

FirstLight Streambank Erosion Proposal for the Turners Falls Impoundment

Background

FirstLight simulated the operating conditions in the Flows and Fish Passage Settlement Agreement within its Bank Stability and Toe Erosion Model (BSTEM) to evaluate the potential impact of proposed Project operations on bank erosion. The findings were summarized in the report entitled *Supplemental BSTEM Modeling Report Reflecting Operating Conditions in the Flows and Fish Passage Agreement*, which was filed with FERC on March 22, 2024. The results of the BSTEM modeling for riverbank segments within Massachusetts found the following ([Figure 1](#)):

- The dominant cause of erosion throughout the Turners Falls Impoundment (TFI) is high flows or, in the case of Barton Cove, boat waves;
- Project operations are not a **dominant** cause of erosion anywhere in the TFI; and,
- Project operations are found to be a **contributing** cause of erosion in Massachusetts in: (1) an approximately 21,600-foot-long reach from the exit of Barton Cove to the French King Gorge (both sides of the river), and (2) an approximately 4,700-foot-long reach on river right upstream of the Northfield Mountain tailrace.

Proposal

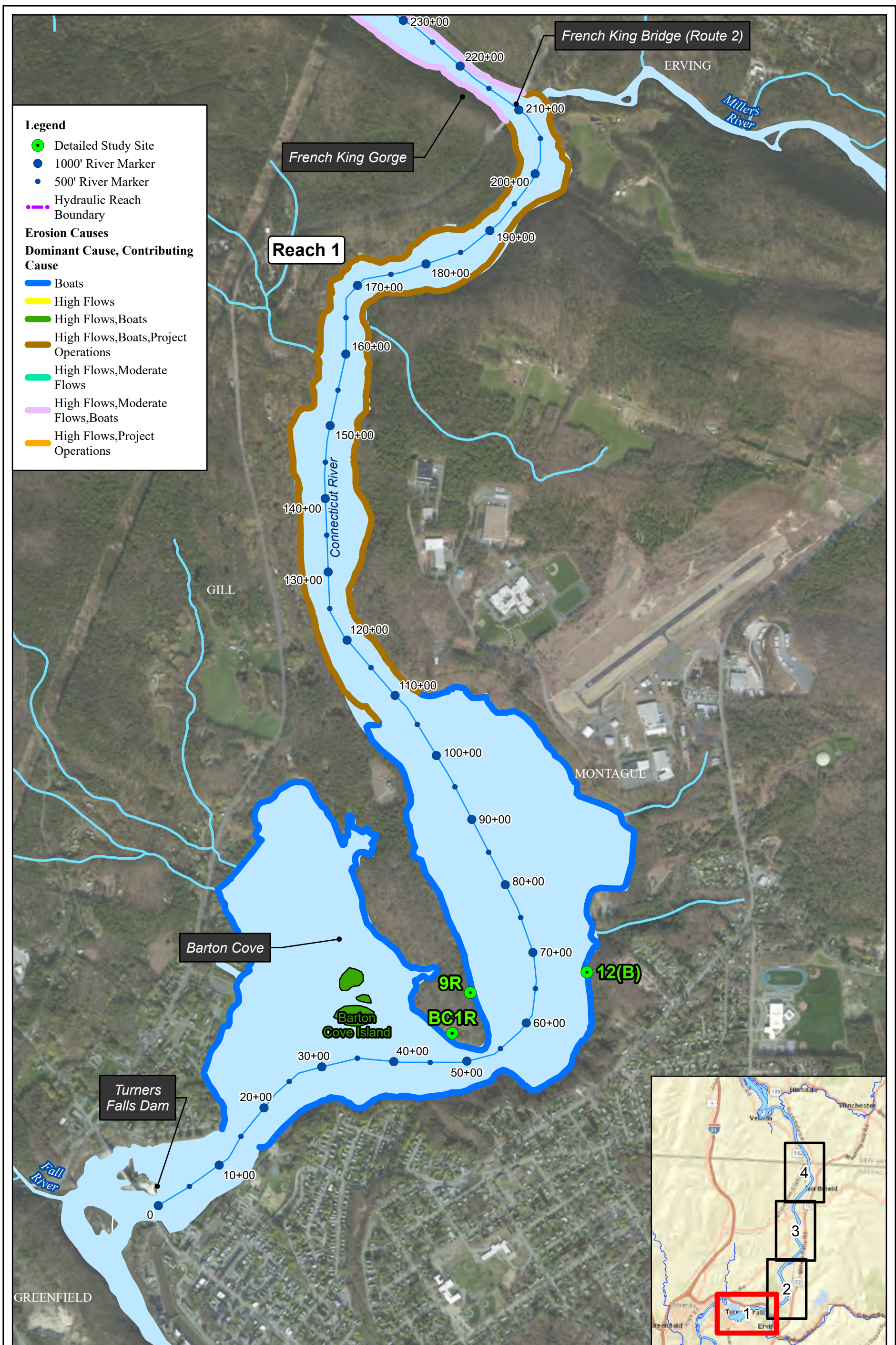
- As agreed to in the Recreation Settlement Agreement, conservation easements will be established along the TFI's riparian corridor on FirstLight owned land. The goal of the conservation easements will be to conserve the riparian buffers along the TFI, allow for the continued operation of the Bennett Meadow Wildlife Management Area, and conserve the 1.3 mile long portion of the New England National Scenic Trail in the Northfield Mountain Project boundary. Collectively, the conservation easements/restrictions that are part of the Turners Falls and Northfield Mountain Projects equates to approximately 761.4 acres.
- FirstLight will establish a boat wake restriction, in coordination with the Massachusetts Department of Conservation and Recreation, from the Turners Falls Dam extending upstream approximately two miles to where the TFI narrows to mitigate the impact of boat waves in the Barton Cove area.
- FirstLight will implement a shoreline erosion monitoring program for all TFI reaches in Massachusetts where the BSTEM modeling showed that proposed Project operations are a contributing cause of erosion ([Figure 2](#)).

