
NATURAL RESOURCES INVENTORY

STOW ACRES

Randall Road, Stow, MA

November 2023



Prepared for the Town of Stow, MA
BSC Project No. 99110.00

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1.0 INTRODUCTION

The Town of Stow has embarked upon the development of a Climate Resilience Master Plan for Stow Acres, the Town's largest golf course (36 hole) and its largest undeveloped parcel (See **Figure 1** in **Attachment A**). The Town is working proactively in partnership with a local land trust, housing developer, and golf course owner to chart a future for the entire 300+ acres of the Stow Acres golf course, including support of housing diversity, trails and natural areas, and recreational uses.

Stow Acres is divided into two 18-hole courses by Randall Road, an east-west running residential road. As part of a sweeping effort negotiated with the golf course owners, the 18-holes south of Randall Road will remain an active golf course with a permanent conservation restriction (CR), and the 18-holes north of Randall Road is being divided with a proposed private housing development on the eastern side (approximately one-third of the site). The Town has purchased approximately 110 acres with significant conservation values to support publicly accessible open space and recreation. The Town-purchased portion of the Site, as well as a well-head protection area at the north end of the housing parcel, forms the study area for the Master Plan.

The Site contains riparian corridors along Elizabeth Brook, a variety of wetlands both natural and man-made, scenic views from Randall Road and Gleasondale Road, and presents opportunities for large-scale wetland and upland restoration and projects that will enhance climate resiliency of the property and the Town. This Natural Resources Inventory has been conducted as a baseline assessment of natural resources within the Master Plan Study Area and as an exercise to identify opportunities for projects that will enhance the site's climate resiliency, habitat quality, and natural resources benefits to the citizens of Stow.

2.0 METHODS

The existing site conditions assessment consisted of a desktop review of materials assembled and provided by the Town of Stow including permitting assessments and plans, materials associated with the adjacent proposed housing development site, and publicly available geographic information about the project site. Site visits were also conducted by BSC to assess existing vegetation species and structure, habitat values, wildlife, and the presence of invasive plants. Plant and animal observations have also been contributed by members of the Stow Project Team through iNaturalist and wildlife camera trapping efforts.

2.1 DESKTOP METHODS

The desktop portion of the assessment included review of the following resources, as mapped or provided by their designating entities:

- Rare species habitat, Massachusetts Natural Heritage and Endangered Species Program (NHESP)
- BioMap3, NHESP
- Critical Natural Communities, NHESP
- Massachusetts State Wildlife Action Plan (SWAP) Habitats 2015, Mass Wildlife
- Prime Agricultural Soils, Middlesex County Soil Survey, Natural Resources Conservation Service
- Current and historic aerial photography, Google Earth and other sources

- Wetlands, as mapped by the MA Department of Environmental Protection (DEP) and National Wetlands Inventory (NWI)
- Flood zones, Federal Emergency Management Agency (FEMA)
- Areas of Critical Environmental Concern (ACEC), Department of Conservation and Recreation
- Important Bird Areas (IBA), National Audubon Society (NAS)

2.2 FIELD METHODS

In addition to the desktop review conducted for this inventory, BSC has conducted a series of field visits and collected natural history observations from Town of Stow project partners and publicly accessible data sets to supplement field work. Site visits were conducted by the BSC Ecological and Landscape Architecture team on August 1, 2023 and August 25, 2023. The Stow Conservation Director has provided reports from a number of observers, and a wildlife camera trapping program has been conducted in the summer of 2023. Data collected for this Natural Resources Inventory must be viewed as an initial evaluation and should be used as a starting point for building an understanding of the organisms that are found on and near the site.

