Hadley Falls Dam Removal and River Restoration Project

Aquatic Resources Mitigation (ARM)

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NEW HAMPSHIRE DEPARTMENT OF Environmental Services

ARM Fund Program Mission

- The ARM Fund Program ensures that funds generated through In-Lieu Fee (ILF) mitigation payments for unavoidable impacts to wetlands, streams and other aquatic resources are used to fund projects that replace, restore, or protect aquatic resources within the same watershed.
- NH Statute RSA 482-A:28-33
- 33 CFR Part 225 & 332: Federal Mitigation Rule

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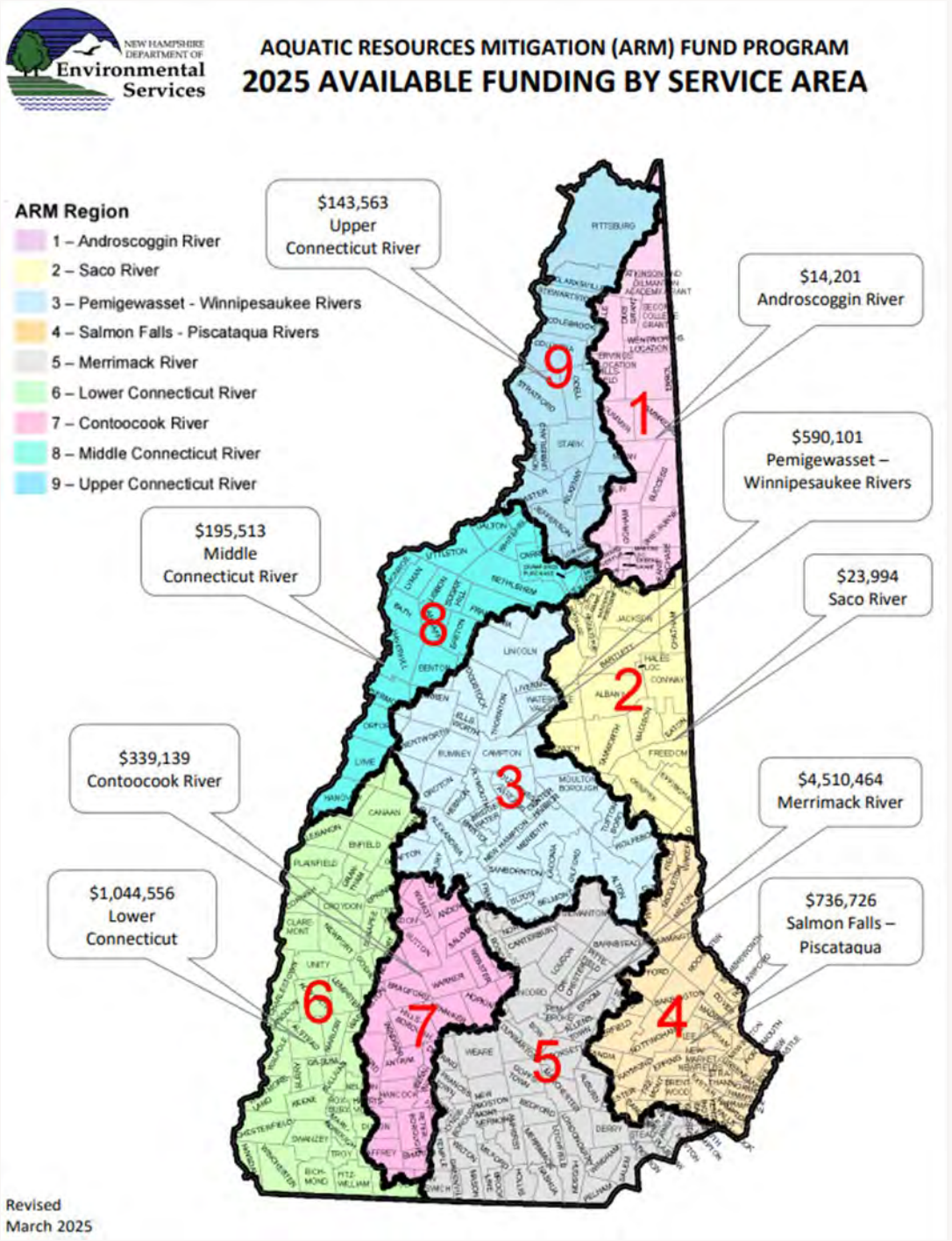


What does ARM fund?

Restoration: An activity that returns natural or historic functions to a former or degraded aquatic resource resulting in an **increase of aquatic resource acreage and function**.

Enhancement: An activity that results in **an increase/improvement to select aquatic resource function(s)**, without an increase in aquatic resource acreage. The more degraded the wetland condition, the greater the opportunity to provide functional lift.

