



Quinapoxet Dam: Dam Removal Investigation

**Georgeann Keer,
Division of Ecological Restoration**

Water Supply Citizens Advisory Committee
Meeting

Southborough, MA

October 13, 2015



*Mission: To restore and protect
the health and integrity of the
Commonwealth's rivers, wetlands,
and watersheds for the benefit of
people, fish, and wildlife*

Aquatic Habitat Restoration

...activities that assist in the recovery of the natural processes of a aquatic ecosystem that have been

- **degraded,**
- **altered or**
- **destroyed.**

Such activities will

- **restore natural processes,**
- **remove ecosystem stressors,**
- **increase resilience of the ecosystem, &**
- **create no lasting harm.**

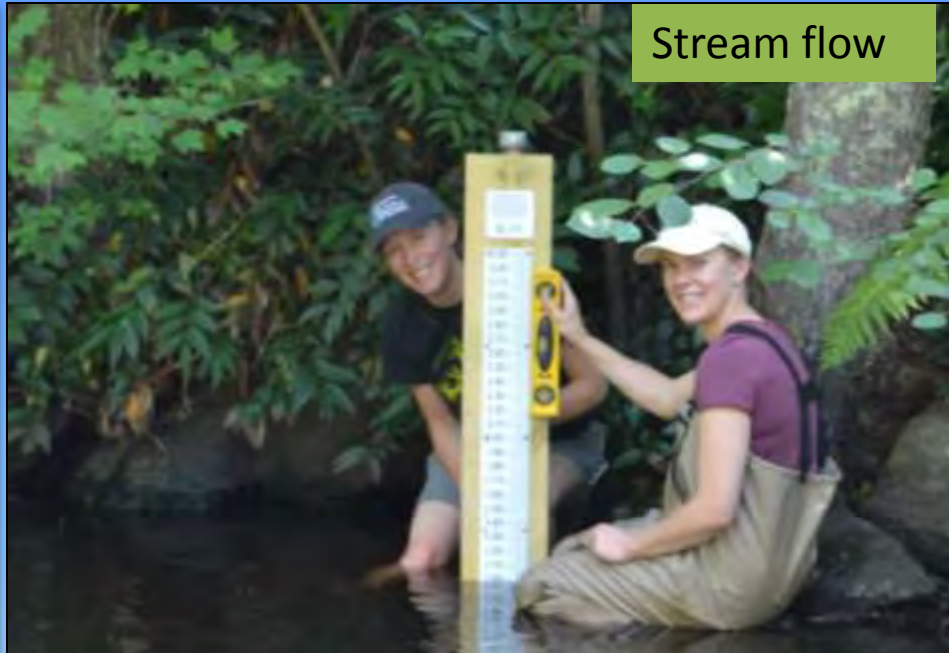


*“Ecological restoration is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and **sustainability.**”*