3.0 RESULTS

3.1 GIS ASSESSMENT

Massachusetts Geographic Information Systems (MassGIS) data was collected into an ArcGIS Online Project for the Stow Acres Master Plan project. Current and historic aerial photography available on Google Earth and online sources were reviewed. The presence of the resources that are mapped or described by the reference material reviewed for the desktop assessment, are summarized below in Table 1. (See **Figures 1-10** in **Attachment A**)

Table 1: Results of Desktop Resource Review

Resource	Source*	Present/Type	Comments
Rare Species Habitat	NHESP	Not present	Project site is not within mapped Priority Habitat or Estimated Habitat for rare species, as mapped in the current NHESP Rare Species Habitat Atlas (2021). Rare species habitat is identified nearby to the east, within the Assabet River National Wildlife Refuge in Stow, Maynard, Sudbury, and Marlborough. Further to the west, additional rare species Priority and Estimated Habitats are located in Bolton, MA. There are relatively undisturbed corridors between Stow Acres and these rare species habitats.
BioMap Core Habitat	NHESP	Not present	The northern portion of Stow Acres is not within BioMap Core Habitat, but the south course area is within both Core Habitat and Critical Supporting Natural Landscape where the site abuts the Assabet River. Direct hydrological connections link the north

Resource	Source*	Present/Type	Comments
			course Master Plan area to the BioMap habitats mapped along the Assabet River.
BioMap Critical Natural Communities	NHESP	Not Present	The Master Plan study area is not located within a mapped BioMap Critical Natural Landscape, but the south course along the main drainage from the subject site is directly linked to Critical Natural Landscape associated with Core Habitat on the Assabet River.
Massachusetts State Wildlife Action Plan (SWAP) Habitats 2015	MassWildlife	Large and Mid-sized Rivers; Upland Forest; Shrub Swamps; Small Streams; Vernal Pools	The 2015 SWAP identifies 25 habitat types and lists the Species of Greatest Conservation need that depend on each of those habitat types. Stow Acres supports several types of significant habitat listed in the SWAP, and restoration opportunities exist across the site to improve availability of these habitat resources.
Prime Agricultural Soils, Middlesex County Soil Survey	NRCS	Prime Farmland and Farmland of Statewide Importance	The site is largely dominated by Prime Farmland and Farmland of Statewide Importance, with only the Driving Range located outside of these mapped soils. At the north end of the study area, soils are comprised of the Hinckley Series (253B and 253C), with Merrimac (254B) being found across the center of the site. Deerfield loamy fine sand (0 to 3 percent slopes) are surrounded by mucky soils (Swansea and Scarboro series). The Driving Range is predominantly the loamy fine sand Wareham series (32B).
Current and historic aerial photography	Google Earth	1951 - 2018	See discussion of aerial imagery below.
Wetlands	MA DEP, Parcel Specific Delineation	Present	A variety of wetland resources are located on and adjacent to the Master Plan Study Area, including natural riverine wetlands associated with the Elizabeth Brook system at the north end of the Site, natural and manipulated small ponds, wetlands, and streams that have been part of the golf course landscape. An extensive wetland system that is at least partly dominated by beaver activity is located on the western side of the Site and adjacent parcels.
Flood zones	FEMA	Regulatory Floodway, 100-year and 500-year floodplain	The Master Plan Study Area contains Regulatory Floodway and 100-year floodplain (1% Annual Chance of Flood Hazard) polygons associated with Elizabeth Brook at the north end of the Site. A 500-year flood elevation (0.2% Annual Chance of Flood Hazard) covers an extensive portion of the south-western area of the Site, including the Driving Range.
Areas of Critical Environmental Concern (ACEC)	MA DCR	Not present	Project parcel does not lie within mapped ACEC, as indicated by the current data available through MassMapper.
Important Bird Areas (IBA)	NAS	Not present	The Master Plan Study Area is proximal to the Assabet River National Wildlife Refuge Important Bird Area and the 13,816-acre Sudbury/Concord River Valley Important Bird Area.

*Full Organizational names:

NHESP – Natural Heritage and Endangered Species Program

NRCS – Natural resources Conservation Service

MA DEP – Massachusetts Department of Environmental Protection

MA DCR – Massachusetts Department of Conservation and Recreation

NAS – National Audubon Society

3.2 AERIAL IMAGERY

Current and historic aerial photography available on Google Earth and online was reviewed to examine changes in land use and cover type. The earliest aerial photography available was from 1938, showing the Study Area in a mixture of active agricultural fields in approximately the eastern half of the site and the remainder in forest. Dogbone Pond is evident in the 1938 photograph and appears to be a natural pond, just inside the forested tree line adjacent to agricultural fields. Agricultural fields are evident in proximity to Elizabeth Brook north of the Site and approaching Great Road. The Master Plan Study Area is almost entirely forested in 1938. For Historic USGS mapping from 1943 and 1948, please refer to **Figures 5-6 in Attachment A**.