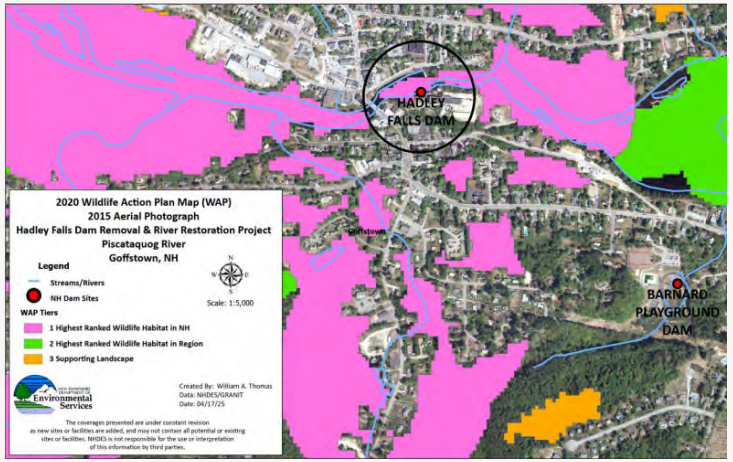
Establishment (creation): The construction of an aquatic resource in an upland resulting in **new self-sustaining aquatic resource acreage and function**.

Preservation: An activity that **protects and maintains aquatic resources and their upland buffers** accomplished through real estate transaction (i.e. acquisition of land by fee-simple purchase by a municipality or conservation entity or conservation easements and deed restrictions) preventing future development.

Key Criteria for ARM Funded Projects

- Supports local and regional priorities for conservation, restoration, and connectivity
- Provides net gain of aquatic resource acreage and/or function
- Self-sustaining, requiring little-to-no manipulation after monitoring period
- Minimum five years of performance monitoring
- Provisions for adaptive management and remedial measures
- Site protection for mitigation areas & long-term management plan
- Meet federal and state requirements

Hadley Falls Dam Removal
(Merrimack)
NHDES Dam Bureau



ARM Request:	$4,510,464	**SSC Award Recommendation**		$4,510,464	
Total Project Cost:	$4,825,464	**ARM % Total Cost**	92%	**Estimated Credits**	5,457 stream/1.5 wetland
Mitigation Activities	**Wetland Restoration/Enhancement:** Restoration of 1.2 acres of floodplain wetland with native plantings and invasive species management to ensure stream stability and wetland and buffer reestablishment. Passive restoration will result in approximately 2.1 acres of enhanced wetland and reestablished vegetated buffers and 2,800 linear feet of stream enhancement. **Stream Restoration/Enhancement:** Dam removal including the concrete spillway, remnants of a timber crib structure, and active channel reconstruction for approximately 647 linear feet.				


Goffstown
Hadley Falls Dam
Gregg Falls Dam
Kelley Falls Dam
PINARDVILLE
WEST SIDE
NORTH END
Manchester
DOWNTOWN
KALIVAS UNION
PISCATAQUOG
1985
Imagery Date: 7/7/2019 43°02'21.29" N 71°36'28.90" W elev 616 ft eye alt 37218 ft
Google Earth

Hadley Falls Dam

- 1921 - The current Hadley Falls Dam is built
- 1968 - State takes over ownership of the dam (not adjacent buildings)
- 1980s to 2007 - hydropower is generated at the site under Federal Energy Regulatory Commission (FERC) license with approximately 0.2 MWatts of power generating capacity
- 2020 - As requested by FERC, NHDES reviewed the structural stability of the dam; this study found that the dam is likely unstable during a flooding event
- 2023 - FERC requires the State to either restart hydropower generation at the site with a plan to rehabilitate the dam or surrender the license after the dam is removed or restored
- 2023 - NHDES submits a request to FERC to surrender the hydropower license and remove the dam
- 2023 - NHDES pursues a $20 million NOAA Fish Barrier Removal Grant with $6.5 million to be used towards the removal of Hadley Falls Dam and $13.3 million for a fish ladder at Kelley Falls Dam (grant denied)
- 2023 - NHDES pursues a $4 million US Fish and Wildlife Service grant for the removal of the dam (grant denied)
- 2024 - NHDES develops an Alternatives Analysis for Haley Falls Dam with costs ranging from $1.9 million for removal with no restoration to $10 million for dam replacement with a fishway
- 2025 - NHDES pursues sediment sampling within the river upstream of Hadley Falls Dam

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Hadley Falls Dam – ARM Funding

- May 2025 - The Dam Bureau submits a pre-proposal to the ARM Program for a project titled Hadley Falls Dam Removal and River Restoration Project
- June 2025 - The ARM Fund Program, the ARM Site Selection Committee (SSC) and the federal Interagency Review Team (IRT) meet with the Dam Bureau at Hadley Falls Dam to review the project
- July 2025 - The ARM SSC and the federal IRT invite the Dam Bureau to submit a full application for an ARM Grant
- August 2025 - The Dam Bureau meets with the Town of Goffstown to request a letter of support for the ARM Grant application
- September 2025 - The Dam Bureau submits a full grant application for $4,510,464 in funding for the Hadley Falls Dam Removal and River Restoration Project
- October 2025 - The ARM Fund Program, the ARM SSC and the federal IRT meet with the Dam Bureau at Hadley Falls Dam to review the project
- November 2025 - The ARM SSC recommended funding the project
- December 2025 - The U.S. Army Corps of Engineers determined that the project has the potential to provide compensatory mitigation.
- December 2025 - The New Hampshire Wetlands Council voted to approve $4,510,464 of ARM funding for the project

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Hadley Falls Dam – ARM Funding

- February 2026 - Request the Governor and Executive Council to authorize ARM to enter into a Memorandum of Understanding with the Dam Bureau totaling $4,510,464 for the purpose of removing the Hadley Falls Dam and restoring natural stream and wetland functions in Goffstown, NH. Effective upon Governor and Executive Council approval through December 31, 2032.

