Kristen Coveleski's research and restoration project experience

Read St. Dewey Beach


University of Delaware Civil Engineering Department
BCE 2007


University of Virginia
MS 2009
PhD 2013

Master's thesis:

- Charles City, VA- tributary to the James River
- Developed a conceptual evolution model for channel formation following dam removal

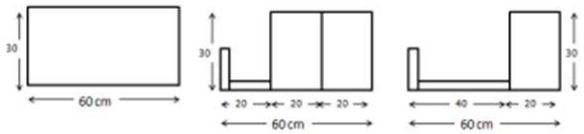


Figure 4.1.1a Vertical Removal from the Side

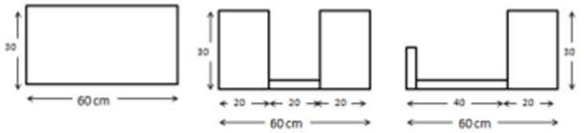


Figure 4.1.1b Vertical Removal from the Center

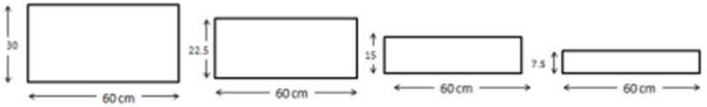


Figure 4.1.1c Horizontal Removal

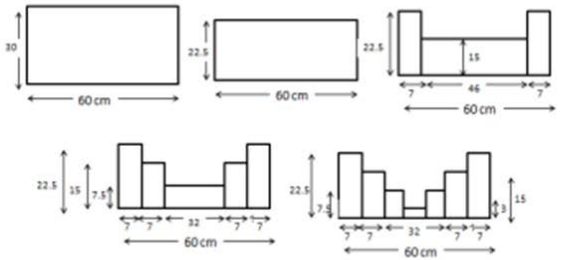


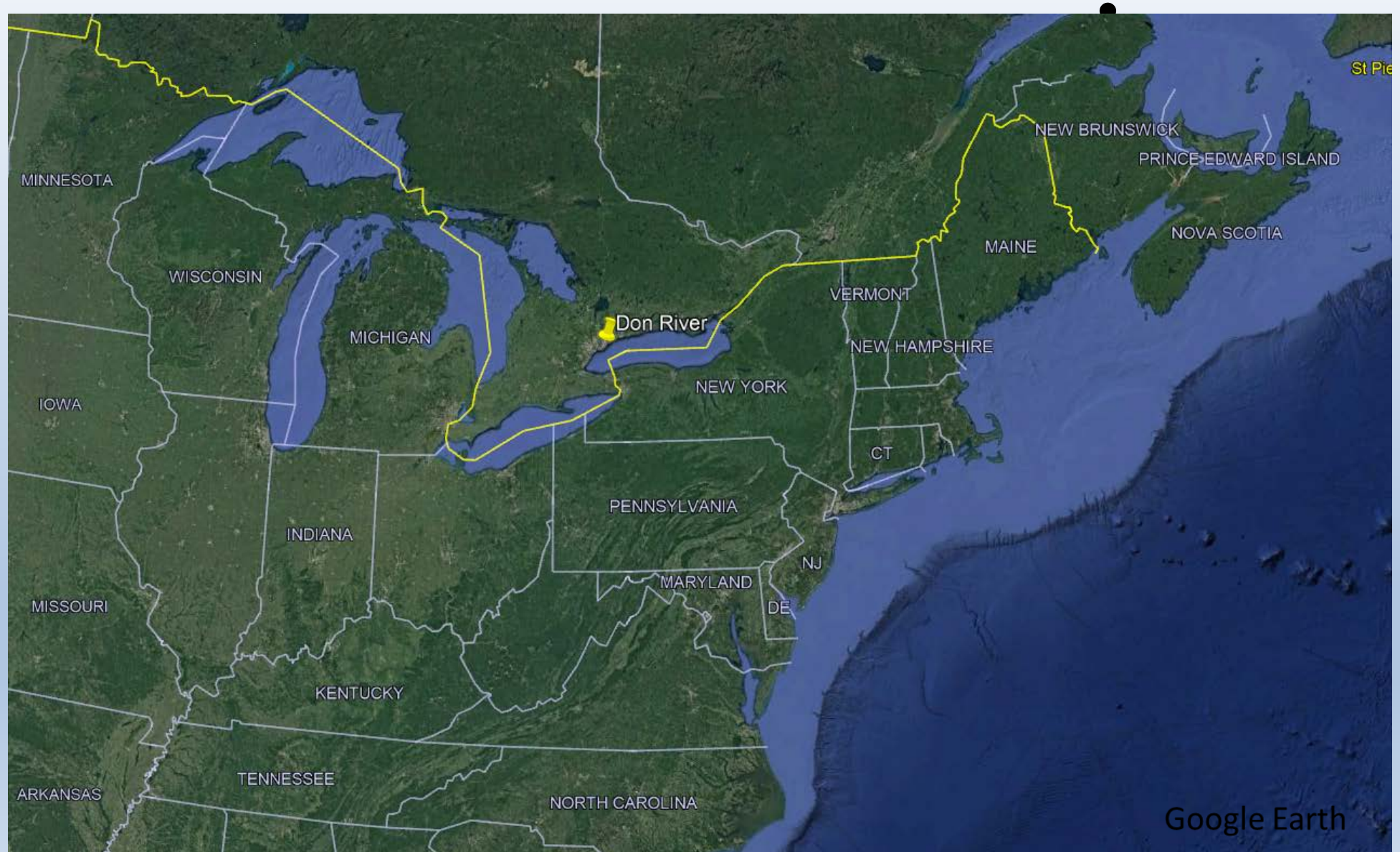
Figure 4.1.1d Stepped Removal

PhD dissertation:

