



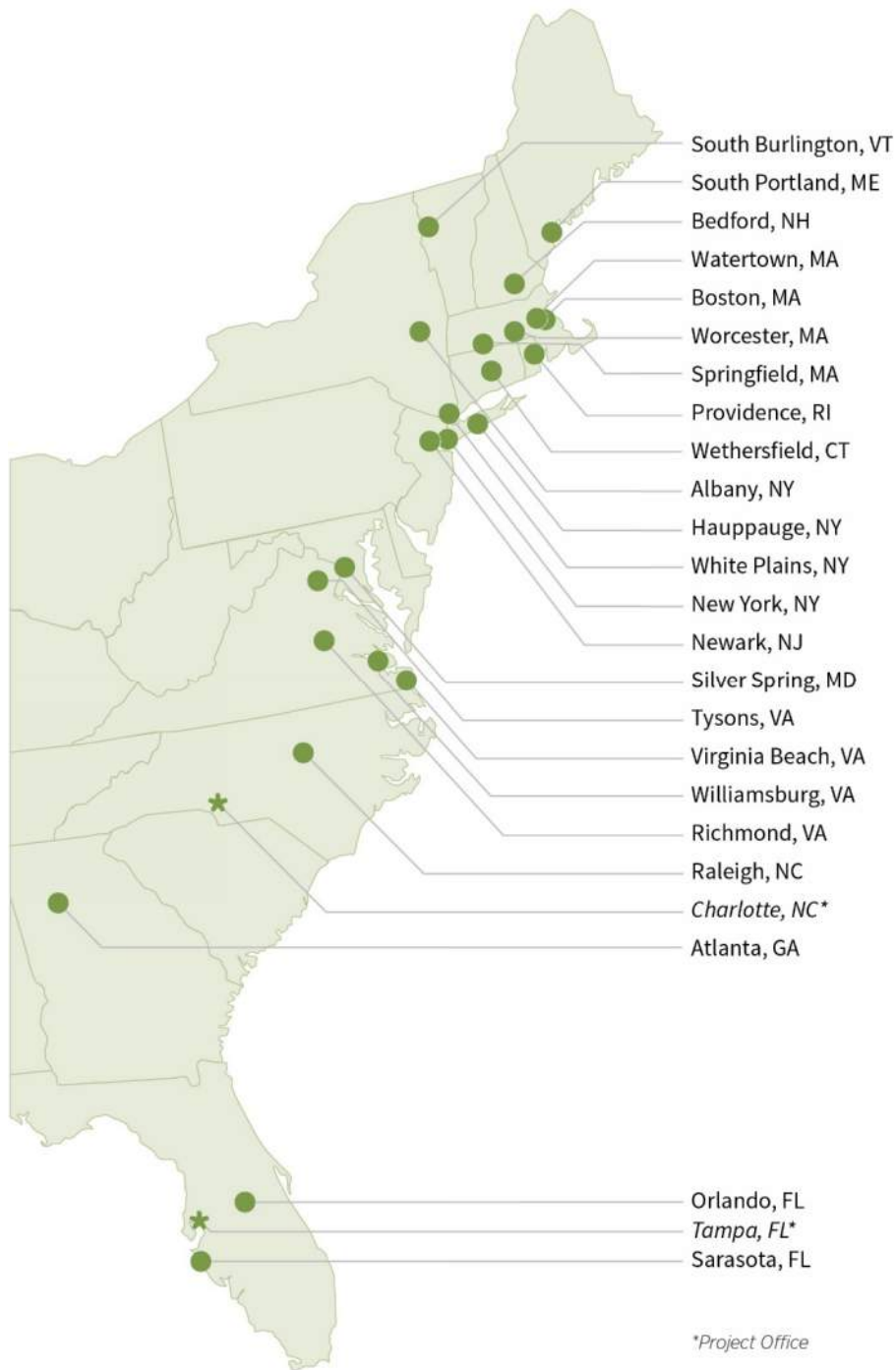
Righting Past Wrongs: A Geologic Jump-Start for Cold Brook