- March 2026 - Request the Governor and Executive Council to authorize the Dam Bureau to accept and expend the $4,510,464 of ARM funding.
- April 2026 - Request the Governor and Executive Council to authorize the Dam Bureau amend a contract with the engineering consulting firm has been working on Hadley Falls Dam to including ARM funding for the design and permitting of the Hadley Falls Dam Removal and River Restoration Project.
- 2026 – 2027 design, consultation, and permitting tasks, including wetlands permitting, shoreland permitting, and historical consultation and mitigation; the FERC license surrender application process will also occur at this time
- Winter 2027 - contractor bidding and selection
- Spring, Summer, Fall 2027 - construction
- 2027-2032 – performance monitoring

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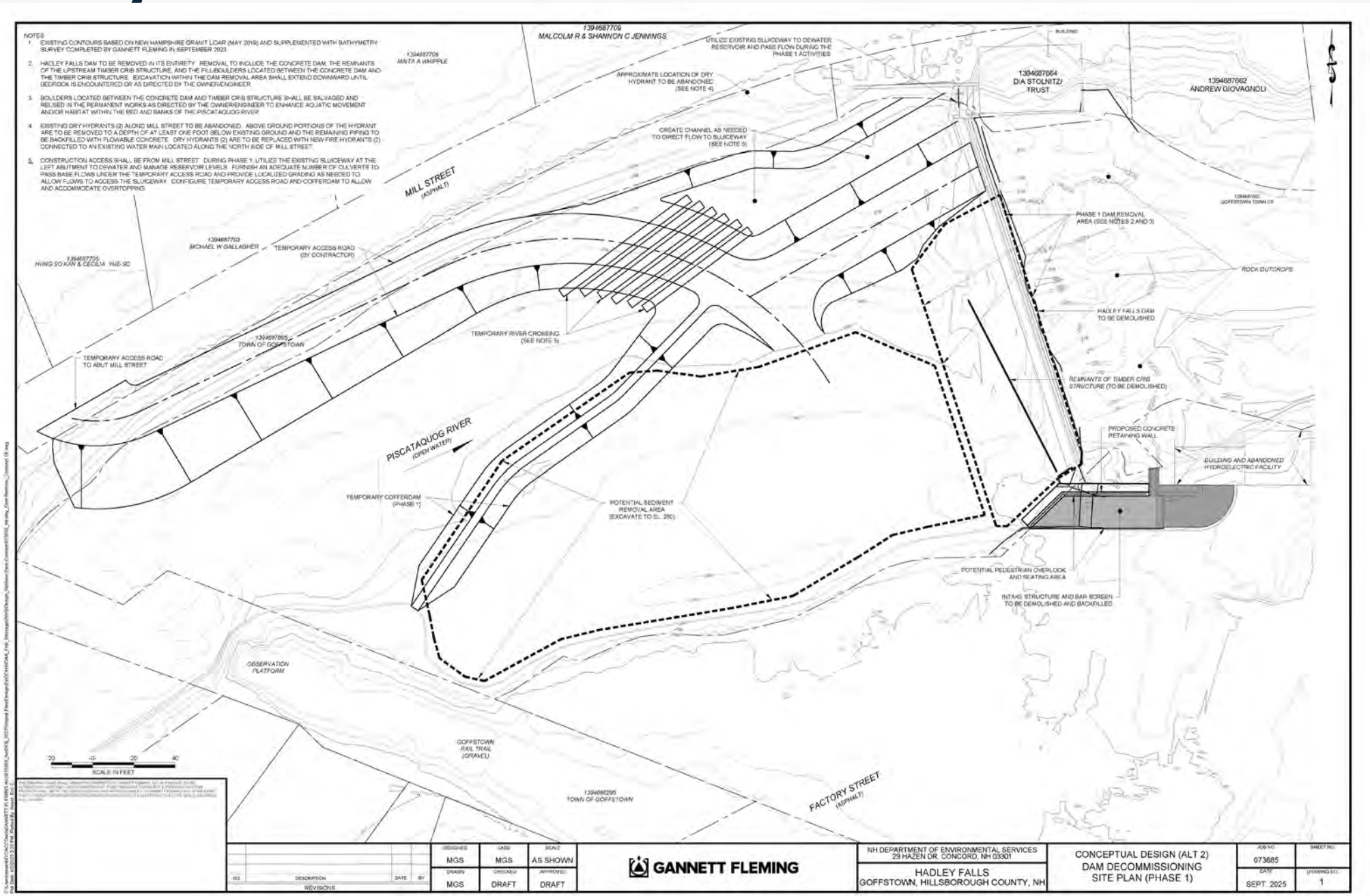

Hadley Falls Dam Removal and River Restoration Project

NOTES:

1. EXISTING CONTOURS BASED ON NEW HAMPSHIRE GRANIT LiDAR (MAY 2019) AND SUPPLEMENTED WITH BATHYMETRY SURVEY COMPLETED BY GANNETT FLEMING IN SEPTEMBER 2023.

2. HADLEY FALLS DAM TO BE REMOVED IN ITS ENTIRETY. REMOVAL TO INCLUDE THE CONCRETE DAM, THE REMNANTS OF THE UPSTREAM TIMBER CRIB STRUCTURE, AND THE FILL/BOULDERS LOCATED BETWEEN THE CONCRETE DAM AND THE TIMBER CRIB STRUCTURE. EXCAVATION WITHIN THE DAM REMOVAL AREA SHALL EXTEND DOWNWARD UNTIL BEDROCK IS ENCOUNTERED OR AS DIRECTED BY THE OWNER/ENGINEER.