- Rethinking Dredging: A Quantitative Analysis of Dam Removal Techniques
- Evaluated the impact that removal technique, sediment composition and hydrology had on downstream sediment deposition patterns

inter·fluve

Don River, Toronto ON

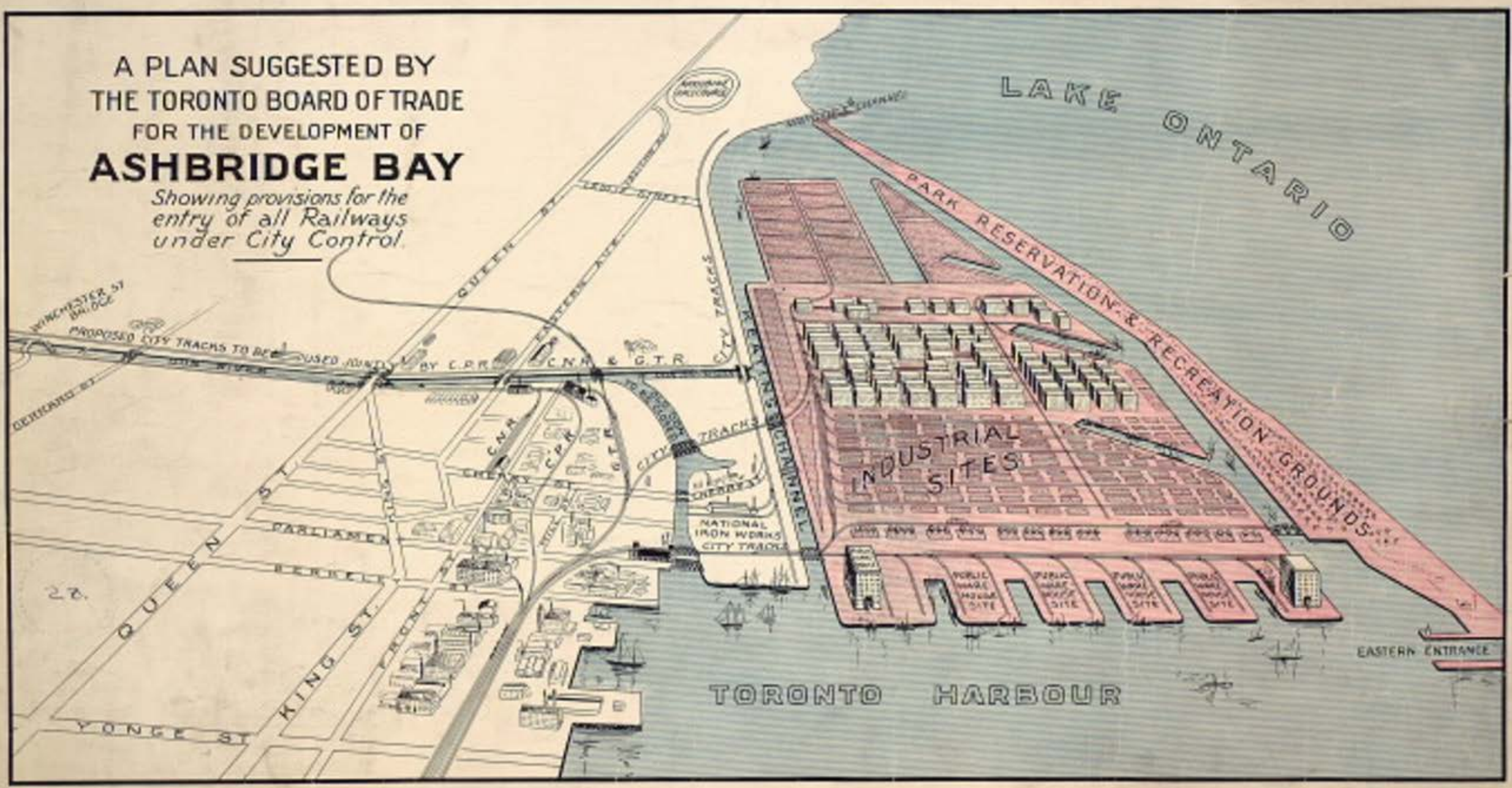



Ashbridges Bay, ON

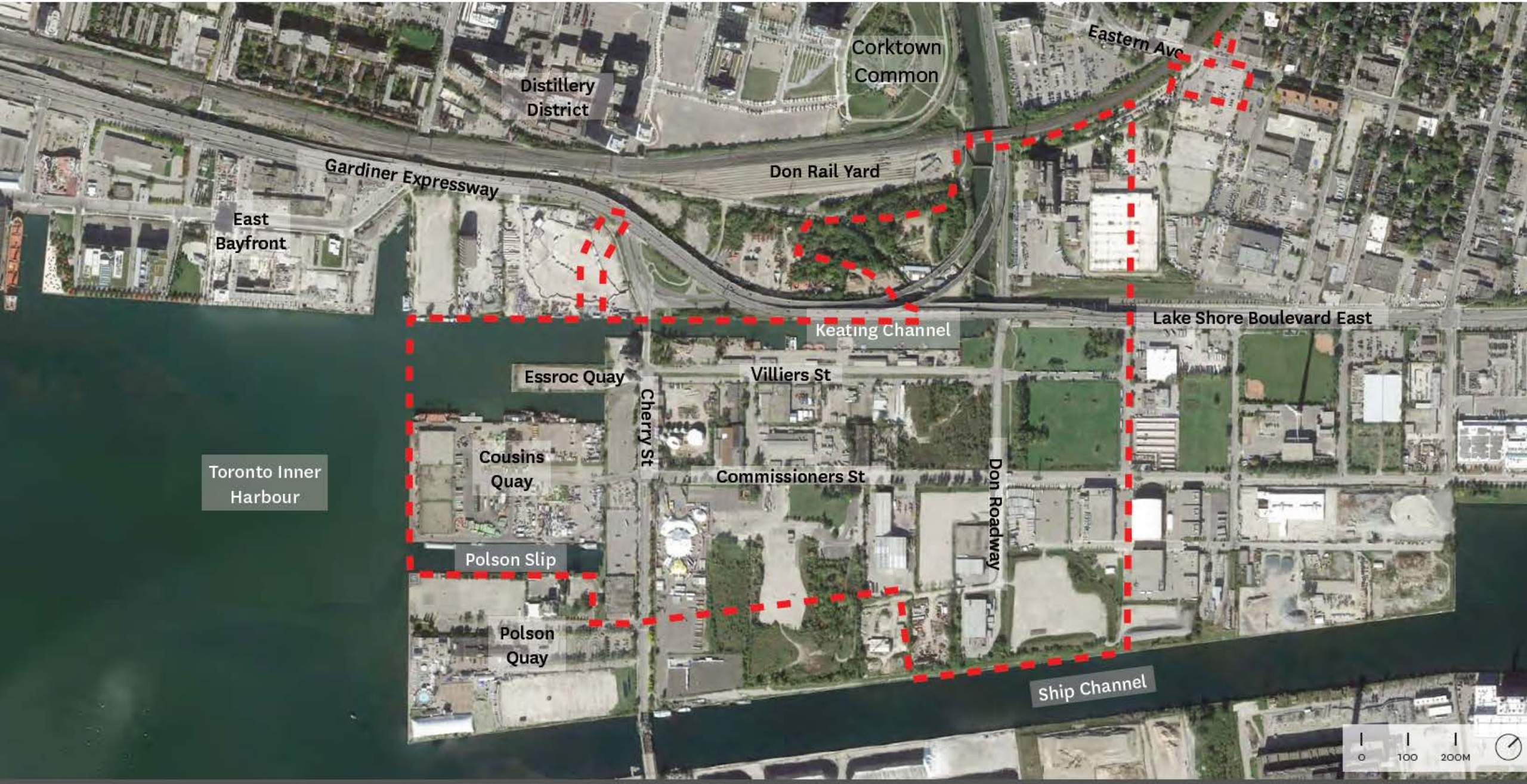
A PLAN SUGGESTED BY THE TORONTO BOARD OF TRADE FOR THE DEVELOPMENT OF

ASHBRIDGE BAY

Showing provisions for the entry of all Railways under City Control.