Salt marshes



Stream flow

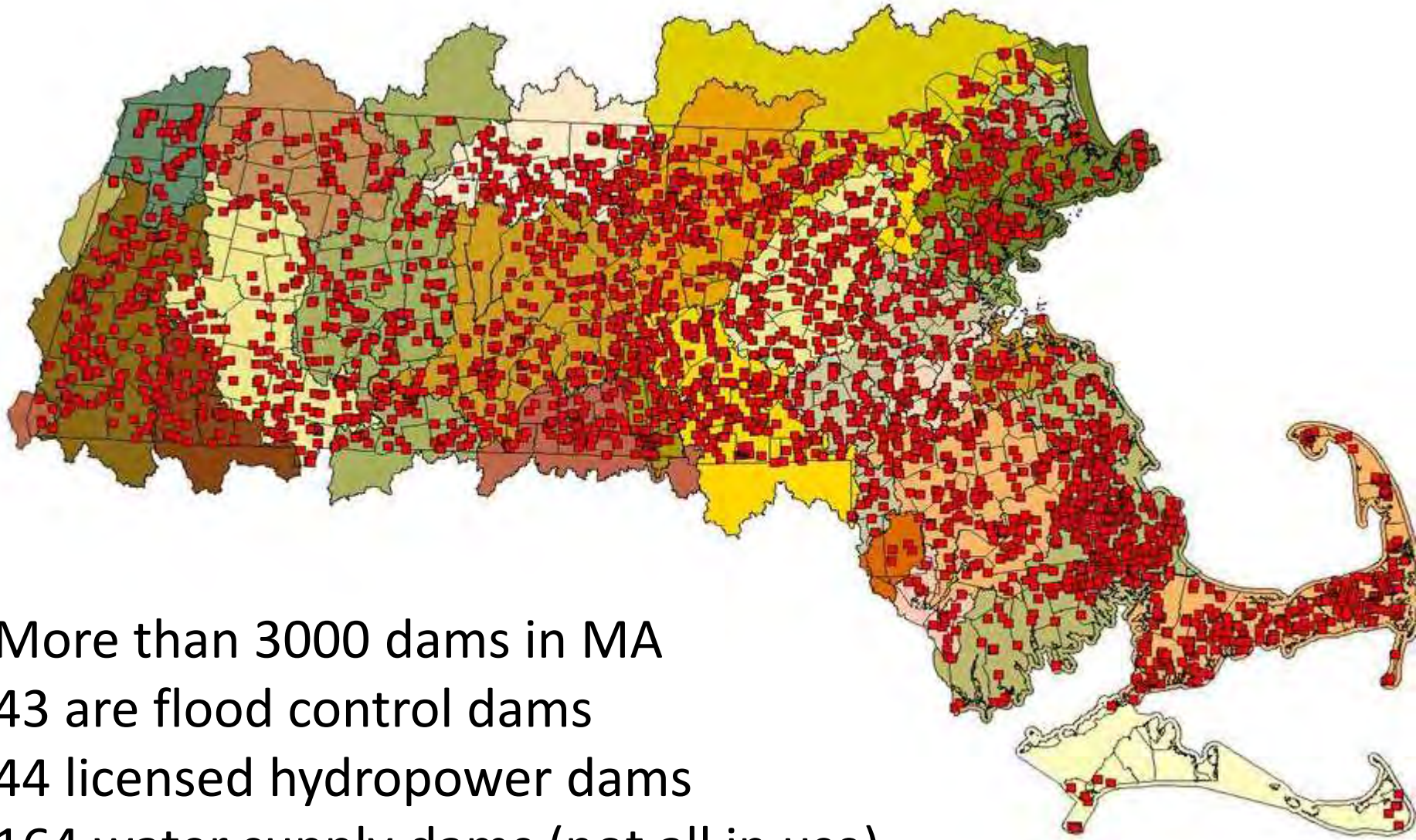


Freshwater wetlands



Rivers





- More than 3000 dams in MA
- 43 are flood control dams
- 44 licensed hydropower dams
- 164 water supply dams (not all in use)