The shoreline erosion monitoring program would consist of the following:

- Within one year of license issuance, FirstLight will develop a Shoreline Erosion Monitoring Plan in consultation with the Massachusetts Department of Environmental Protection (MDEP). MDEP will be responsible for approving the monitoring plan prior to FirstLight initiating any shoreline erosion surveys.
- FirstLight will conduct an initial shoreline erosion survey within two years of license issuance.

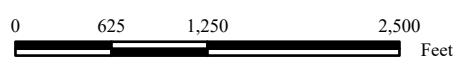
- FirstLight will conduct additional shoreline erosion surveys in Year 10, 20, 30, and 40 of the new license.
- Each erosion survey will consist of the following:
 - A reconnaissance survey of each TFI riverbank segment in Massachusetts where proposed Project operations are identified by BSTEM to be a contributing cause of erosion. The reconnaissance survey will characterize the riverbank characteristics and erosion conditions of each segment.
 - Cross-sectional surveys at existing detailed study sites within each TFI riverbank segment in Massachusetts where proposed Project operations are identified by BSTEM to be a contributing cause of erosion. If a detailed study site does not currently exist in such a reach (e.g., the reach from the Barton Cove exit to the French King Gorge), FirstLight will establish a representative detailed study site within that reach during the first erosion survey following license issuance. Any newly established detailed study sites will be re-surveyed during subsequent surveys.
- Following completion of each erosion survey, FirstLight will prepare a report summarizing the survey methods and results. The report will also identify surveyed riverbank segments that require stabilization or, in the event of a previously repaired bank segment, repair, if any. The report will be submitted to MDEP for approval.
- Upon approval from MDEP, FirstLight will complete the stabilization or repair measures identified in the final report, if any, within 5 years. Following completion of remediation activities, FirstLight will file as-built documentation (plans/photos) of the stabilization/repair efforts with MDEP.

Riverbank segments subject to future erosion monitoring are shown in [Figure 2](#) and include the 21,600-foot-long reach of river extending from the exit of Barton Cove to French King Gorge (river left and right) and the 4,700-foot-long reach associated with detailed study site 8B-R on river right upstream of the Northfield Mountain tailrace.