Wilmington, Vermont

Presented by
Robert Wildey

March 20, 2018





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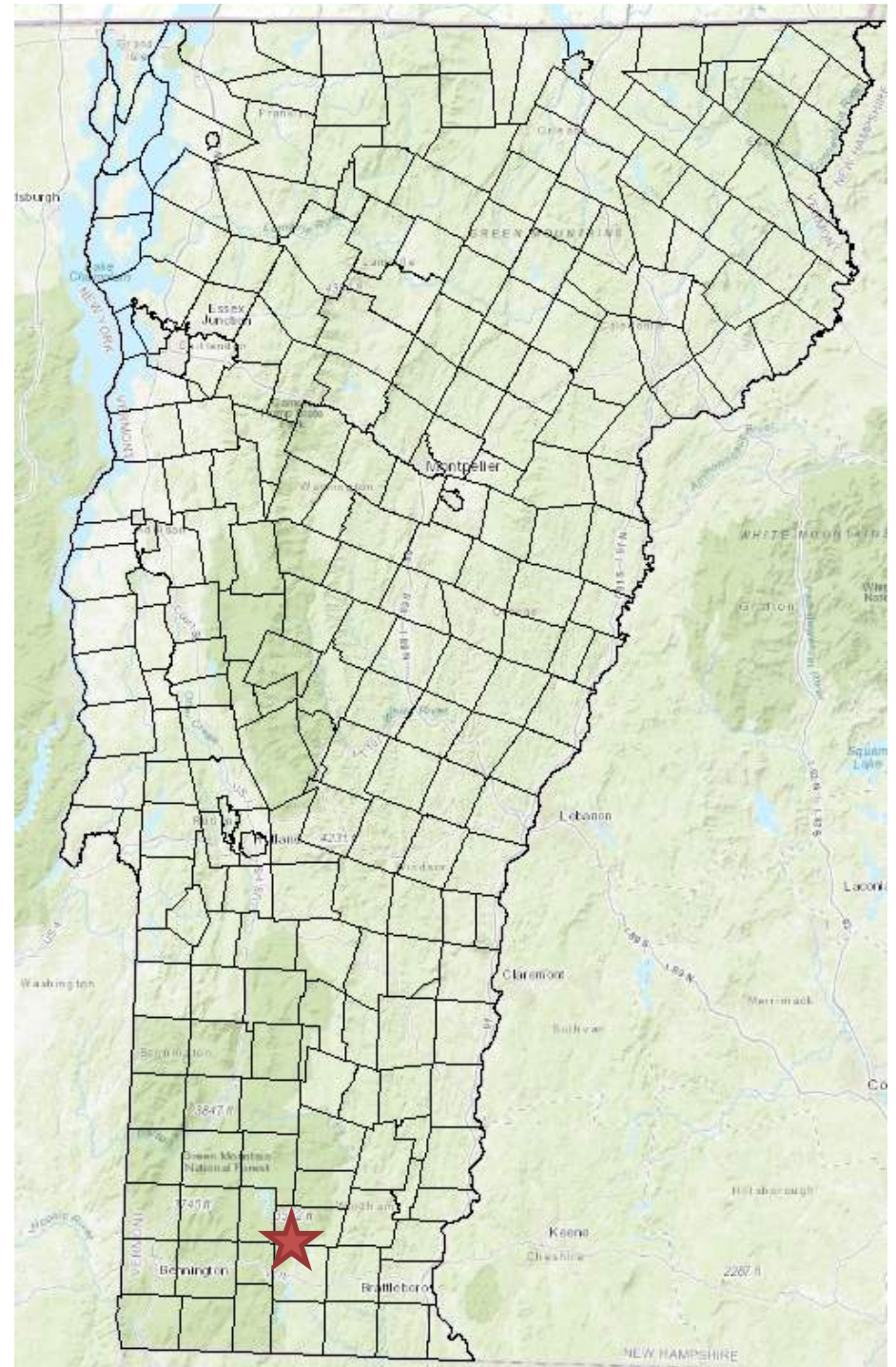


Project Overview

- Official Name : *"West Lake and Cold Brook Stream and Floodplain Enhancement Project"*
- Construction of new off-line snowmaking reservoir, pump house, and an inflatable dam with intake
- Spoil materials from reservoir construction used to fill in gravel excavation pits left by prior owner
- Not a "stream restoration" *per se*, but replacing missing channel materials to provide bedload continuity
- Recreated floodplain provides roughness elements and habitat