By 1965, the golf course was under construction, and the north portion consisting of all the golf facilities in the Study Area were cut in (See **Figure 4 in Attachment A**). A significant alteration of drainage in the south section of the Study Area around the current Driving Range was made between 1965 and 1971. This created the canal system that drains the pond near the 10th Hole to the north and west and around the Driving Range, defining the dogleg of the 11th Hole.

The site has remained largely unchanged since the early 1970s and appears to have been maintained in its existing condition since that time with little change evident.

3.3 LANDSCAPE SETTING

Open Space

At the landscape scale, Stow Acres Country Club is situated within a rich mosaic of protected open space, with large blocks of land protected by the federal government (Assabet River National Wildlife Refuge), the Division of Conservation and Recreation (Delaney Flood Control Site and state forest parcels), and municipal and land trust properties. Major thoroughfares including Routes 62 and 117 present barriers to migration for all but the largest and most mobile wildlife and plants. The Route 495 corridor presents a functional barrier to the west. The mosaic of protected open space is notable in the project vicinity, with the dense network of local roads and residential streets being typical of the densely populated eastern part of Massachusetts.

Resiliency

The Nature Conservancy's Ecological Resilience Mapping tool identifies Stow Acres as a "Developed" landscape with a poor resiliency score and estimated to be vulnerable to climate change and other factors. Eastern Massachusetts is a densely populated region of the state, highly bisected by roads, infrastructure, housing developments, and other hard-scape elements. The overall context of the Study Area and extent of wetlands, along with relatively lightly developed corridors between protected open space blocks noted above, should improve the overall resiliency of the Site (See **Figures 7-8 in Attachment A**).

3.4 SOILS

The Site is dominated by soils that are designated as Prime Farmland (Merrimac 254B) and Farmland of Statewide Importance (Deerfield 256A, Hinckley 253B, and Hinckley 253C). The wetland system connecting the North Course to the South Course is mapped as Scarboro mucky fine sandy loam (Scarboro 6A) and the Driving Range is primarily classified as Wareham loamy fine sand (Wareham 32B) with Swansea muck (Swansea 51A) associated with the canal system defining the northern extent of the Driving Range Study Area. Freetown muck is also mapped under the wetland system on the west side of the Study Area (See **Figure 9** in **Attachment A**).

Additional wetland soils comprised of Scarboro mucky fine sandy loam (Scarboro 6A) and Freetown muck (Freetown 52A) underlie the wetlands associated with Elizabeth Brook at the north end of the Master Plan.

The wetland soils classifications associated with the Driving Range area coincide closely to the 500-year FEMA Floodplain and present excellent opportunities for wetland restoration and creation on the Site.

3.5 VEGETATION

The Master Plan Study Area is primarily composed of open fairways, sand traps, and wooded strips separating individual golf holes. Wooded strips and other vegetated areas on the Site are dominated by Eastern White Pine (*Pinus strobus*), with a mixture of deciduous tree canopy. Shrub and understory development varies across the Site but are composed of typical species of southern New England.

BSC has not undertaken a comprehensive inventory of plants during our 2023 site work. An iNaturalist collection project has been established by the Stow Acres Master Plan team and will become a standing record of species documented on the Site over time. This presents an excellent opportunity for community engagement around natural history observation and recording.

Invasive species

Invasive plants are a common problem throughout the Sudbury-Assabet-Concord River Watershed and initial site work has confirmed the presence of many of the typical invasive plants known to be present in the watershed. A comprehensive invasive species inventory of species listed as invasive by MDAR was conducted for the Site in September 2023 and was incorporated into the Master Planning process, including an Invasive Species Management Plan with general recommendations and strategies for addressing invasive plants.

Results of the invasive mapping effort have been collected in an on-line ArcGIS web viewer and are presented in **Figure 10** in **Attachment A**.