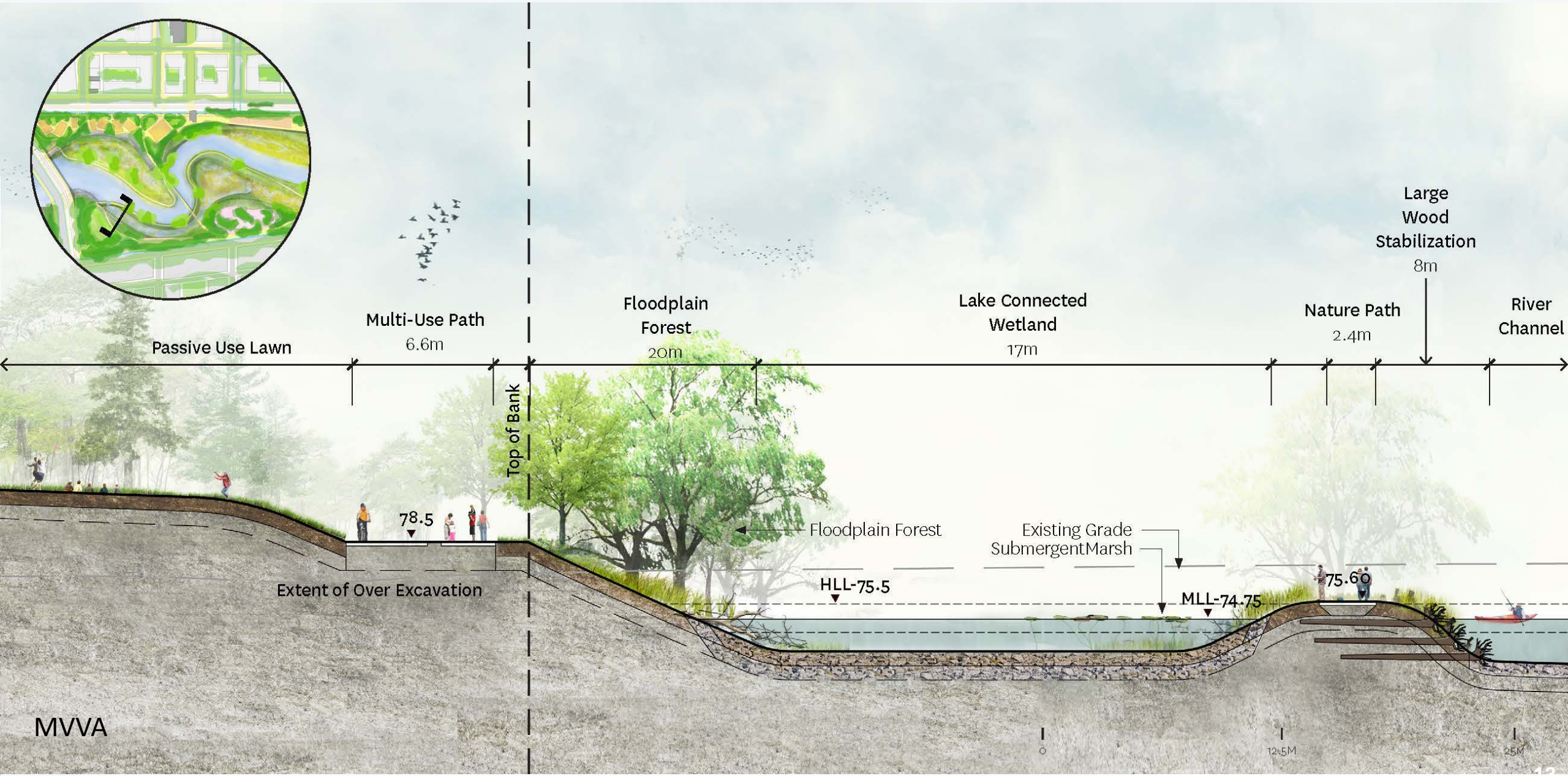
Project Area - Existing Conditions



Don River, Ontario

Habitat Communities

MVVA


Passive Use Lawn
Multi-Use Path
6.6m
Top of Bank
Floodplain
Forest
20m
Lake Connected
Wetland
17m
Nature Path
2.4m
Large
Wood
Stabilization
8m
River
Channel
78.5
Extent of Over Excavation
Floodplain Forest
Existing Grade
SubmergentMarsh
HLL-75.5
MLL-74.75
75.60
MVVA
0
12.5M
25M