Dams do more than block fish

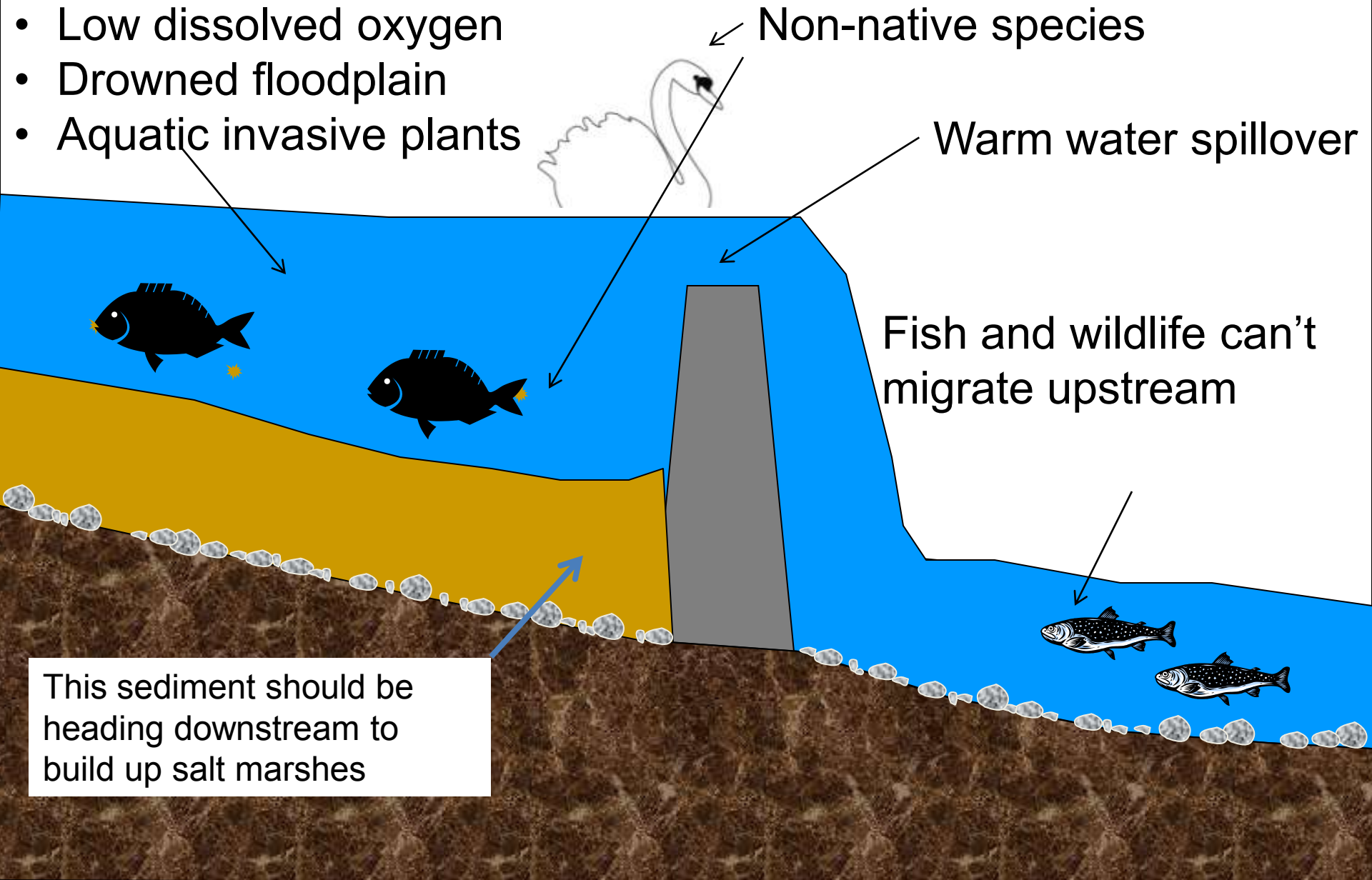
- Low dissolved oxygen
- Drowned floodplain
- Aquatic invasive plants