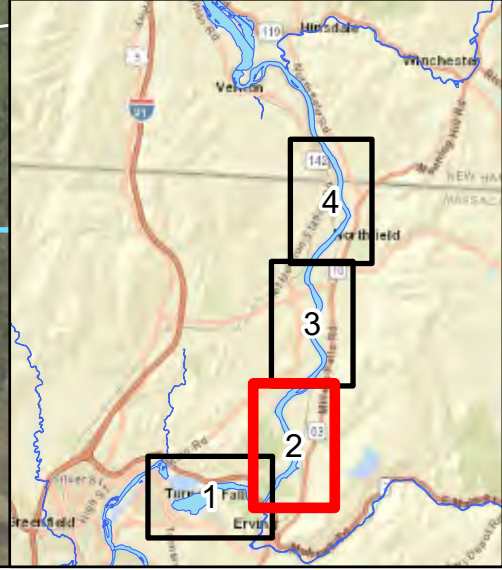
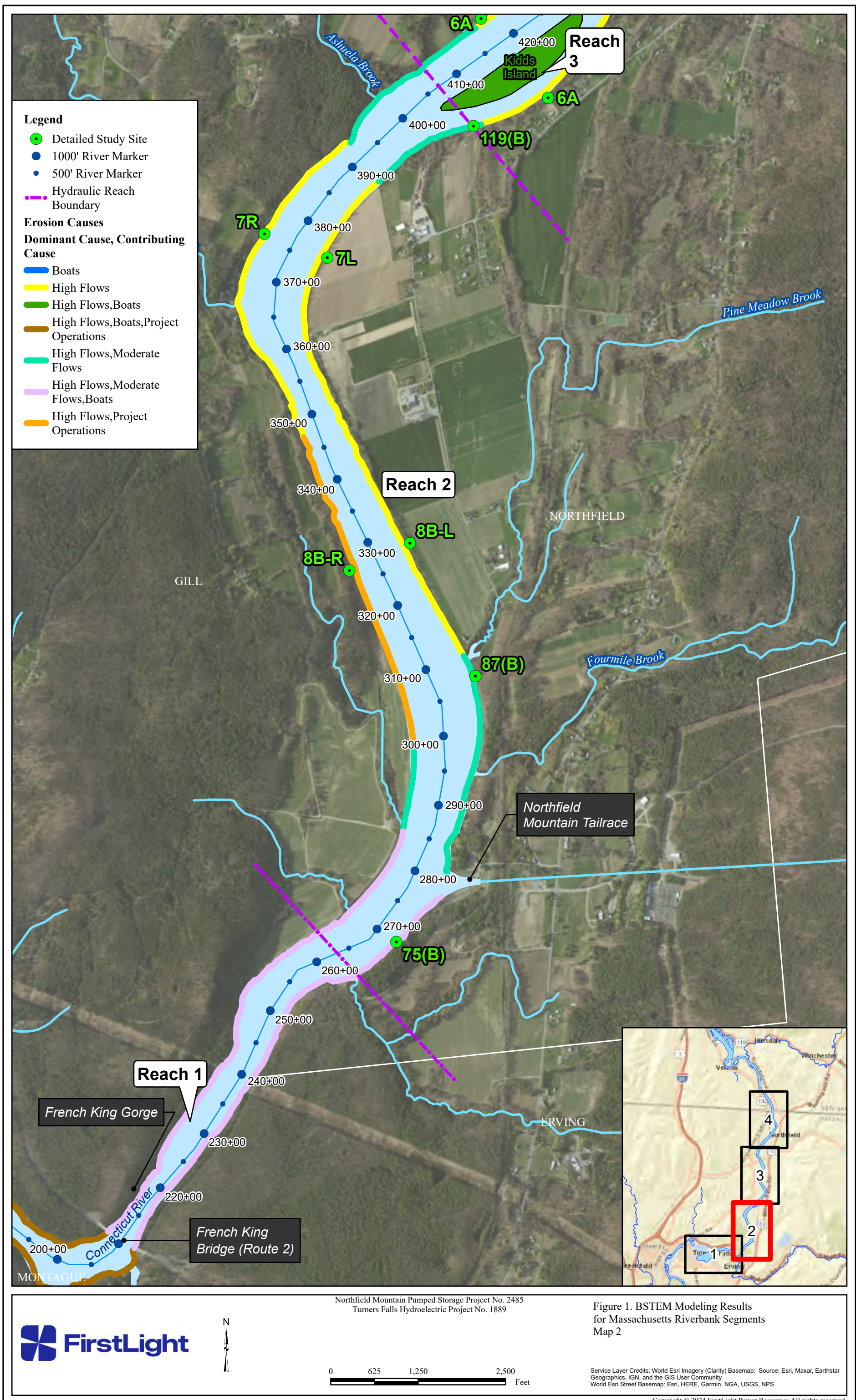