3. BOULDERS LOCATED BETWEEN THE CONCRETE DAM AND TIMBER CRIB STRUCTURE SHALL BE SALVAGED AND REUSED IN THE PERMANENT WORKS AS DIRECTED BY THE OWNER/ENGINEER TO ENHANCE AQUATIC MOVEMENT AND/OR HABITAT WITHIN THE BED AND BANKS OF THE PISCATAQUOG RIVER.

4. EXISTING DRY HYDRANTS (2) ALONG MILL STREET TO BE ABANDONED. ABOVE GROUND PORTIONS OF THE HYDRANT ARE TO BE REMOVED TO A DEPTH OF AT LEAST ONE FOOT BELOW EXISTING GROUND AND THE REMAINING PIPING TO BE BACKFILLED WITH FLOWABLE CONCRETE. DRY HYDRANTS (2) ARE TO BE REPLACED WITH NEW FIRE HYDRANTS (2) CONNECTED TO AN EXISTING WATER MAIN LOCATED ALONG THE NORTH SIDE OF MILL STREET.

5. CONSTRUCTION ACCESS SHALL BE FROM MILL STREET. DURING PHASE 1, UTILIZE THE EXISTING SLUICEWAY AT THE LEFT ABUTMENT TO DEWATER AND MANAGE RESERVOIR LEVELS. FURNISH AN ADEQUATE NUMBER OF CULVERTS TO PASS BASE FLOWS UNDER THE TEMPORARY ACCESS ROAD AND PROVIDE LOCALIZED GRADING AS NEEDED TO ALLOW FLOWS TO ACCESS THE SLUICEWAY. CONFIGURE TEMPORARY ACCESS ROAD AND COFFERDAM TO ALLOW AND ACCOMMODATE OVERTOPPING.

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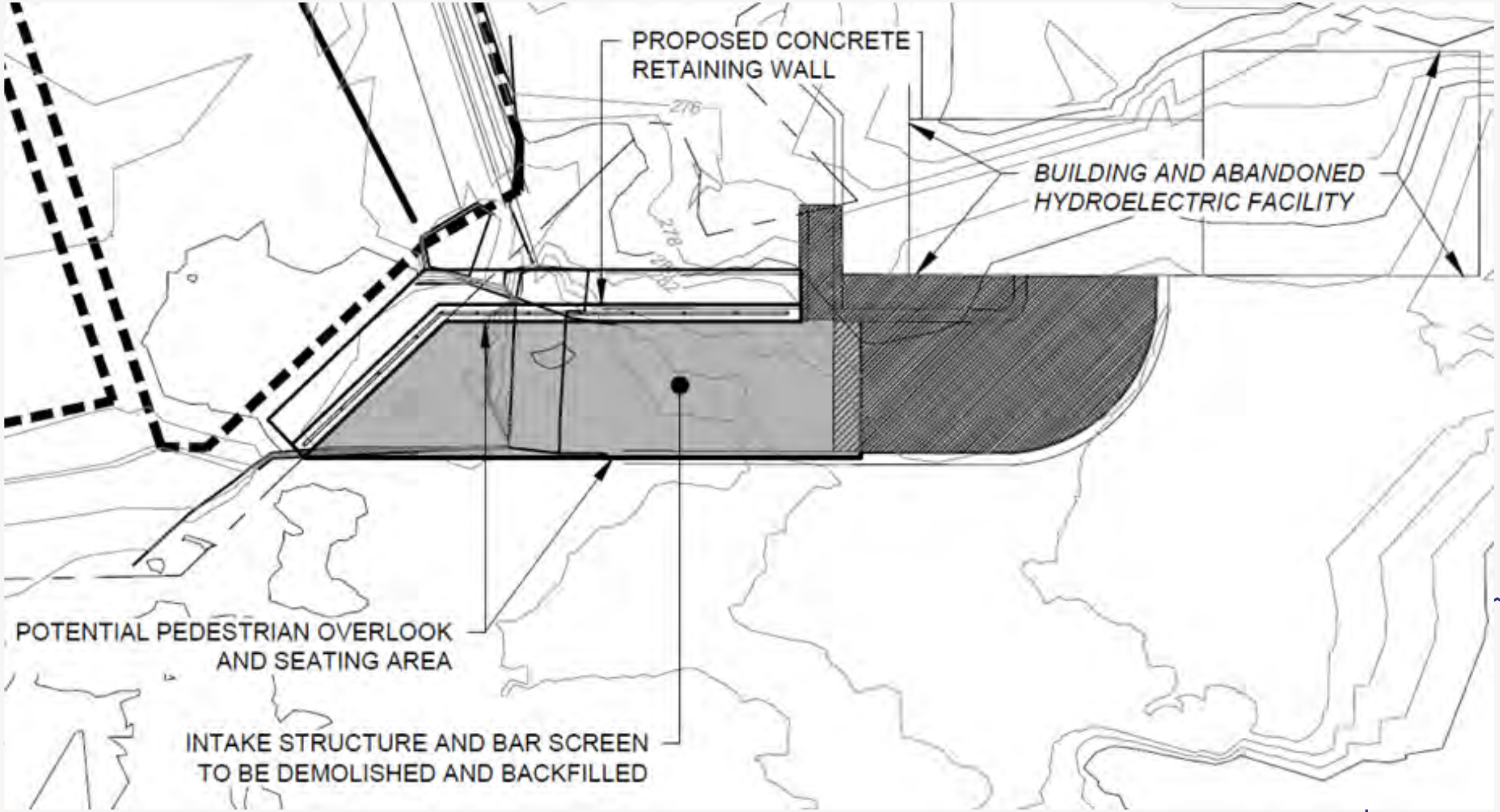