Site Location

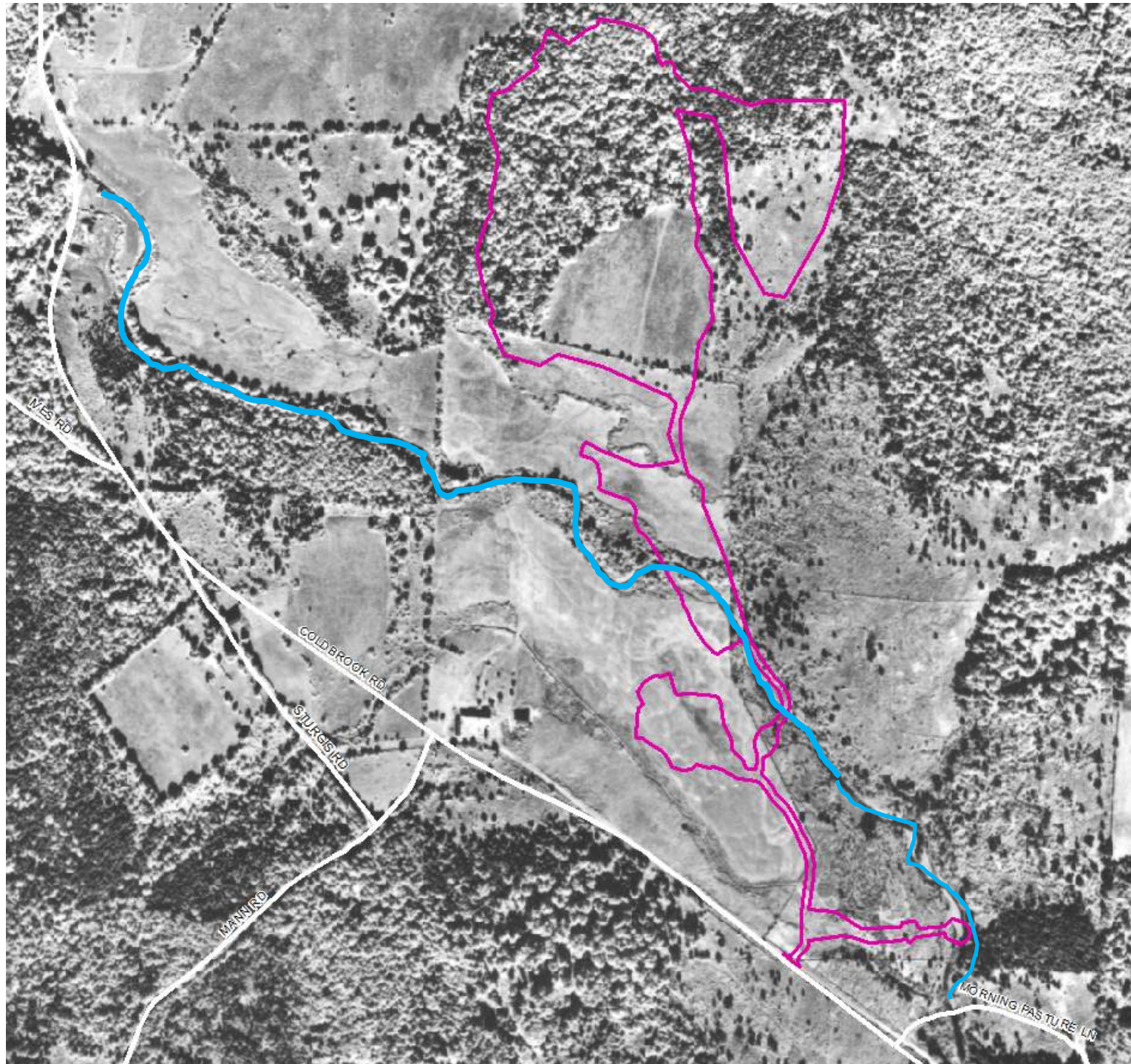
- Headwaters originates in Dover near Mount Snow Ski Resort
- Tributary of the North Branch Deerfield River
- Provides snowmaking water supply for Haystack Ski Resort and Mount Snow Ski Resort
- Gravel extraction activities in 1990's resulted in two large, open water ponds that captured the stream