January 2022

inter·fluve

https://portlandsto.ca/media-library/

January 2022

inter·fluve

https://portlandsto.ca/media-library/

Howland Bypass, ME

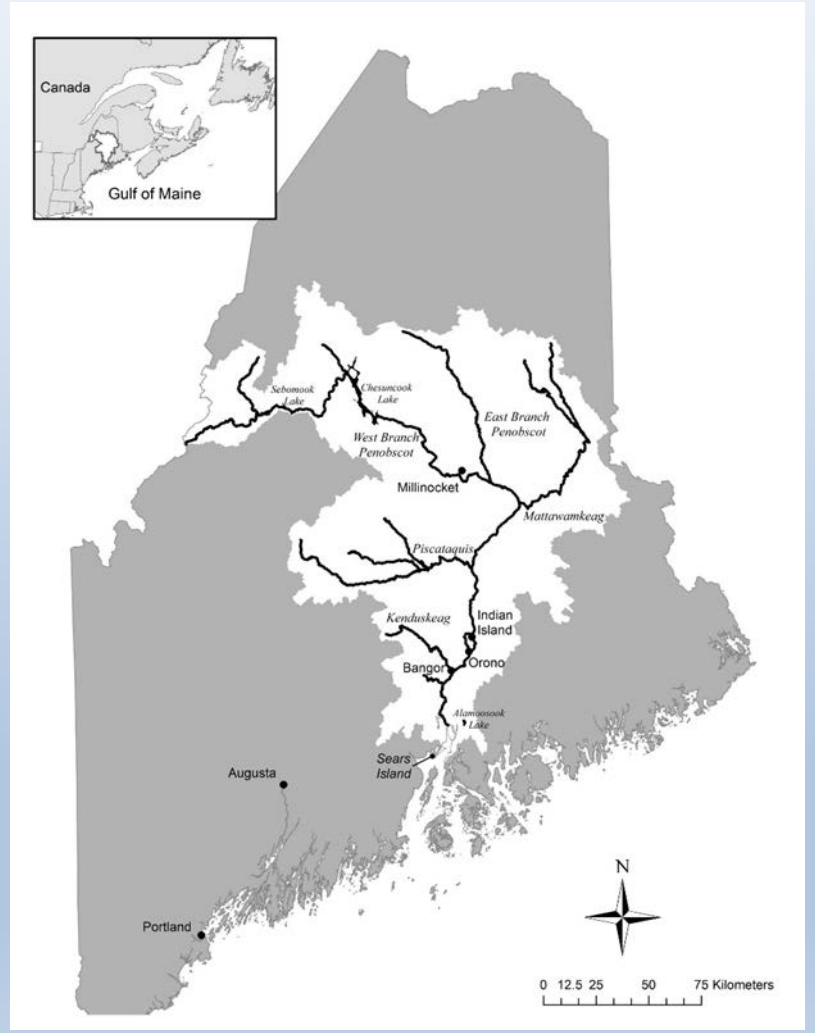


Photo Credit: Boston Globe

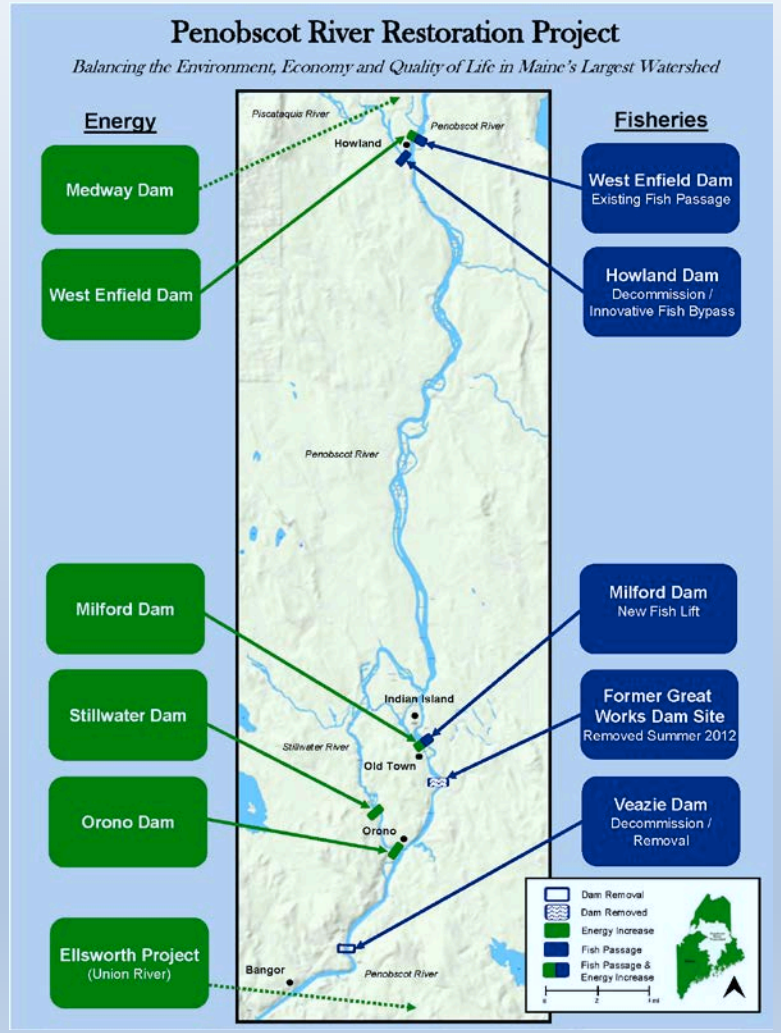


Photo Credit: Penobscot River Restoration Trust

Before bypass

Bypass Design