Non-native species

Warm water spillover

Fish and wildlife can't migrate upstream

This sediment should be heading downstream to build up salt marshes

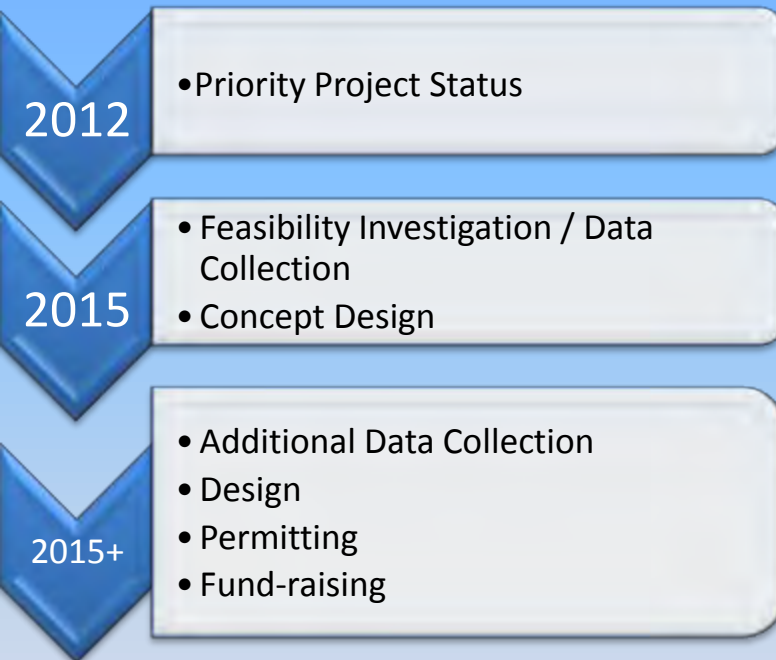


Quinapoxet Dam, West Boylston, MA



Quinapoxet Dam Removal Investigation

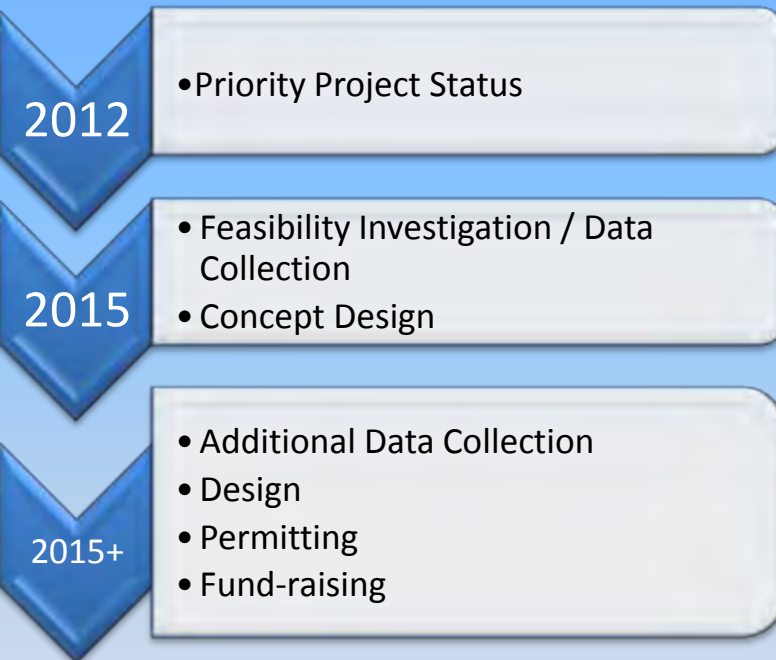
Key Issues / Actions



- Establish project goals
 - Protect Water Quality
 - Protect / Secure Necessary Infrastructure
 - Re-naturalize fish & wildlife passage