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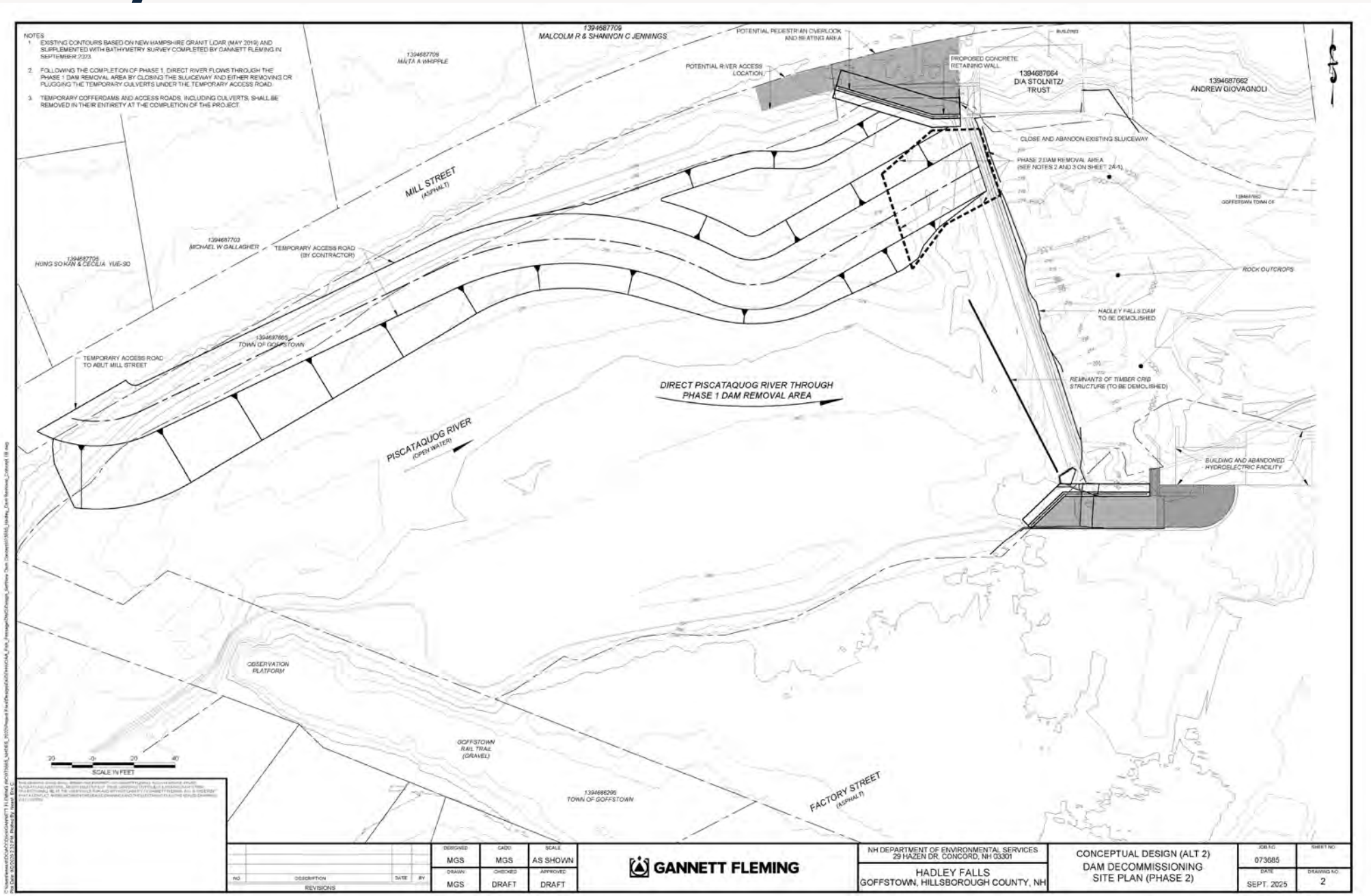