- Maintain impoundment at spillway crest
- Maximize bypass flow attraction
- Balance bypass stability
- Passive operation
- Provide upstream and downstream migration for multiple species and life stages (Atlantic Salmon, Alewife, blueback Herring, American Shad, American Eel, Sea Lamprey)

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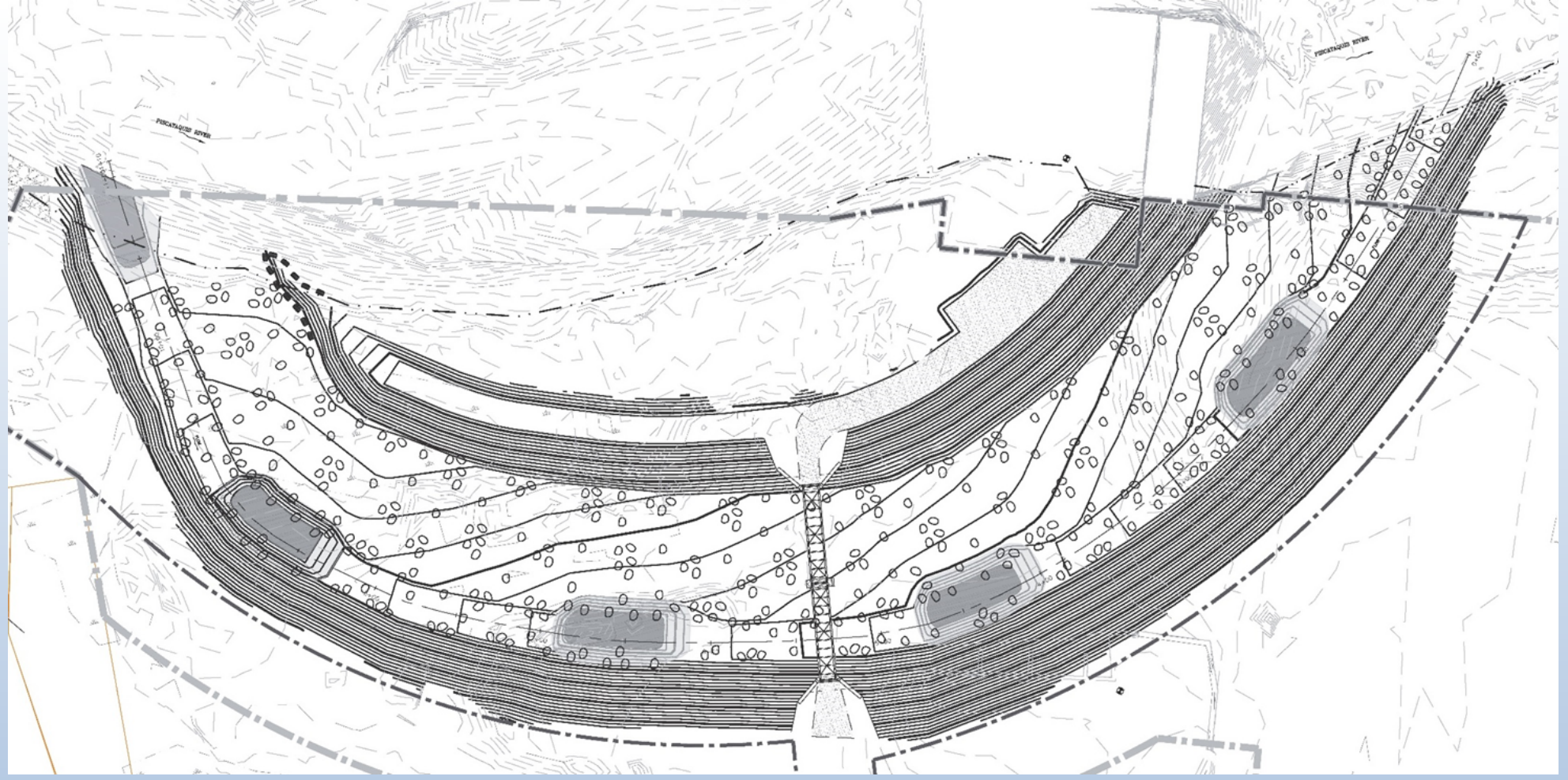