3.6 WETLANDS

The Master Plan Study Area has a variety of wetland resources including natural and man-made ponds, vernal pools, open water ponds and riverine habitats, canals, and freshwater forested, scrub-shrub, and

emergent wetlands. Wetland resources associated with the Elizabeth Brook system at the north end of the Site include the 100-year floodplain and Regulatory Floodway. A FEMA 500-year floodplain is identified in association with the main drainage that flows from beaver-impacted wetlands at the south-western edge of the Site, under Randall Road and through the South Course, ultimately reaching the Assabet River system (See **Figures 2-3** in **Attachment A**).

A formal delineation of wetland resources has not been conducted in the initial Natural Resources Inventory phase of this project, but recent delineations that have been conducted around the Driving Range and on the eastern portion of the Site for the proposed housing development are included in the data collection that informs this assessment.

The Driving Range is located at the south-west corner of the Site which is bound to the west by a wooded swamp that is actively maintained by beaver (*Castor canadensis*). A series of dug canals and natural stream flowage drains a large man-made pond in the south of the Study Area. This connects with the beaver wetland and drains southward under Randall Road through the center of the 18-hole golf course south of Randall Road, ultimately connecting with the Assabet River and its floodplain wetlands north of Orchard Hill in Stow.

A water hazard known as “Dogbone Pond,” is a natural pond that has been incorporated into the course since its earliest development. Another small water hazard occurs at the northwestern most portion of the Site. During BSC’s August site visit, the latter pond was observed to be heavily vegetated with duckweed (*Lemna* spp), which may indicate potential issues with nutrient loading that may need to be addressed in future management plans for the Site.

A natural vernal pool depression occurs just outside of the 14th Hole fairway. Standing water was observed at the beginning of August, which may indicate a pool of comparatively long hydroperiod. It is noted, however, that 2023 has experienced an exceptionally wet growing season. The Stow Conservation Director has set camera traps in the vicinity of the vernal pool.

At the north of the Site, a watershed divide occurs, shedding northward to the Elizabeth Brook wetlands and stream. There are extensive emergent marshes, scrub-shrub swamps, and a forested wetland fringe in this area. The Elizabeth Brook wetlands southward of Dogbone Pond are part of the housing parcel, but are included in the Master Plan Study Area. Some limited opportunities for Town related projects exist within this portion of the Site.

3.7 WILDLIFE

Wildlife have been identified on the Site by direct observation, call, track and sign, an on-going wildlife camera trap program, and through an evaluation of iNaturalist data. The species recorded are typical of suburban ecosystems with no particular surprises. There is a variety of plants that provide important food for wildlife, especially in the wetlands and wetland fringes where native berry-producing shrubs are abundant.

Woody debris of various size, state of decay, and density, as well as large and medium sized boulders that could serve as cover for insects, mammals, reptiles, and amphibians are common across the Site and can be a focus for enhancement of wildlife habitat value. In-depth investigation of woody debris and moveable

rocks was not conducted extensively during site visits. However, reptiles including snakes and turtles could occur on the Site. Various insect species were observed, including dragonflies (most notably *Epiplatys cynosura*), moths, and bees. Concerted biological inventory could result in significant advancement of wildlife species observations on the Site.

No state-listed rare wildlife was observed and there is no mapped Estimated or Priority Habitat from the Natural Heritage & Endangered Species Program identified on the Site, indicating that there are no known current (less than 25 years old) records of state-listed rare plant or animal species in the vicinity of the project site. Priority and Estimated Habitats, as well as BioMap3 Core Habitat and Critical Natural Landscape occur south of the Site on the Assabet River wetlands that are fed by the Site, as described above, and also to the east at the Assabet River National Wildlife Refuge. There are potential corridors connecting these features to the Site, which should be considered in landscape scale planning efforts.

4.0 RECOMMENDATIONS

For visual representations of proposed restoration projects, please refer to **Attachment B**.