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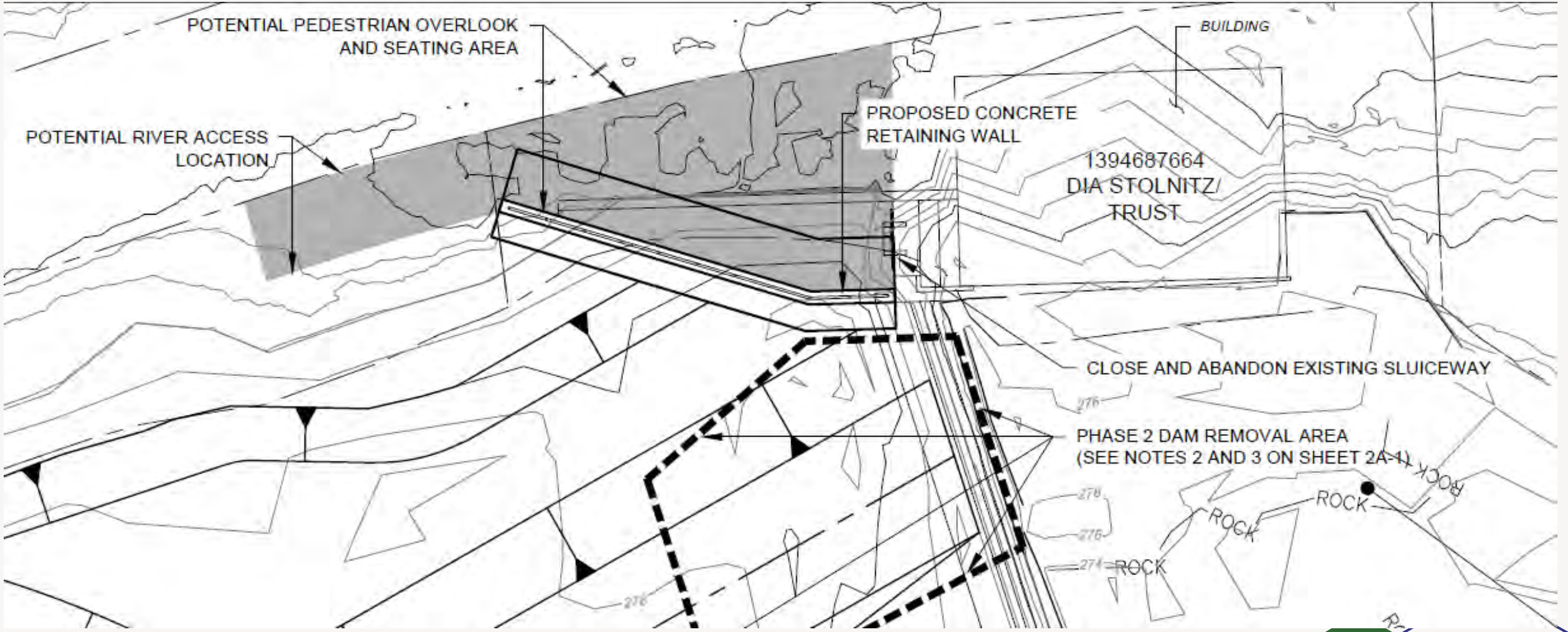

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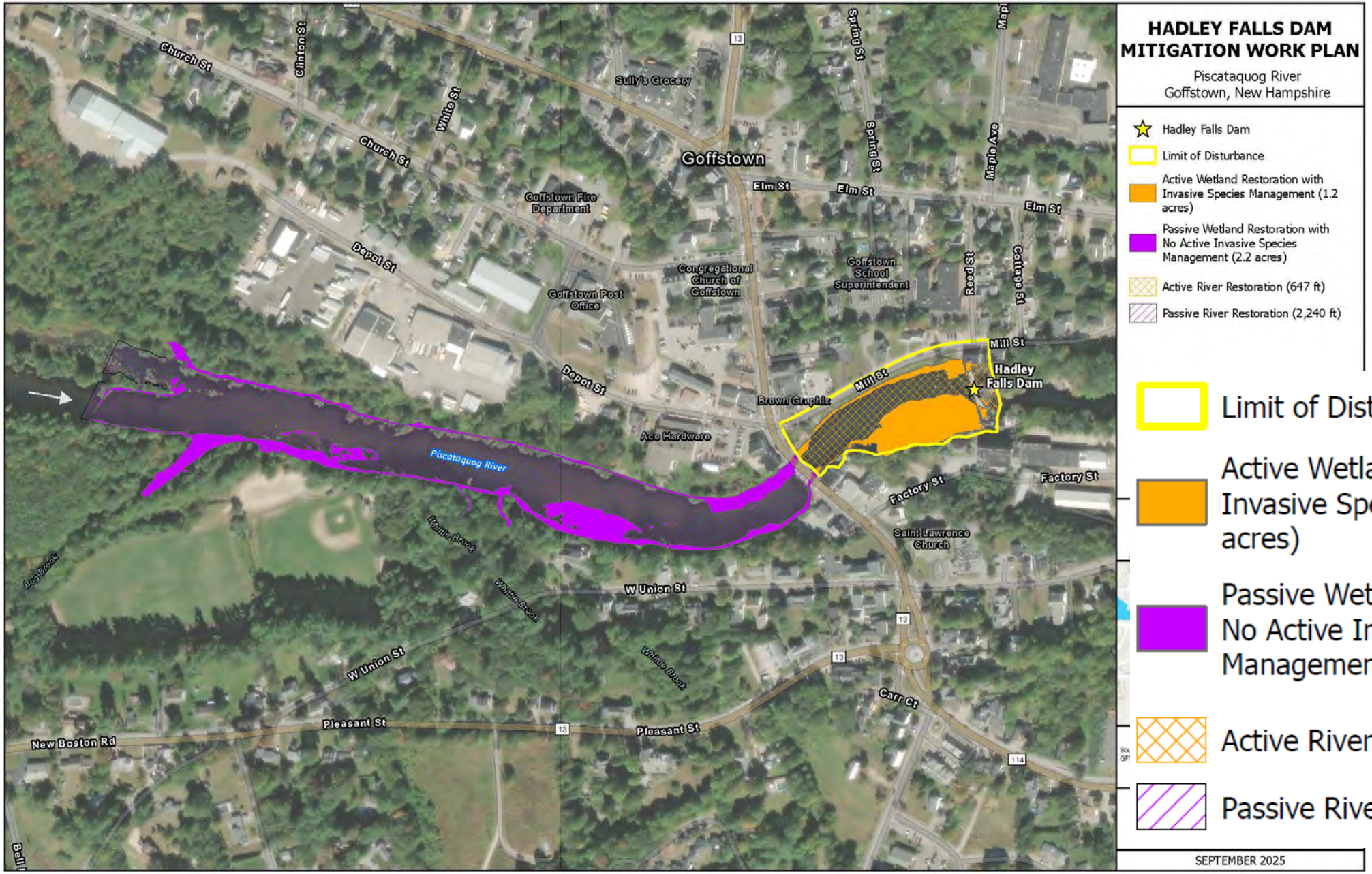