 - Re-naturalize sediment transport
- Feasibility Investigation / Data Collection
 - Developing understanding of the Site
 - Topo
 - Hydrology
 - Sediments
 - Species
 - Concept Design
- Developing the Project Team (MWRA, DCR, others...)
- Outreach

Quinapoxet Dam Removal Investigation

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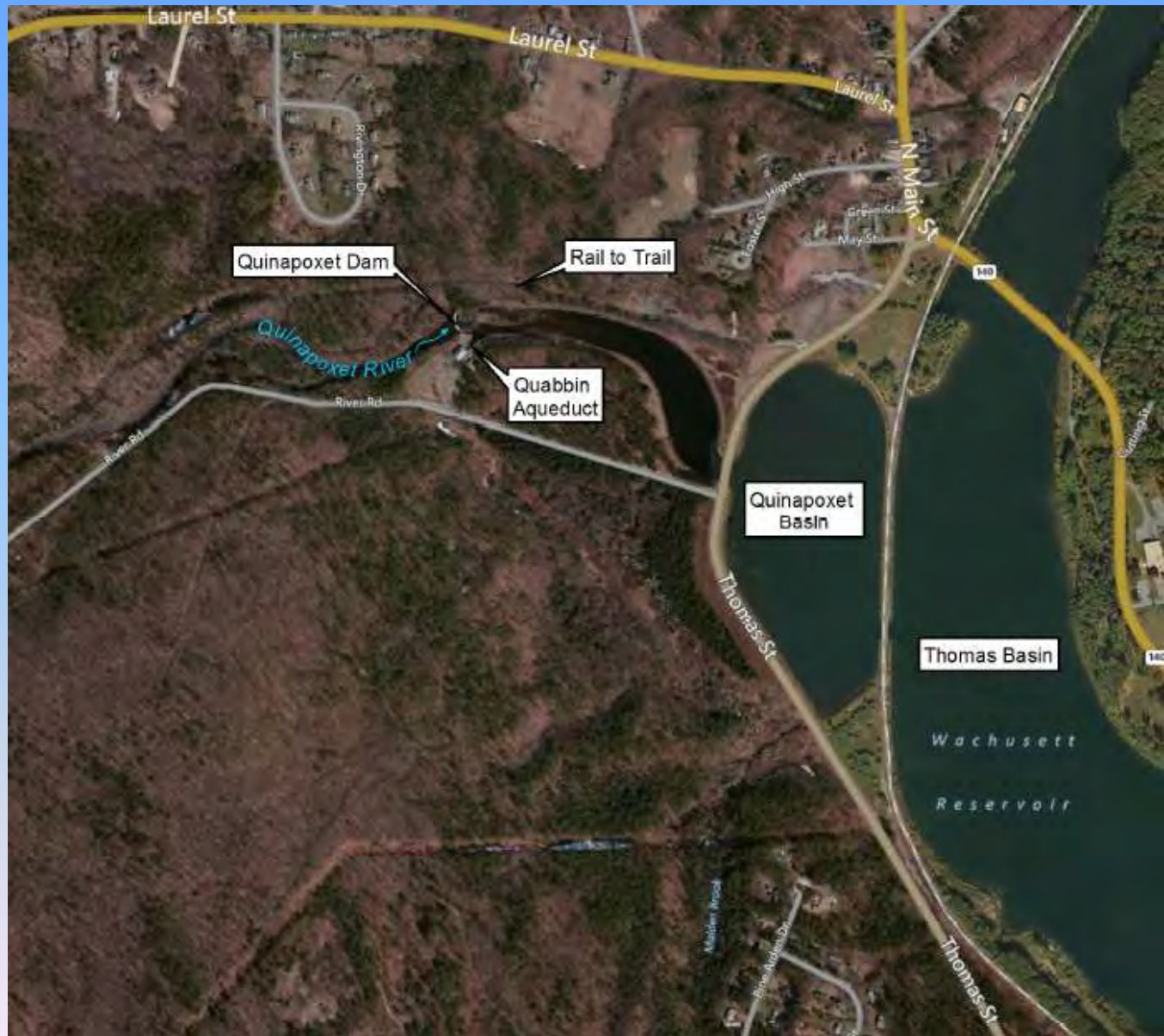
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Developing understanding of the Site