Northfield Mountain Pumped Storage Project No. 2485
Turners Falls Hydroelectric Project No. 1889

Figure 1. BSTEM Modeling Results for Massachusetts Riverbank Segments Map 1

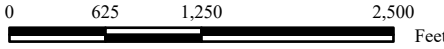


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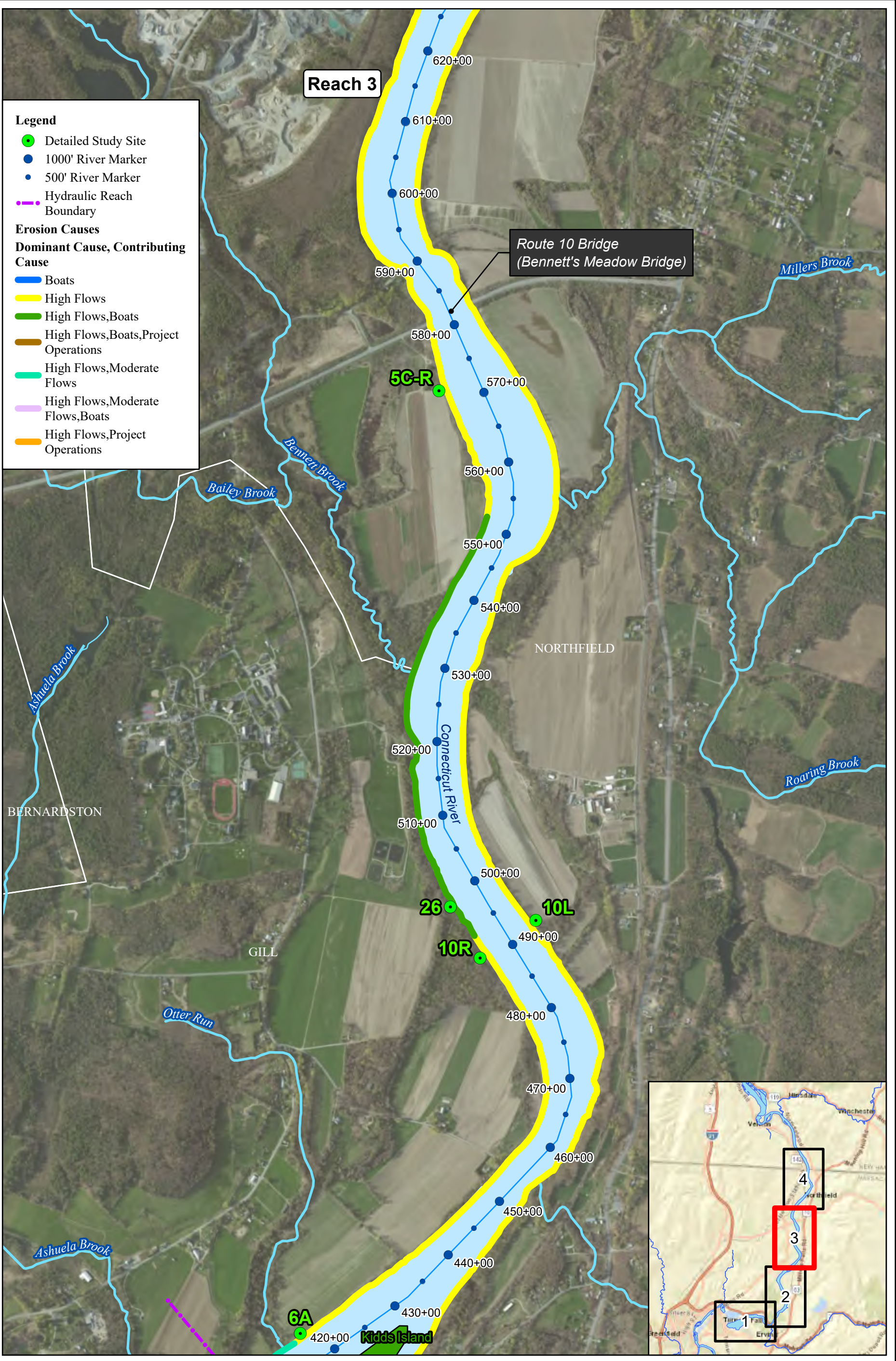