Limit of Disturbance

Active Wetland Restoration with Invasive Species Management (1.2 acres)

Passive Wetland Restoration with No Active Invasive Species Management (2.2 acres)

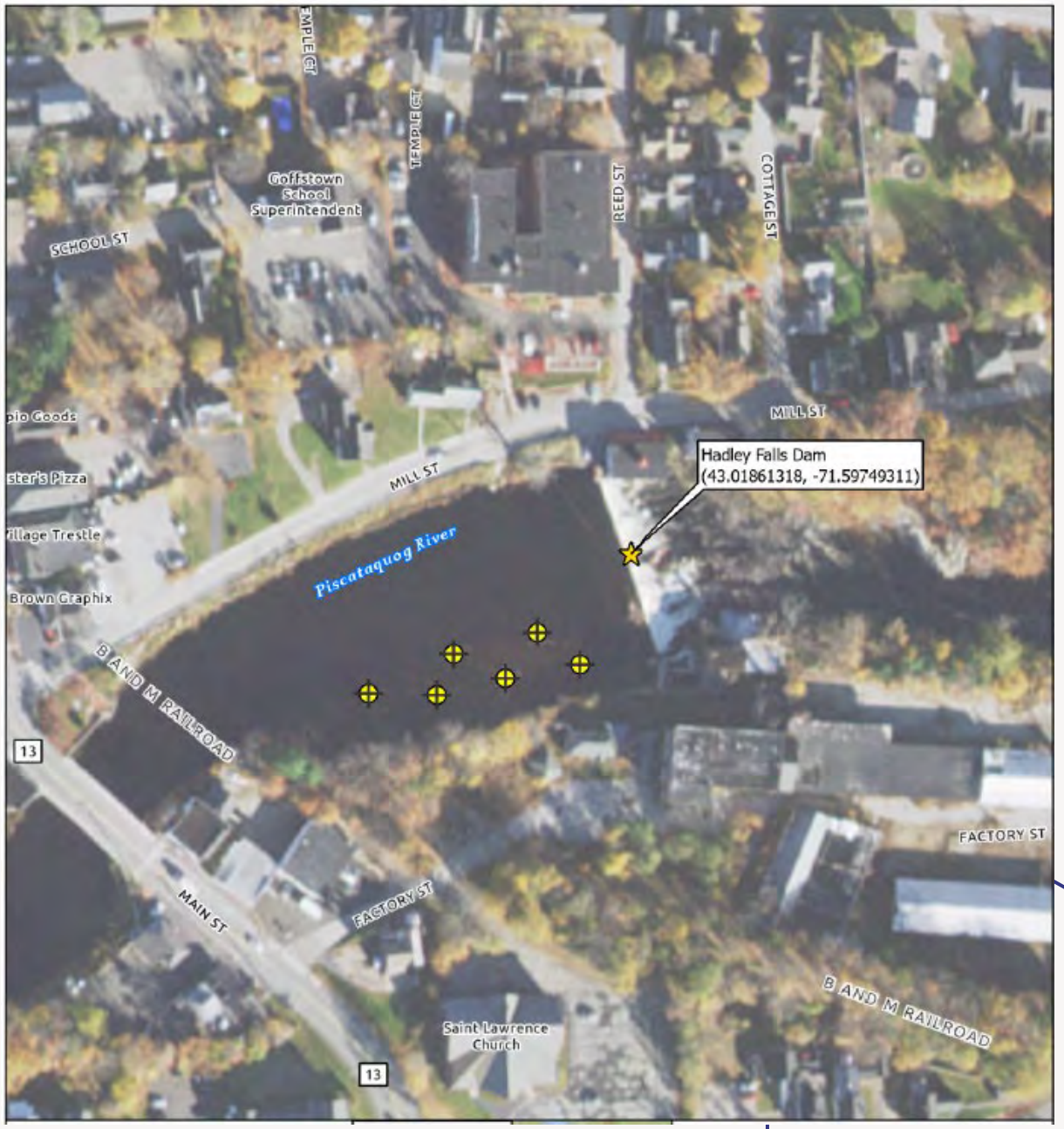
Active River Restoration (647 ft)

Passive River Restoration (2,240 ft)

Hadley Falls Dam Removal and River Restoration Project

Preliminary testing data indicates:

- Arsenic, Barium, Chromium, Lead, and Semi-Volatile Organic Compounds were above Threshold Effect Concentration but below Probable Effect Concentration, indicating some ecological risk.
- If dredged for upland use, arsenic exceeds soil remediation standards but will need to be assessed against background levels; other contaminants are below concern levels for soil standards – human health.
- Constituents are common; options include beneficial reuse evaluation or removal planning.
- Volatile Organic Compounds, PCBs, pesticides, and herbicides were not detected above lab limits.