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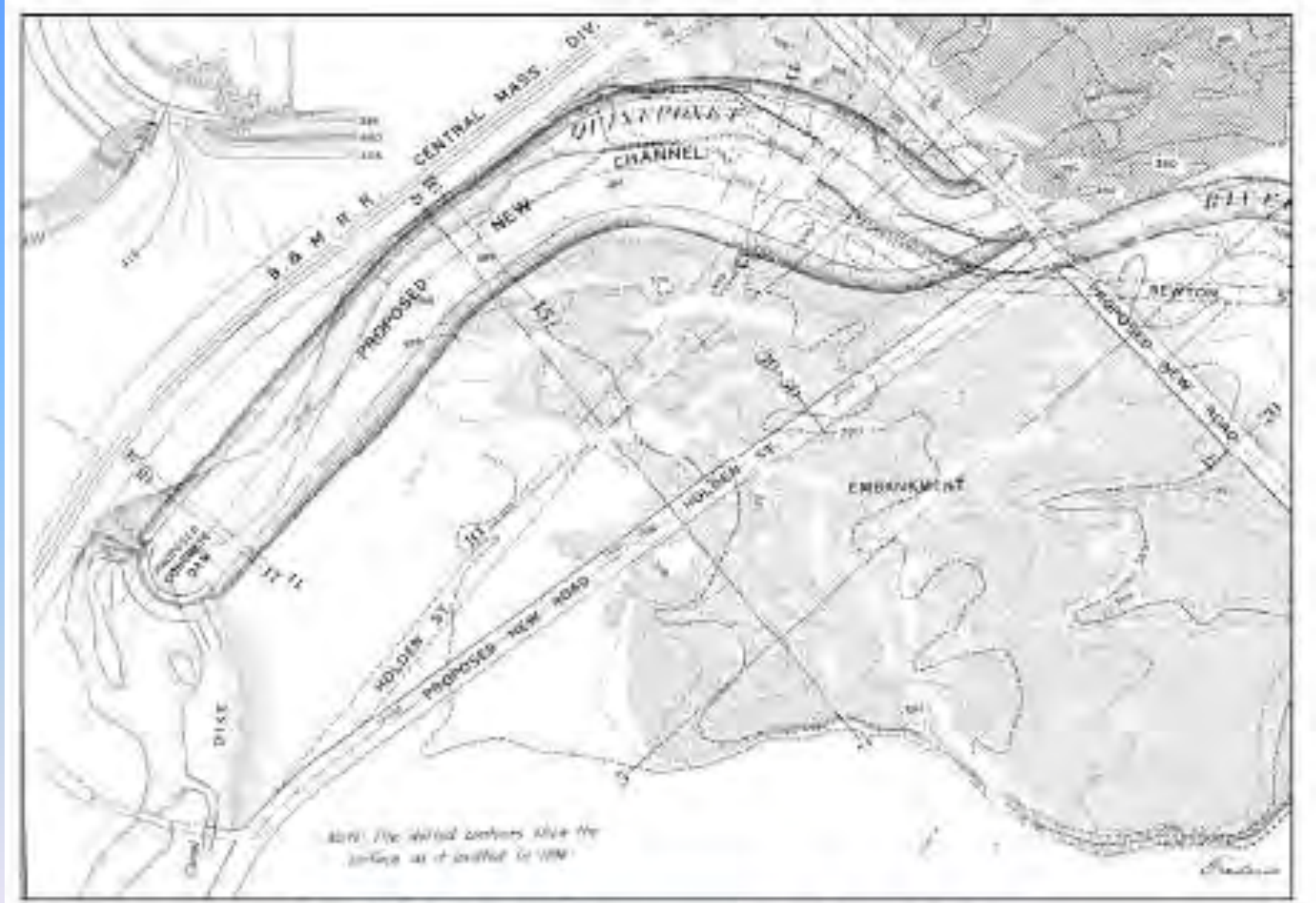