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Figure 1. BSTEM Modeling Results for Massachusetts Riverbank Segments Map 2



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Legend

- Detailed Study Site
- 1000' River Marker
- 500' River Marker
- Hydraulic Reach Boundary

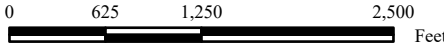
Erosion Causes

Dominant Cause, Contributing Cause

- Boats
- High Flows
- High Flows, Boats
- High Flows, Boats, Project Operations
- High Flows, Moderate Flows
- High Flows, Moderate Flows, Boats
- High Flows, Project Operations

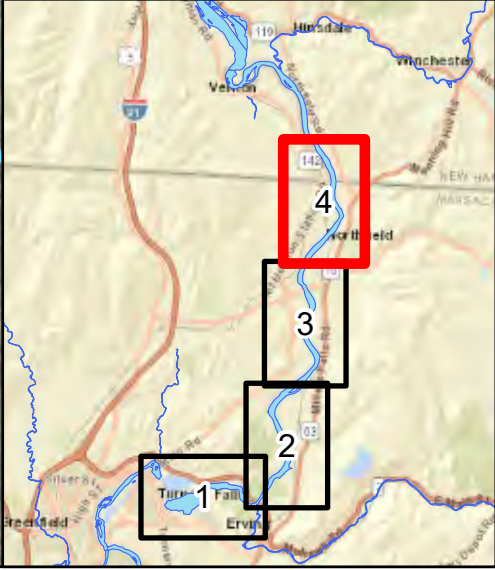
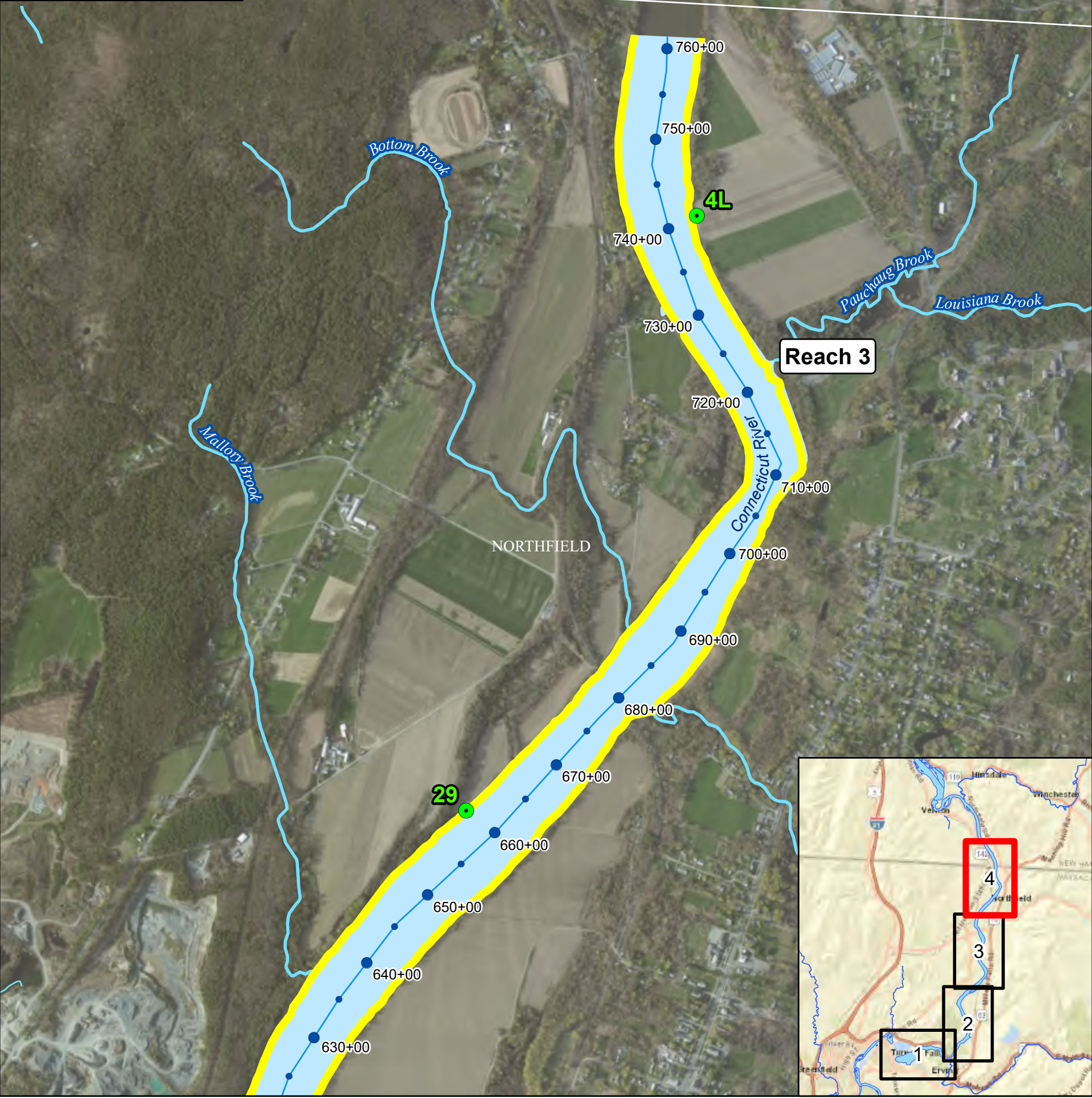
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Figure 1. BSTEM Modeling Results for Massachusetts Riverbank Segments Map 3



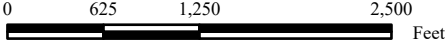
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 World Eri Street Basemap: Esri, HERE, Garmin, NGA, USGS, NPS

- Legend**
- Detailed Study Site
 - 1000' River Marker
 - 500' River Marker
 - Hydraulic Reach Boundary
- Erosion Causes**
- Dominant Cause, Contributing Cause**
- Boats
 - High Flows
 - High Flows,Boats
 - High Flows,Boats,Project Operations
 - High Flows,Moderate Flows
 - High Flows,Moderate Flows,Boats
 - High Flows,Project Operations