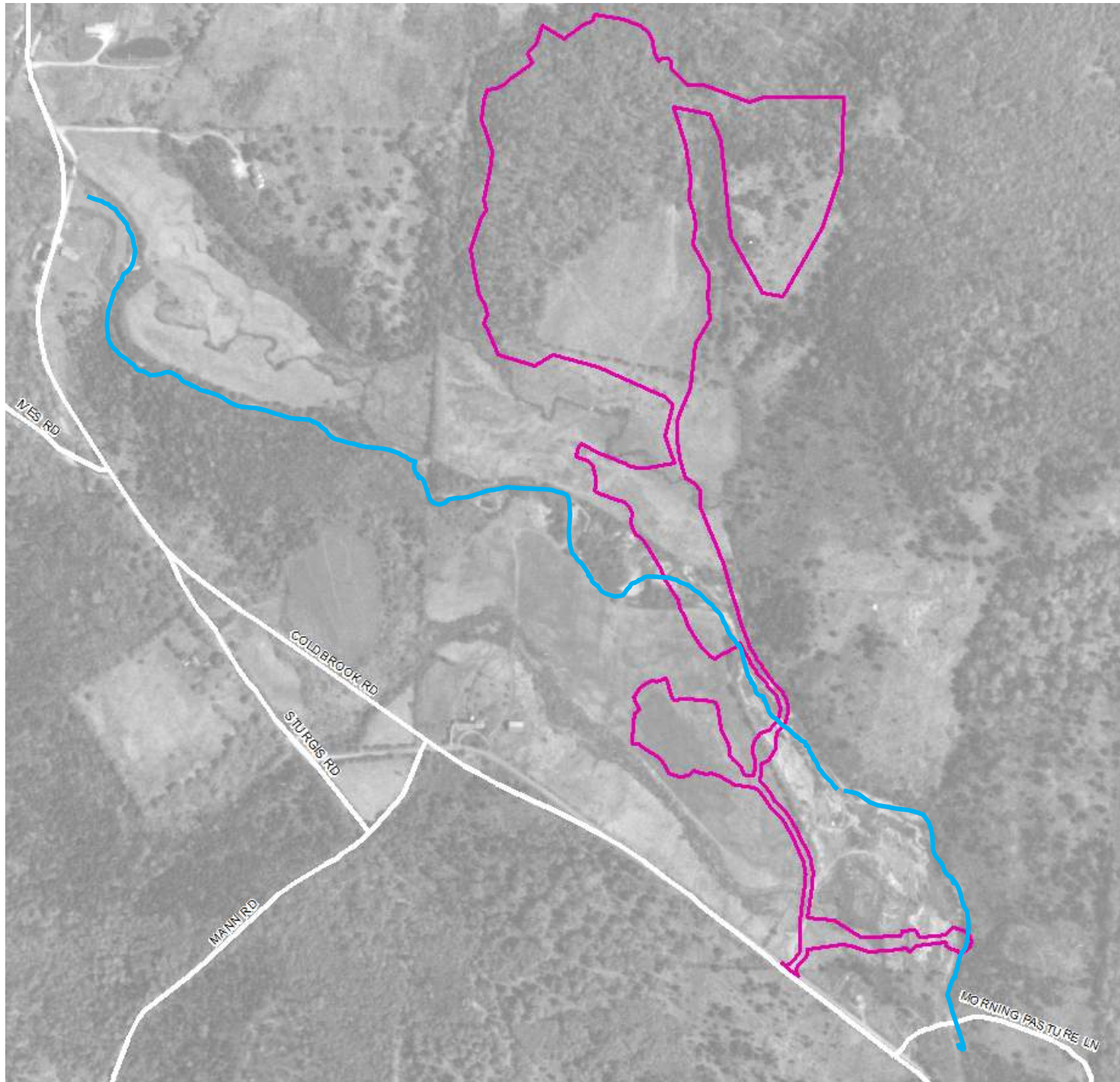
Historic Aerial Photographs



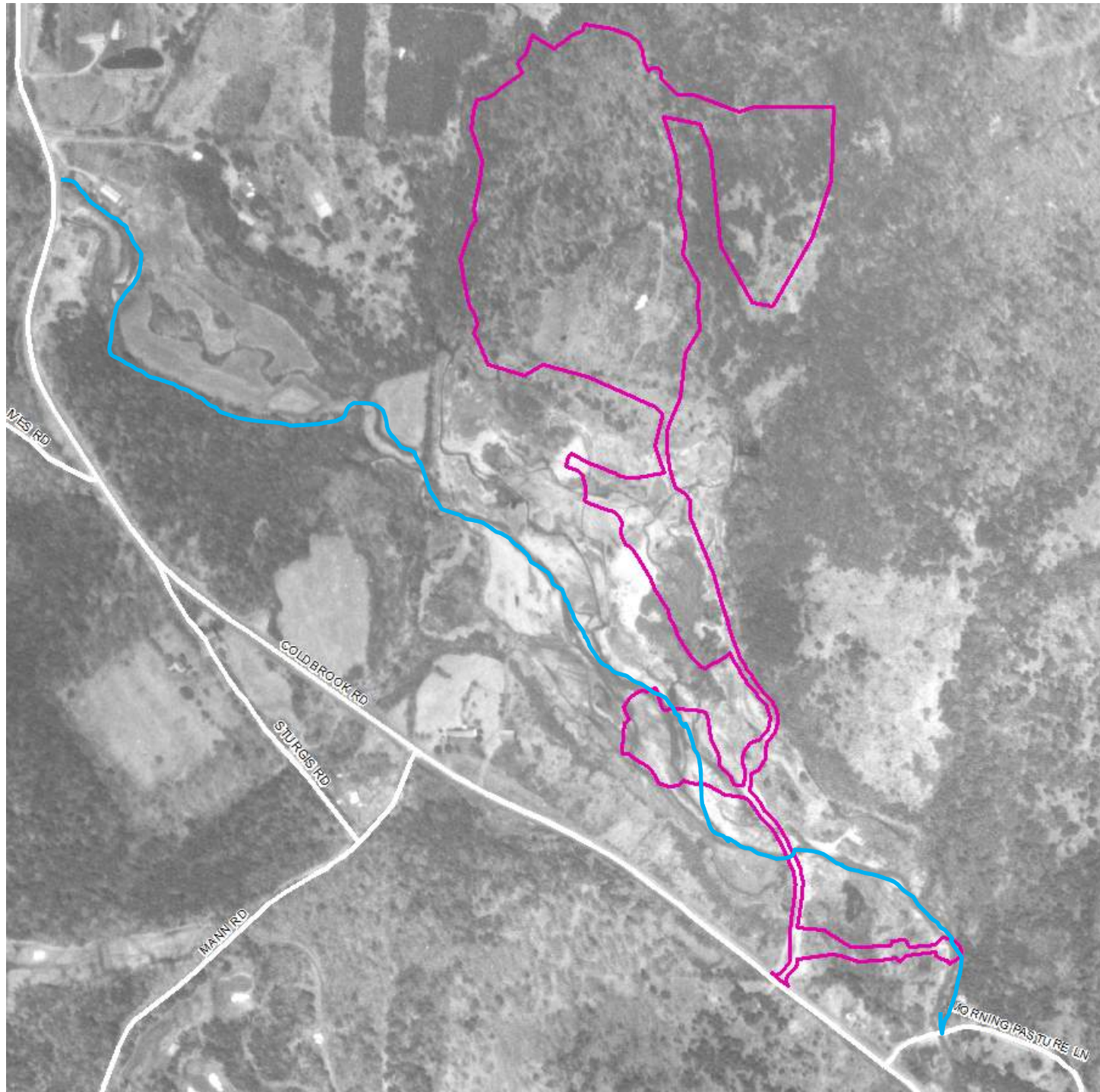
1948



1962



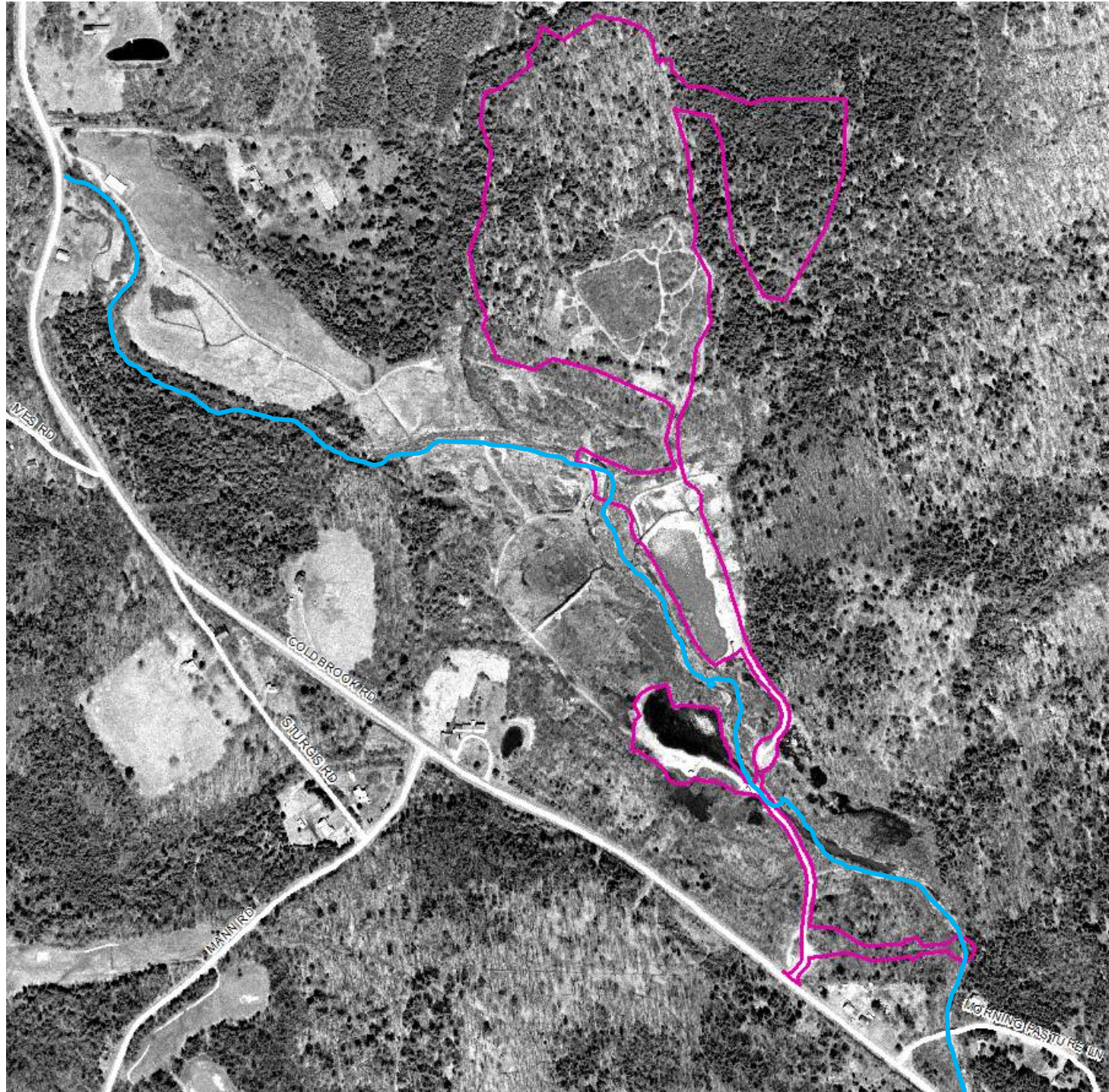
1974



1992



2000

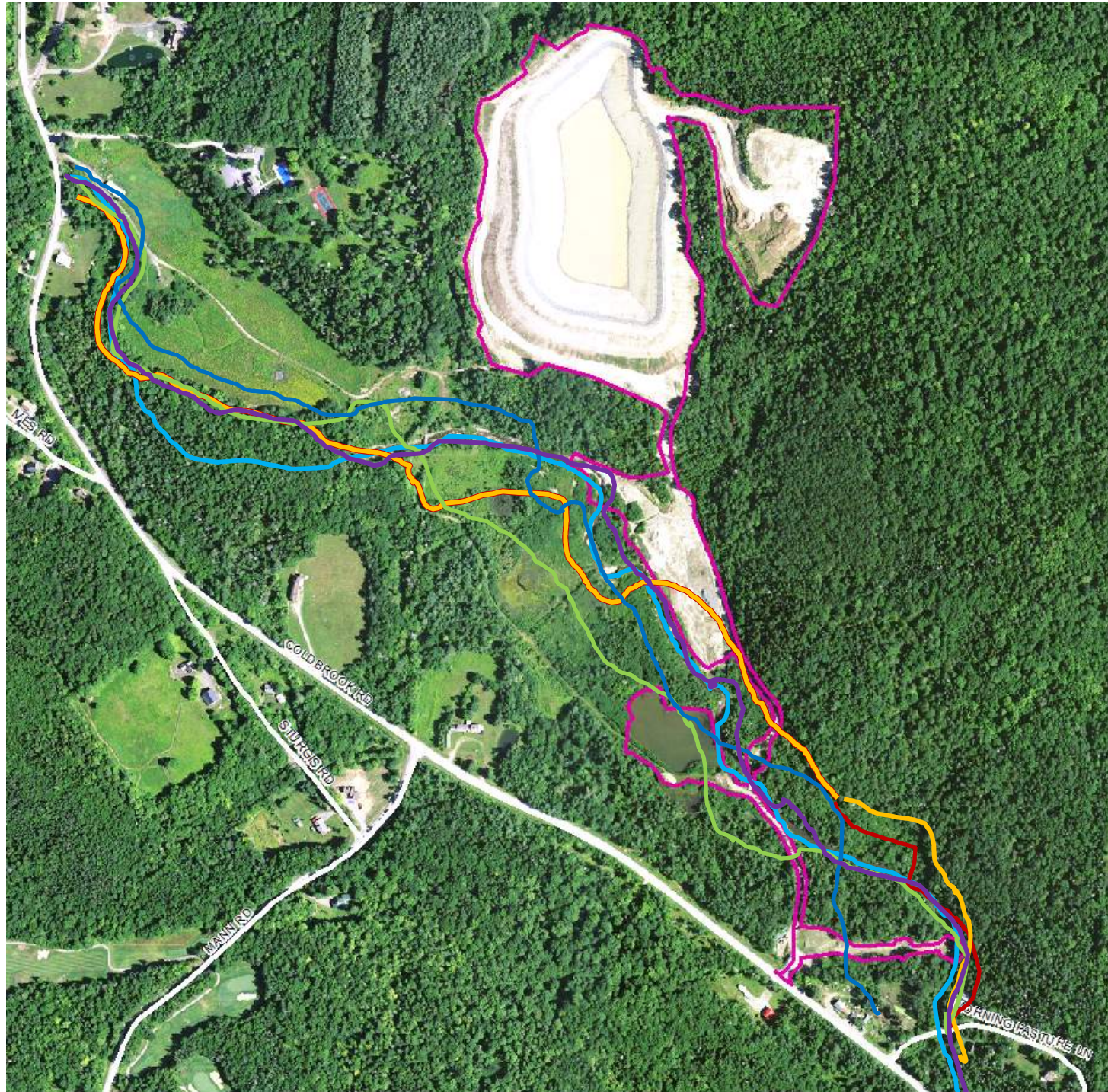


2011



