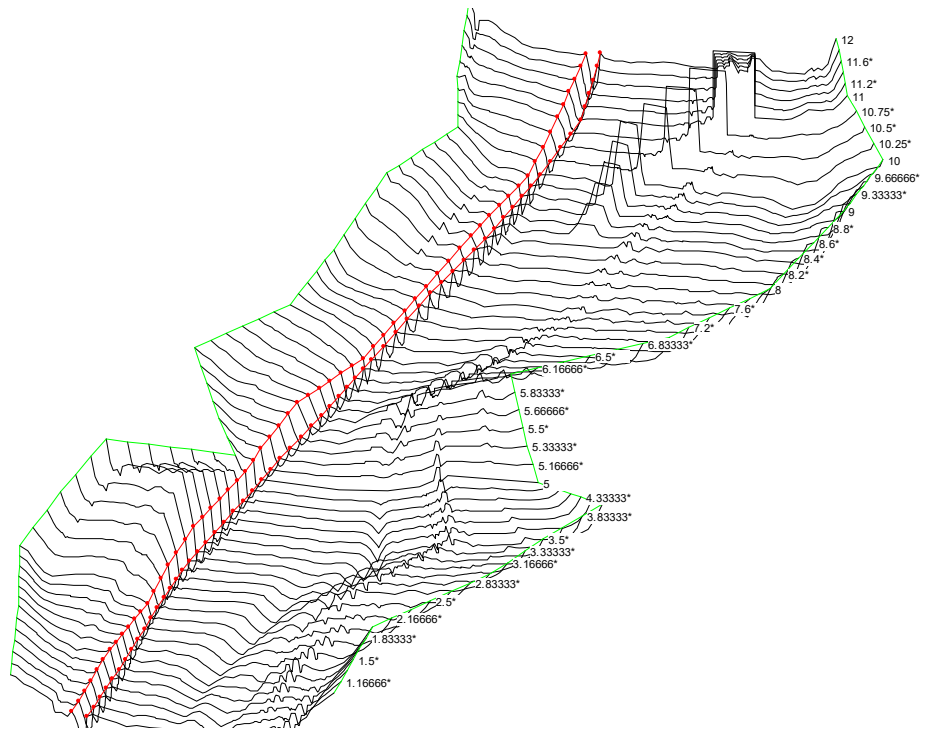


Study Process



Hydrological & Hydraulic Model (HEC-RAS)

- What will the model tell us?
 - How will river and pond **Depths** change adjacent to river (horizontal and vertical)?
 - How would **Wetlands** and **Wildlife** be affected?
 - Would **Groundwater** conditions be affected?
 - How would **Sediment Transport** (i.e., erosion and deposition) change?
 - Will bridges and foundations be more susceptible to **Scour**?



Sediment & Water Quality Evaluation

Sampling Plan

- Developed to ensure reliable data is collected

Sediment Sampling & Evaluation

- Chemical analysis of sediment to supplement previous data

Water Quality Evaluation

- Using existing data, identify the effects of the dam on water quality
- How would various alternatives benefit or impact water quality?

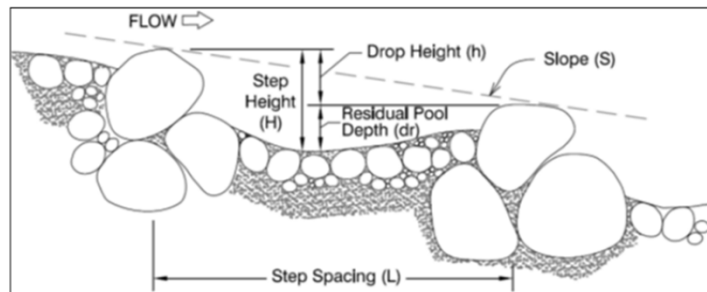
Wildlife & Natural Communities

- State and federally-listed threatened and endangered species
- Consultation with:
 - NHNHB
 - NHF&G
 - USFWS
 - NMFS