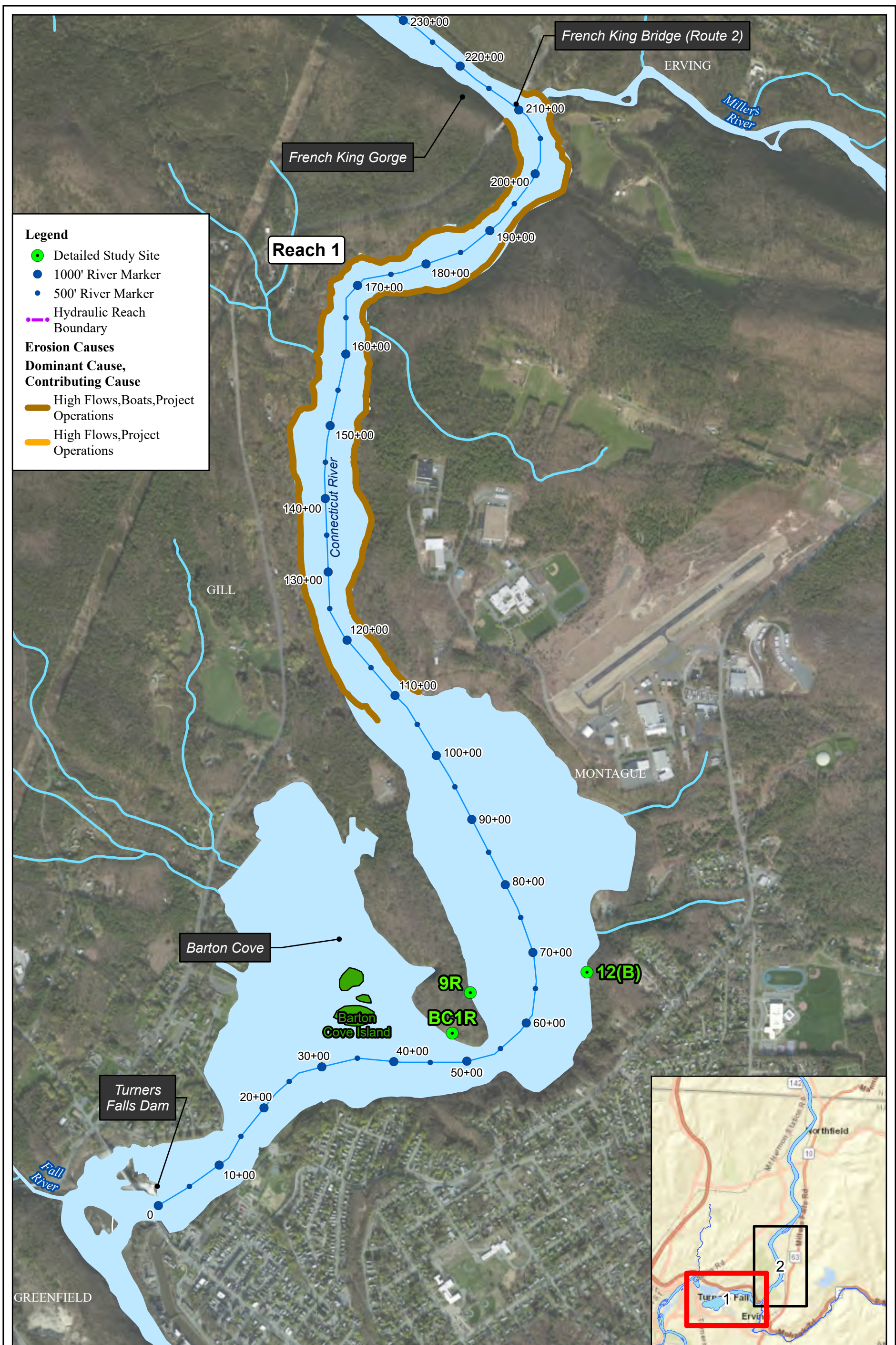


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Figure 1. BSTEM Modeling Results for Massachusetts Riverbank Segments Map 4



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Legend

- Detailed Study Site
- 1000' River Marker
- 500' River Marker
- Hydraulic Reach Boundary