Data rate 1591 kbps (net 51.54%) - total size 7677 kB

2016



1948
1962
1974
1992
2000
2016

Site Reconnaissance: Active Channel











Site Reconnaissance: East Pond









Site Reconnaissance: Pre-Irene Channel









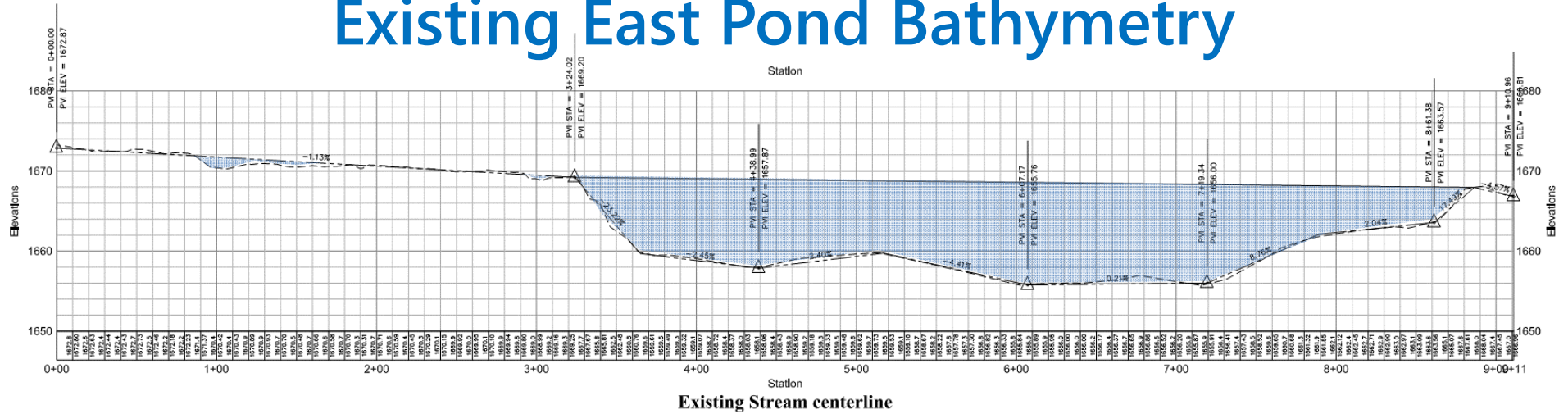
Design Development



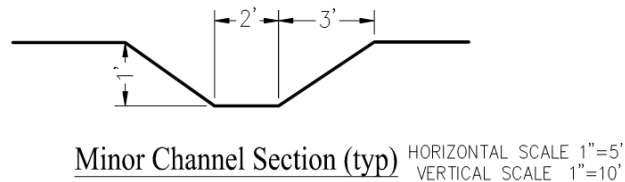
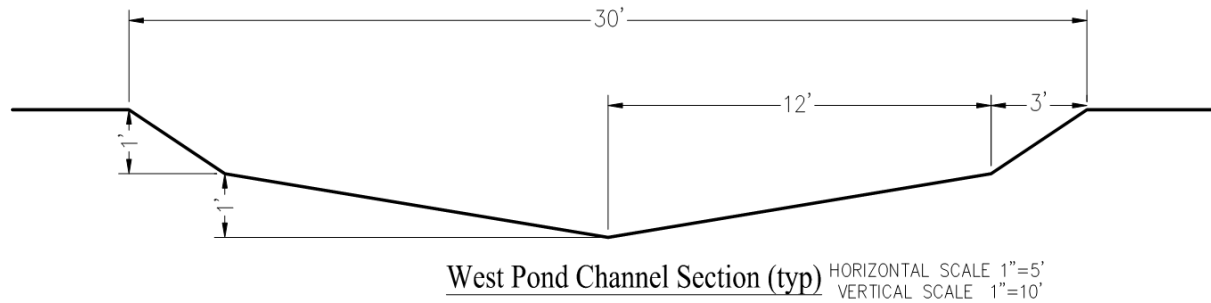
Channel Characteristics

- Watershed area ~ 6.5 square miles
- Bankfull channel width ~ 35 feet
- Channel slope upgradient from site ~ 2.5 %
- Channel slope through site ~ 1%
- Wide valley floor with a history of lateral channel movement
- Depositional environment with significant bedload
- Active beaver population with multiple impoundments across valley floor