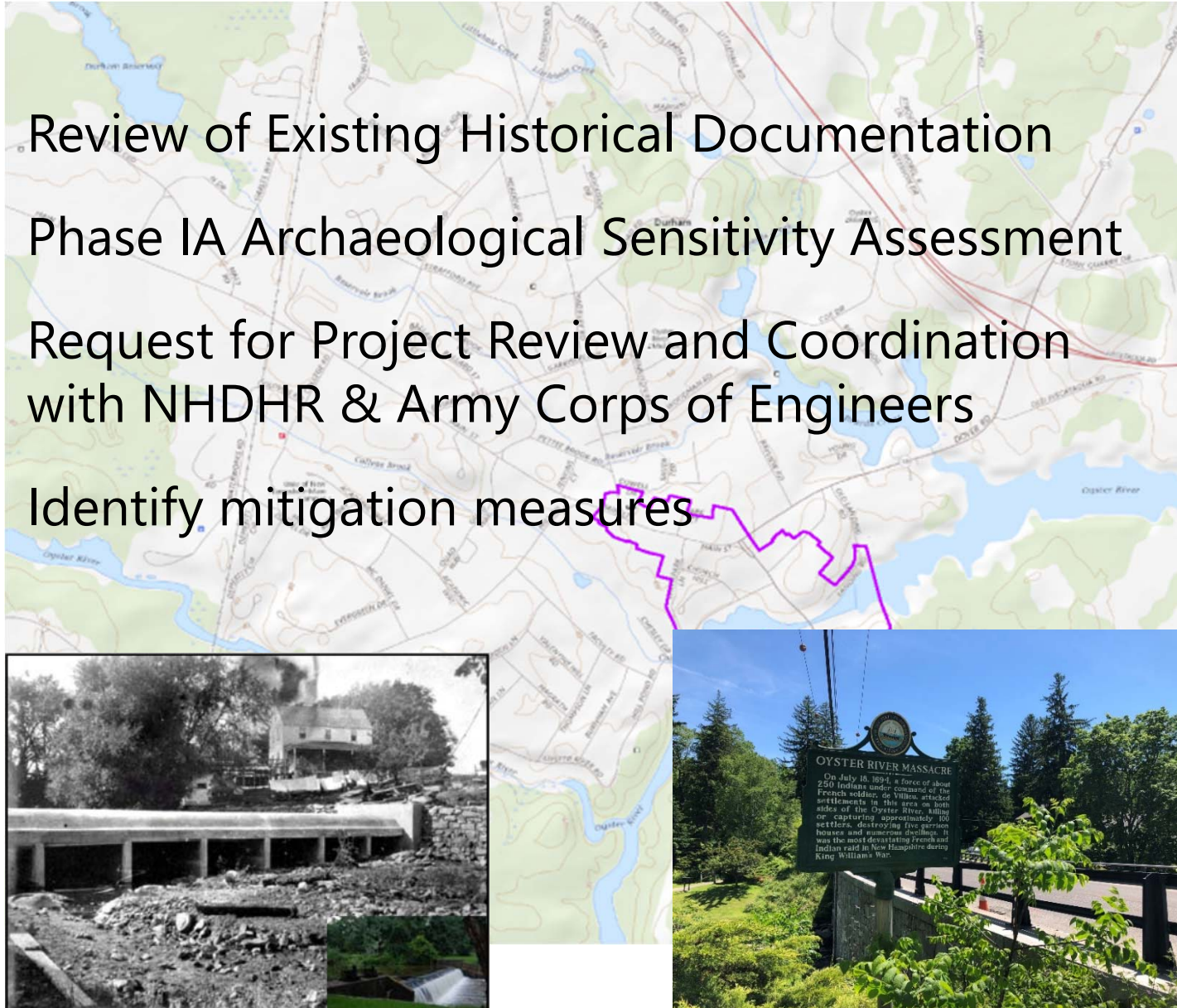
Fisheries

- Mill Pond Dam impacts diadromous fish migrations in the Oyster River
- Blueback herring monitoring numbers have been falling dramatically
- Impoundment impacts habitat and water quality



Cultural Resources

- Review of Existing Historical Documentation
- Phase IA Archaeological Sensitivity Assessment
- Request for Project Review and Coordination with NHDHR & Army Corps of Engineers
- Identify mitigation measures



Visual Assessment

- A view upstream from the Mill Pond Park
- A view looking upstream from the NH 108 Bridge
- A view from a location to be determined



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Study Schedule & Process

Project Schedule

Task	Timeline
Field Surveys	Fall-Winter 2019-2020
Develop Conceptual Alternatives	Winter 2020
Preliminary Analysis of Alternatives	Winter-Spring 2020
Public Information Meeting	Early Summer 2020
Draft Feasibility Report Issued	Late Summer 2020
Public Information Meeting	Fall 2020
Final Feasibility Report Issued	Fall 2020



Thank you! Questions?



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Anatomy of an Ambursen Dam