PISCATAQUIS RIVER

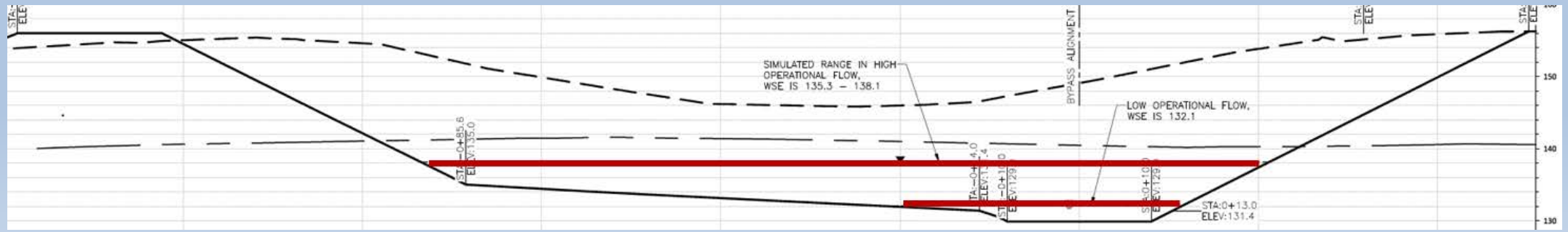

SIMULATED RANGE IN HIGH
OPERATIONAL FLOW,
WSE IS 135.3 – 138.1
BYPASS ALIGNMENT
LOW OPERATIONAL FLOW,
WSE IS 132.1
STA:0+13.0
ELEV:131.4
150
140
130