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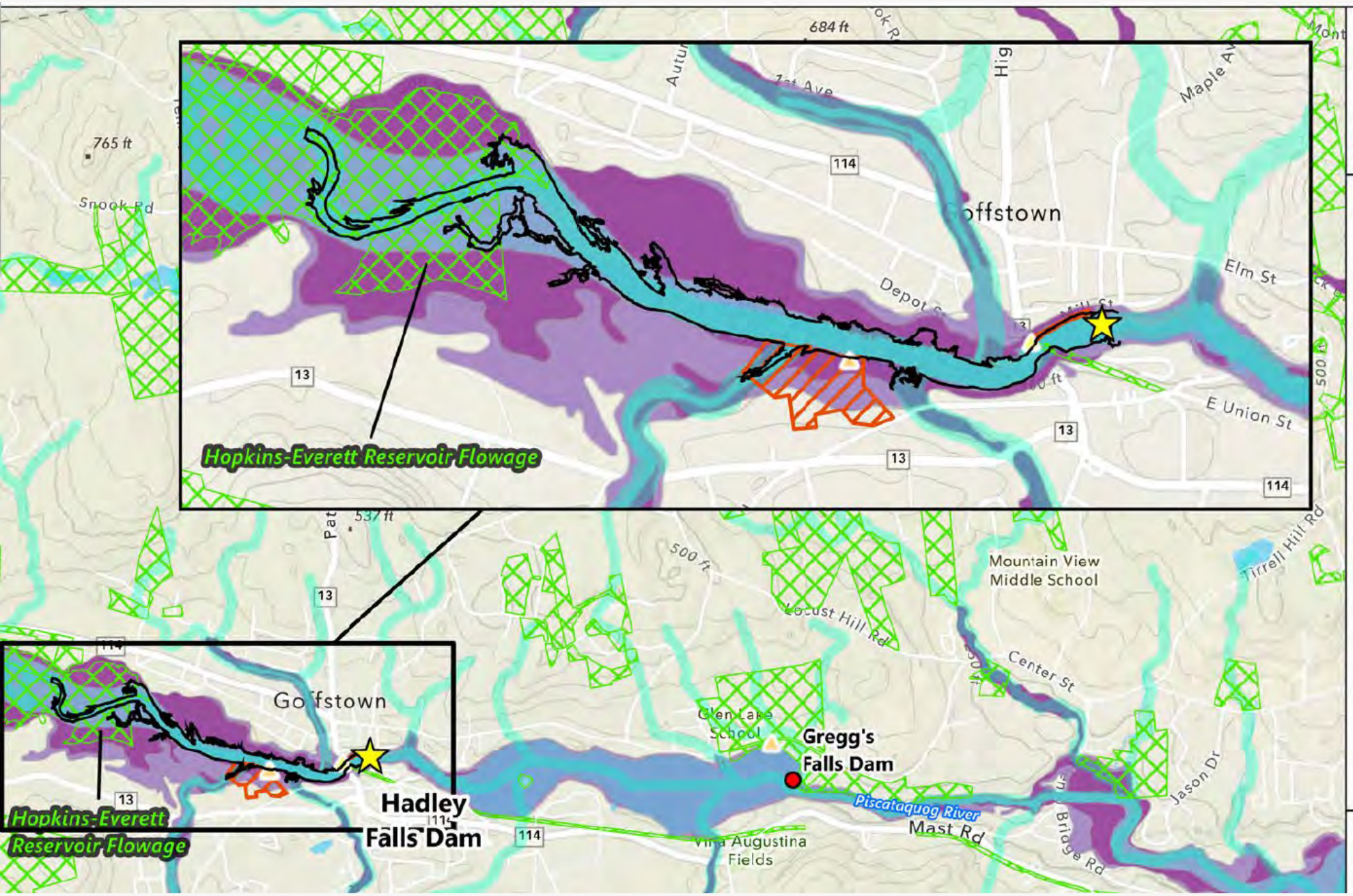

HADLEY FALLS DAM LAND PROTECTION MAP

Piscataquog River
Goffstown, New Hampshire

- Hadley Falls Dam
- NH Dam Sites

Access Sites to Public Waters

- Boat
- Swim
- Other
- Flowage Boundary
- Parks
- Conservation Lands
- Surface Water Buffer 100ft
- 0.2% Annual Chance Flood Hazard
- 1% Annual Chance Flood Hazard
- Regulatory Floodway

N

Feet

0 1,250 2,500 5,000

How many dams have been removed in New Hampshire since 2000?

Approximately 63 dams

Upper Sawyer Mill Dam – Dover – removed in 2020

Lower Sawyer Mill Dam – Dover – 2020

South Branch Gale River Dam – Bethlehem – 2020

Lower Peverly Brook Dam – Newington – 2021

Kimball Brook Dam – North Stratford – 2024

Washburn Mill Dam – Colebrook – 2024

Burnhams Marsh Dike – Pawtuckaway State Park – 2025