Figure 2-6: Historic plan for dam construction and channel dredging

Developing understanding of the Site

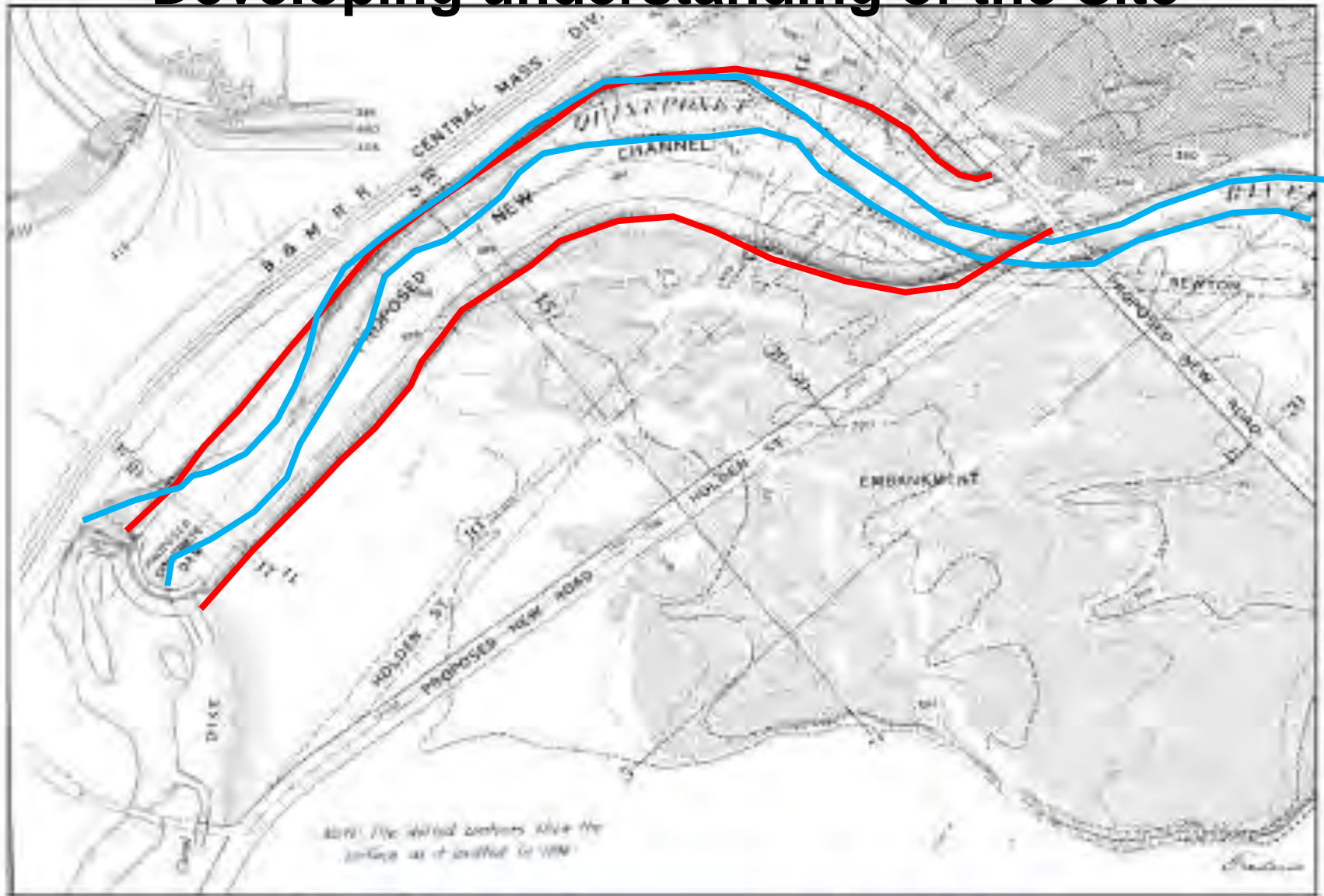


Figure 2-6: Historic plan for dam construction and channel dredging

Developing understanding of the Site



W. RES. OAKDALE. QUINEPOXT RIVER CHANNEL AND DAM. SEPT. 29, 1905.

5960

Developing understanding of the Site



WACH. RESERVOIR, OAKDALE. CONCRETE DAM ON QUINEPOXET RIVER. NOV. 13, 1905.

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Sediment Sampling Results



Figure 2-9: Sediment Sampling Locations

Quinapoxet Dam

LOCATION: West Boylston, Massachusetts

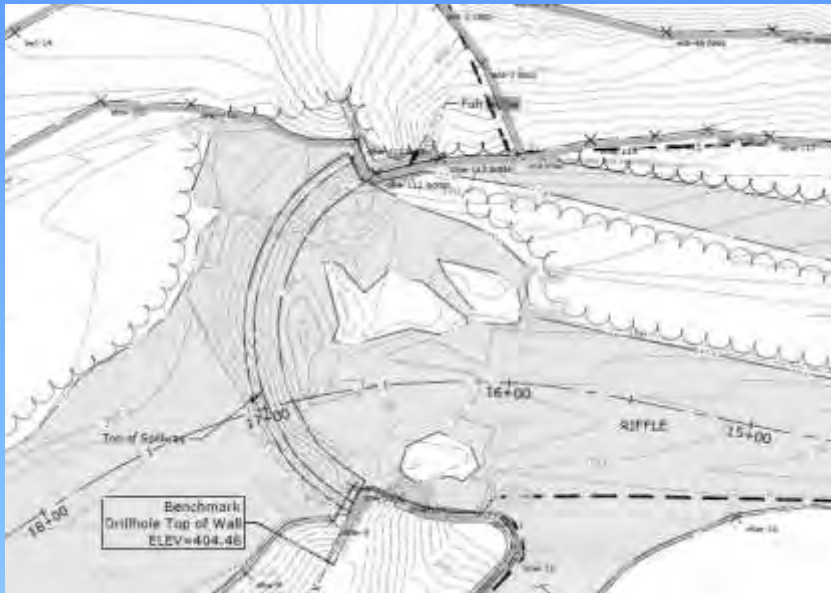
Map By: DRM
MM#: 2688-37
Original: 5/1/2015
Revision: 6/17/2015
Scale: 1 in = 83 ft

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MXD: \\12688-37\Maps\Sed Sample Location.mxd

- Currently submerged sediments can be expected to comply with limits established by the MCP for contaminated soils.
- Testing results appear consistent upstream, within, and downstream of the dam.
- On-site and off-site re-use appears feasible based on no samples exceeding the MCP S-1 / GW-1 levels or ecological effects thresholds.
- Samples in the upland area appear absent of anthropogenic contaminants / representative of naturally occurring soil.

Species Concerns / Fish Passability



- Species:
 - Warm water lake species such as carp, bass, perch, and pickerel that are likely to reside in the reservoir and unlikely to travel in fast water
 - Freshwater stream species that occasionally swim downstream into lakes such as dace, darter, and pike
 - Migratory species including a variety of trout and land-locked salmon.
- Fish Passability: Currently, the fish ladder to the north of the dam is ineffective in passing fish, due to attractiveness of the colder water exiting the aqueduct.