Photo Credit: George Aponte Clark


River: 1,300cfs; Bypass: 450 cfs

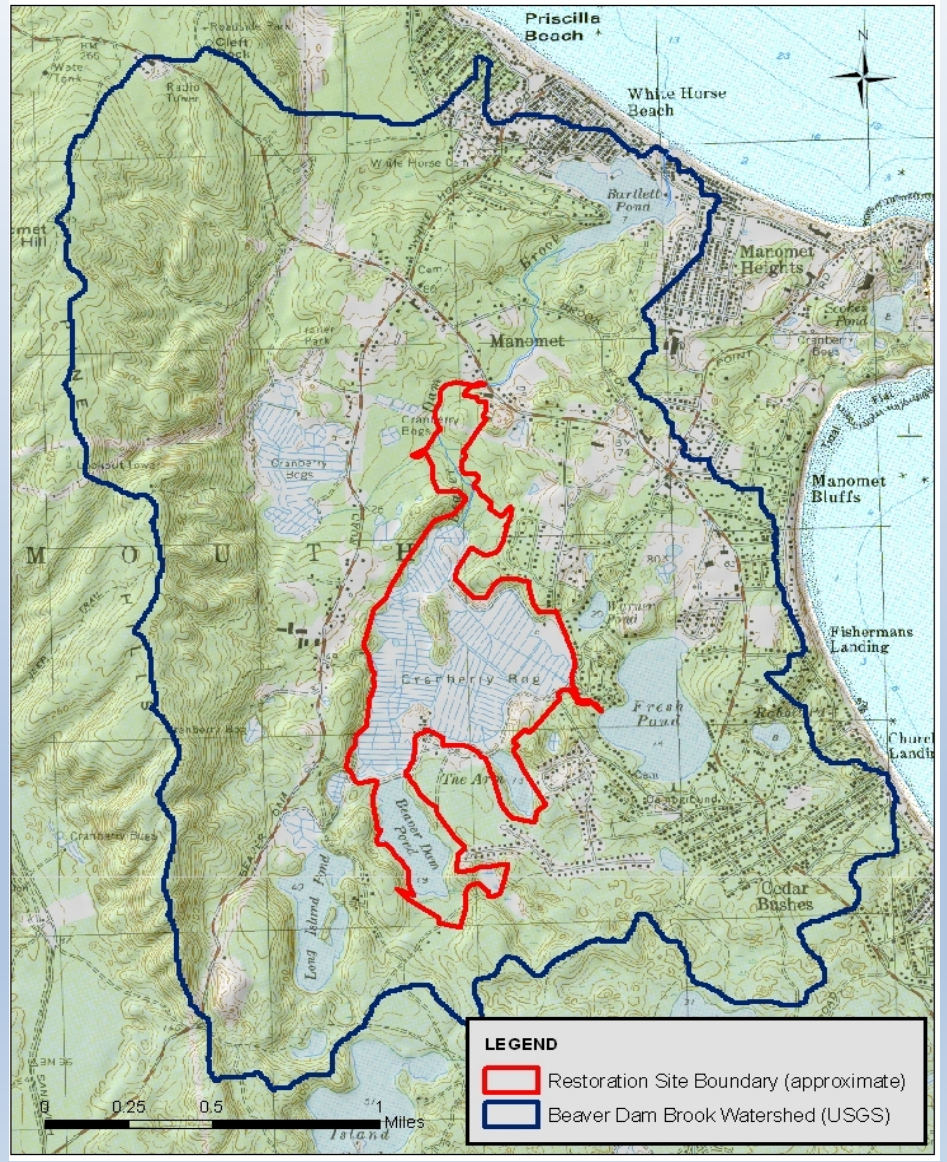
Project experience

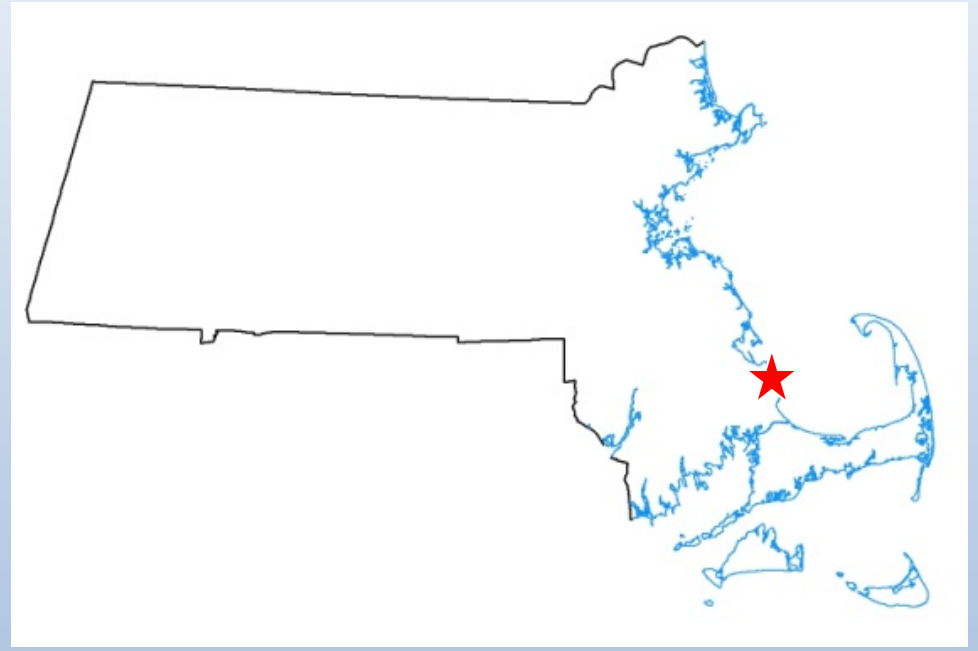
Piscataquis & Penobscot Rivers, ME

ACKNOWLEDGEMENTS

- Penobscot Trust
- Penobscot Indian Nation
- USFWS
- NOAA Fisheries
- ME Dept Marine Resources
- Kleinschmidt
- Haley and Aldrich
- CES
- Sumco