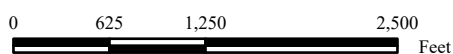
Erosion Causes

Dominant Cause, Contributing Cause

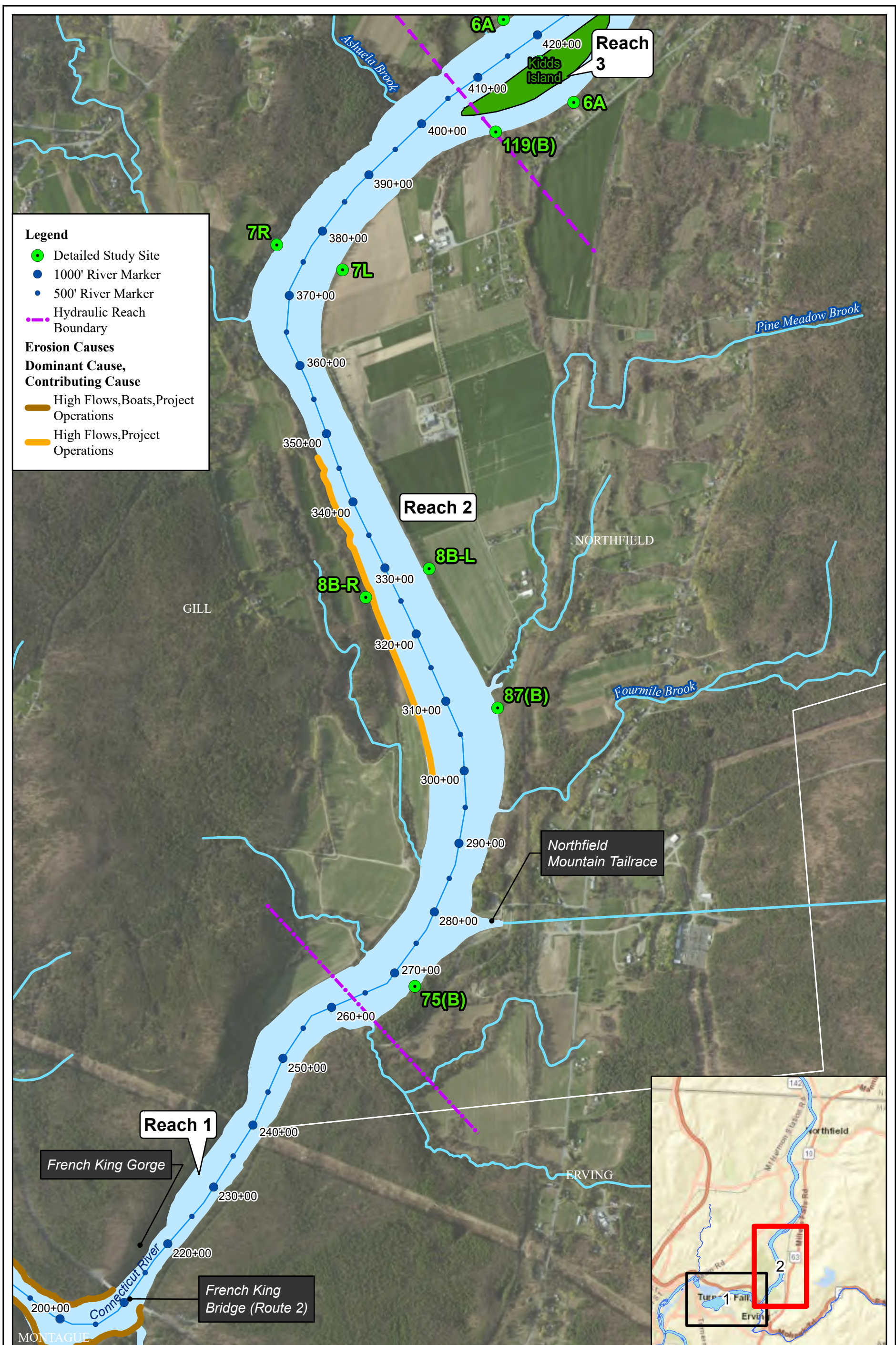
- High Flows, Boats, Project Operations
- High Flows, Project Operations

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Figure 2. TFI Riverbank Segments Subject to Future Erosion Monitoring
 Map 1



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Legend

- Detailed Study Site
- 1000' River Marker
- 500' River Marker
- Hydraulic Reach Boundary

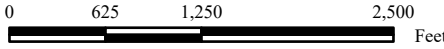
Erosion Causes

Dominant Cause, Contributing Cause

- High Flows, Boats, Project Operations
- High Flows, Project Operations

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Figure 2. TFI Riverbank Segments Subject to Future Erosion Monitoring
 Map 2



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