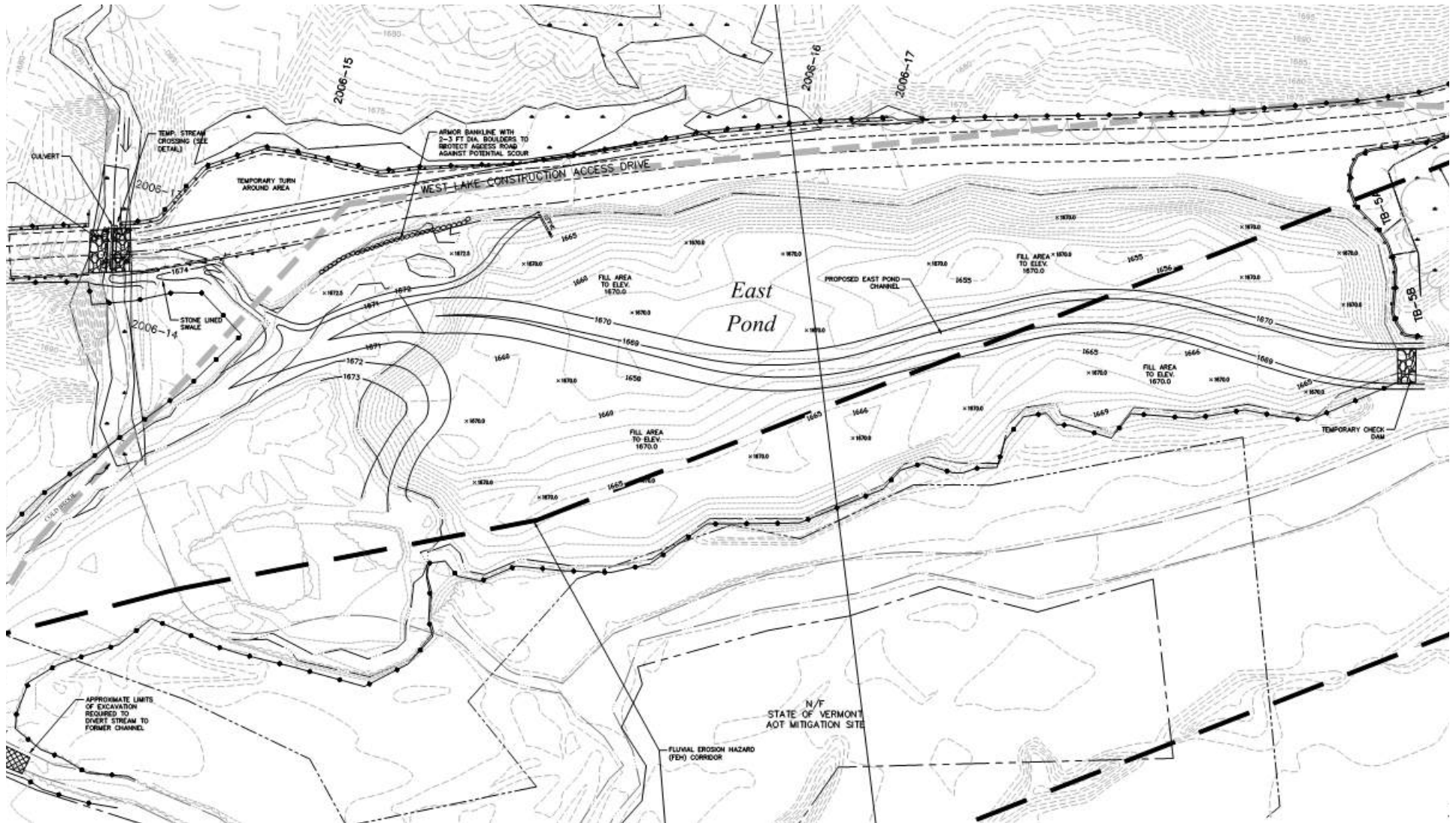
Existing East Pond Bathymetry



Proposed Channel Cross Sections



Proposed East Pond Channel



Construction





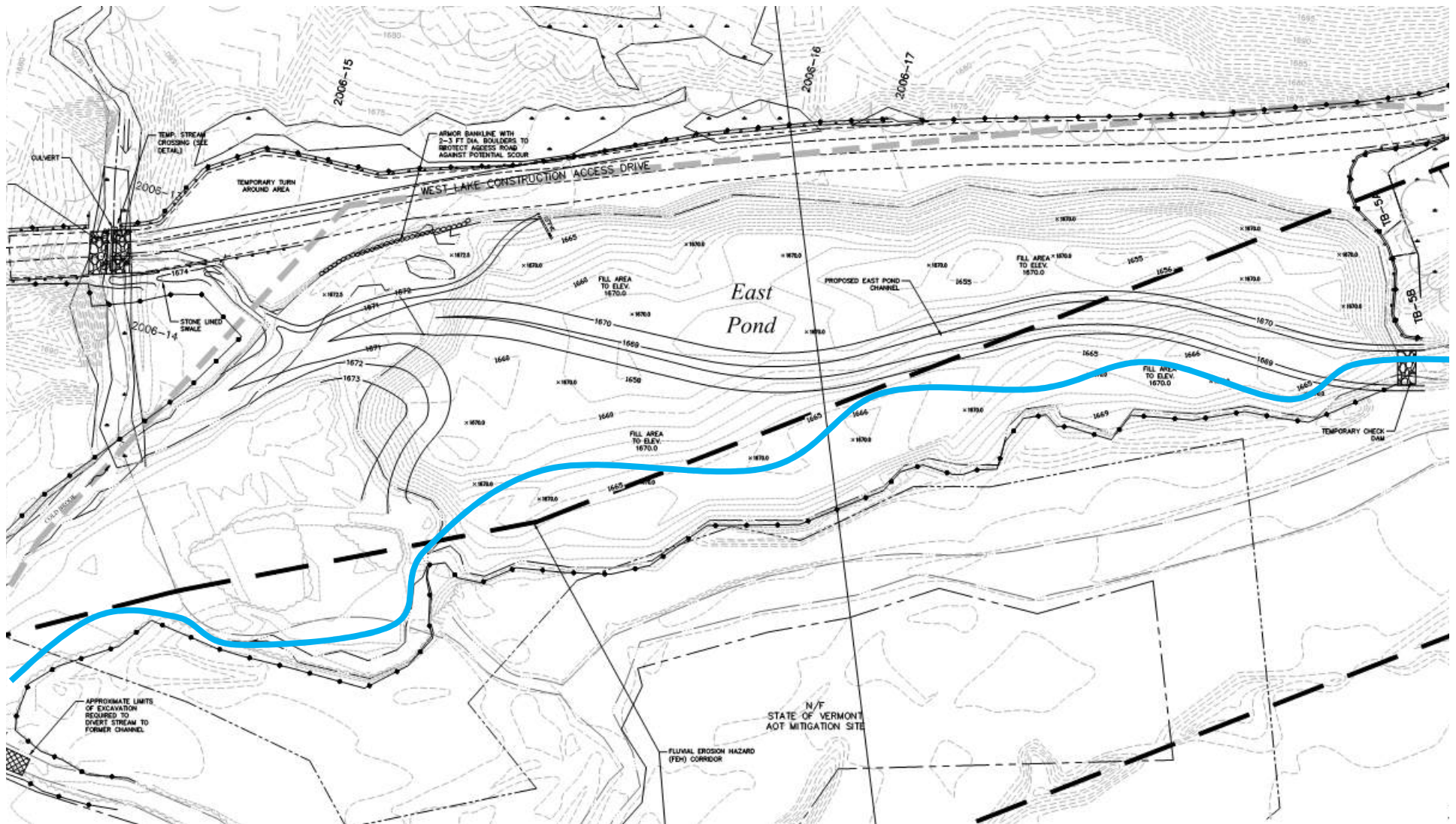






2016.06.17 14:12

Constructed East Pond Channel









Post-Construction Monitoring







2017.11.14 14:51



2017.11.14 15:03



2017.11.14 15:38



2017.11.14 16:10



2017.11.14 16:09



2017.11.14 15:54



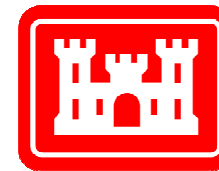
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Follow-up Monitoring

- Starting in 2018
- Evaluate channel avulsion risk, in particular for reach immediately upstream of intake structure
- Document changes in floodplain and channel geometry
- Recommend remedial measures, if needed

Acknowledgements

- Mount Snow Resort
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- Marty Abair, U.S. Army Corps of Engineers



**US Army Corps
of Engineers®**



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