TIDMARSH FARMS






TidmarshFarms.com, 1987

Cranberry Bog Restoration Considerations

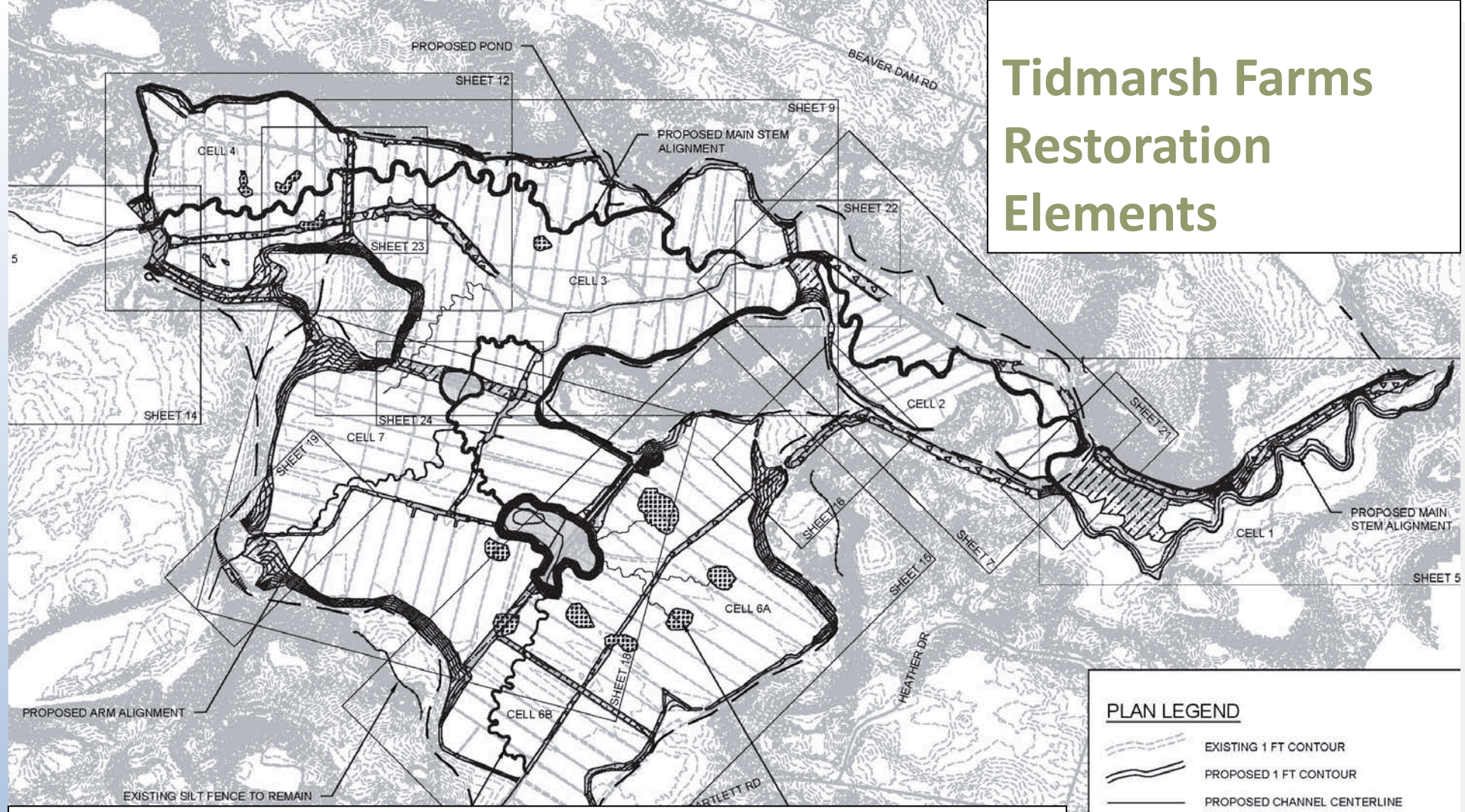
- Water table depth
- Excess sand
- Channel uniformity
- Ditches and berms
- Flow control structures
- Sediment balance
- Plant species uniformity
- Pesticides/herbicides/ fertilizers

- Red Maple Swamp
- Atlantic White Cedar swamp
- Shrub swamp
- Open fen
- Sandplain grassland
- Upland woodland
- Transitional planting
- New channel
- Viewshed arrows
- Pedestrian Trails
- Boardwalk
- Longterm road
- Maintenance road
- Drainage ditch
- Fill primary drainage ditch
- Public access
- Parcel Boundary
- Area of Potential Effect
- NRCS Easement
- Public Parking

NOTES

1. Excavate fines from stream channel.
2. Remove berm and use to fill ditch.
3. Excavate existing mound to fill ditch.
4. Wetland trail (bermed earth & cedar planks).
5. Invasive species removal (multiflora rose)
6. Culvert removal (where is this location?)
7. Remove riprap.
8. Natural spring
9. Potential maintenance access
10. Footbridge crossing, design to prevent motorbike/ATV usage.
11. Grand Boulder.
12. Overlook Observation Tower
13. Boardwalk
14. Observation deck
15. Outdoor classroom / amphitheater
16. Vernal pool
17. Remove existing berm.
18. Lookout point.
19. Bog Drainage BMP (Groundwater gallery or infiltration berm to ensure cold water transfer from BMP to stream).
20. Remove dam berm.
21. Fill existing ditch.
22. Headwater tributaries.
23. Grassland peninsula.
24. Upland forest peninsula.
25. Wetland/Upland transitional edge.
26. Fill & reforest exposed sand quarry.
27. Reconnect landform with excavated material.
28. Bridge improvements.
29. Trails access.
30. Drive / pedestrian circulation.
31. Entrance to private drive.
32. Davenport Residence.
33. Donny's Residence.
34. Farm / Working Shed/ Greenhouse
35. Future Visitors Center & Parking.
36. Modify box culvert for fish passage.
37. Grade control riffle pool, meandering stream.
38. Channel 3' width and start increasing to 5' width at downstream confluence.
39. Stone steps.

Tidmarsh Farms Restoration Elements



- Channel creation
  - Restoring relic channels (1)
  - New channel (2, 3, 4, 6, 7)
- Large wood within channels
- Microtopography, depressions
  - Expose peat/seed
  - Onsite spoils
- Spring connections
- Raise groundwater with grade controls
- Atlantic white cedar (cell 3, 4, beaver brook headwaters)
- Open shrub fen
- Ditch plugs
- Access/crossings


KOMATSU


KOMATSU


KOMATSU


Cape Cod Bay


Livingobservatory.org

Team effort. For more information visit livingobservatory.org

- Project Background
- Photo gallery
- Live cam
- Blogs
- Research

- Instagram: @livingtidmarsh

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Ms. Mary’s biggest fan

Thank you.

Kcoveleski@interfluve.com