Concept Designs

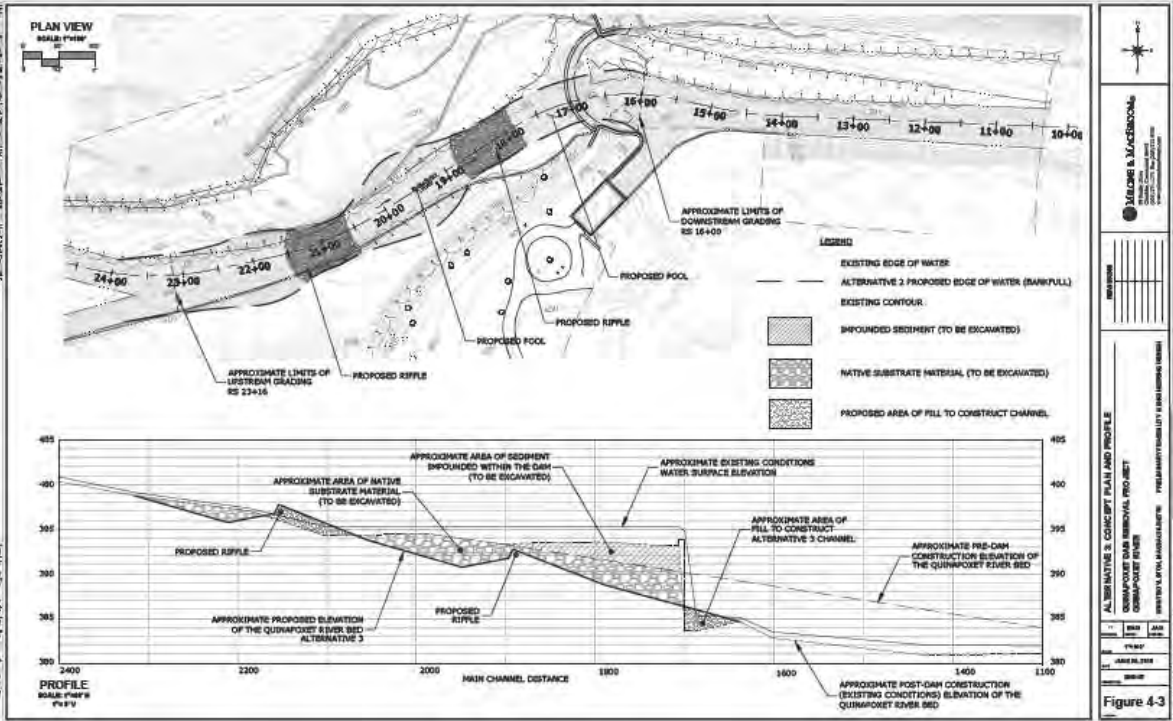
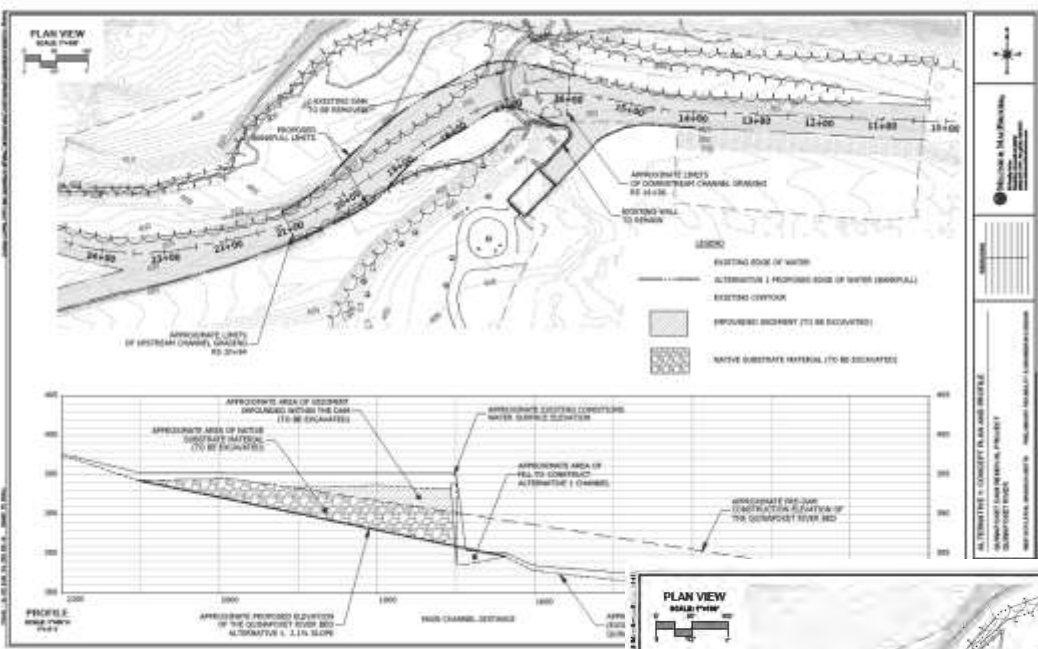


Figure 4-3

Next Steps

- Review Conceptual Designs / Design Considerations
- Identify Additional Data Collection Needs
- Design
- Permitting
- Fund-raising