Restoration Principles and Goals

The following overarching goals have been identified during the development of the Natural Resources Inventory for the Stow Acres Master Plan:

- Promote ecological climate resilience
- Improve & support biodiversity
- Restore connectivity (hydrologic connectivity/sinuosity of streams; forest connectivity)
- Protect & restore ecosystem carbon
- Improve water quality across the site
- Restore the natural chemical environment (i.e. avoid/minimize toxic pesticides/herbicides to extent possible, avoid use of disposable plastics, minimize pollutant inputs, clean up/address any residual pollutants, and address water/air quality)
- Implement natural/sustainable invasive species management
- Establish a citizen science monitoring program for long term monitoring of the ecological restoration and health of the site

General Strategies & Approaches for Achieving Restoration Goals

Irrigation and Drainage

Management of golf courses typically involves significant manipulation of water. Irrigation is critical to maintaining fairways and greens, and drainage is necessary to ensure playability of a course. BSC has been unable to determine the location, type, or extent of irrigation and drainage infrastructure within the Stow Acres Master Plan Study Area, but it is expected that the cessation of active golf course management will result in significant changes to the hydrology of the Site. Further complicating this question is the anticipated water withdrawal associated with the large housing development currently in permitting on

the eastern side of the Stow Acres northern course. Predicting future hydrological conditions across the Site is challenging at best.

Any information pertaining to the monthly and/or annual water management practices of the Stow Acres Golf Course could be informative.

BSC recommends further research into existing irrigation and drainage features of the Site, including conducting interviews with long-serving staff and patrons.

- Hydrology will change when drain tiles in greens are abandoned and irrigation system is disconnected. Observe how site hydrology transitions through at least one normal rainfall year, if possible. Allow planning time to adjust plans based on potentially significant hydrologic changes on the site.
- Identify and map the springs on the property and integrate into site planning.
- Obtain any existing maps, historical aerial photos, and local knowledge about where drain tiles, culverted channels, filled wetlands, and altered hydrologic features exist. These will likely want to be reverted to wetlands and waterways.
- Develop two preliminary plans, one for a high water/ponding scenario and one for low water wetland with vernal pool pockets.

Wetlands and Habitat Quality and Resiliency

- Restore/increase stream sinuosity.
- Reconnect streams to floodplains.
- Remove fill from prior wetlands and floodplains.
- Restore wetlands.
- Plant shade-producing species (especially trees) along streams and ponds that are exposed to sun to increase resilience to warming temperatures and to cool waterways.
- Selective restructuring of canal banks to increase habitat diversity where more extreme intervention would compromise mature trees.
- Investigate whether any of the existing ponds can become vernal pools.
- Conduct water quality testing prior to, during, and following any restoration activities to monitor changes.

Vegetation Management

BSC recommends determining current practices for plant management and aquatic vegetation management to inform the development of strategies that meet community needs and expectations. Invasive plant management is being proposed in an adaptive Invasive Species Management plan. This plan can be responsive to existing management practices if better understood.

Forest health and diversity can be improved by the following practices:

- Minimize tree cutting.
- Protect large trees.
- Restore shrub and herb layers to forested areas where shrub and herb layers have been cleared, removed, or degraded.

- Plant diversity of tree species that will adapt well to changing climatic conditions and resist pests and diseases.
- Plant pocket forest islands in existing fairways to create stepping stones between forested areas. These forest islands will expand and connect to the existing forests over time.
- Tree/vegetation selection should increase species diversity, and climate resilience. Use species that are pre-adapted to expected conditions (i.e., Mid-Atlantic).
- Consider storm-adapted trees such as Tupelo.
- Oaks have high wildlife value, and their southern species are well adapted to warmer/wetter conditions.
- Plan species succession as buffer to mitigate invasive species (plan species guilds by soil/exposure).
- Install deer exclusion fence areas for species establishment/diversification.

To promote the development of meadows and the biodiversity supported by these habitats, BSC recommends:

- Convert turf areas to pollinator meadows.
- Plan species guilds by soil/exposure.
- Install deer exclusion fence areas for species establishment/ diversification.
- For dry meadows, develop a fire management program or timed mowings.

Wildlife

The promotion of biodiverse wildlife populations across the Site should be a primary goal of future work on the Stow Acres property. BSC recommends:

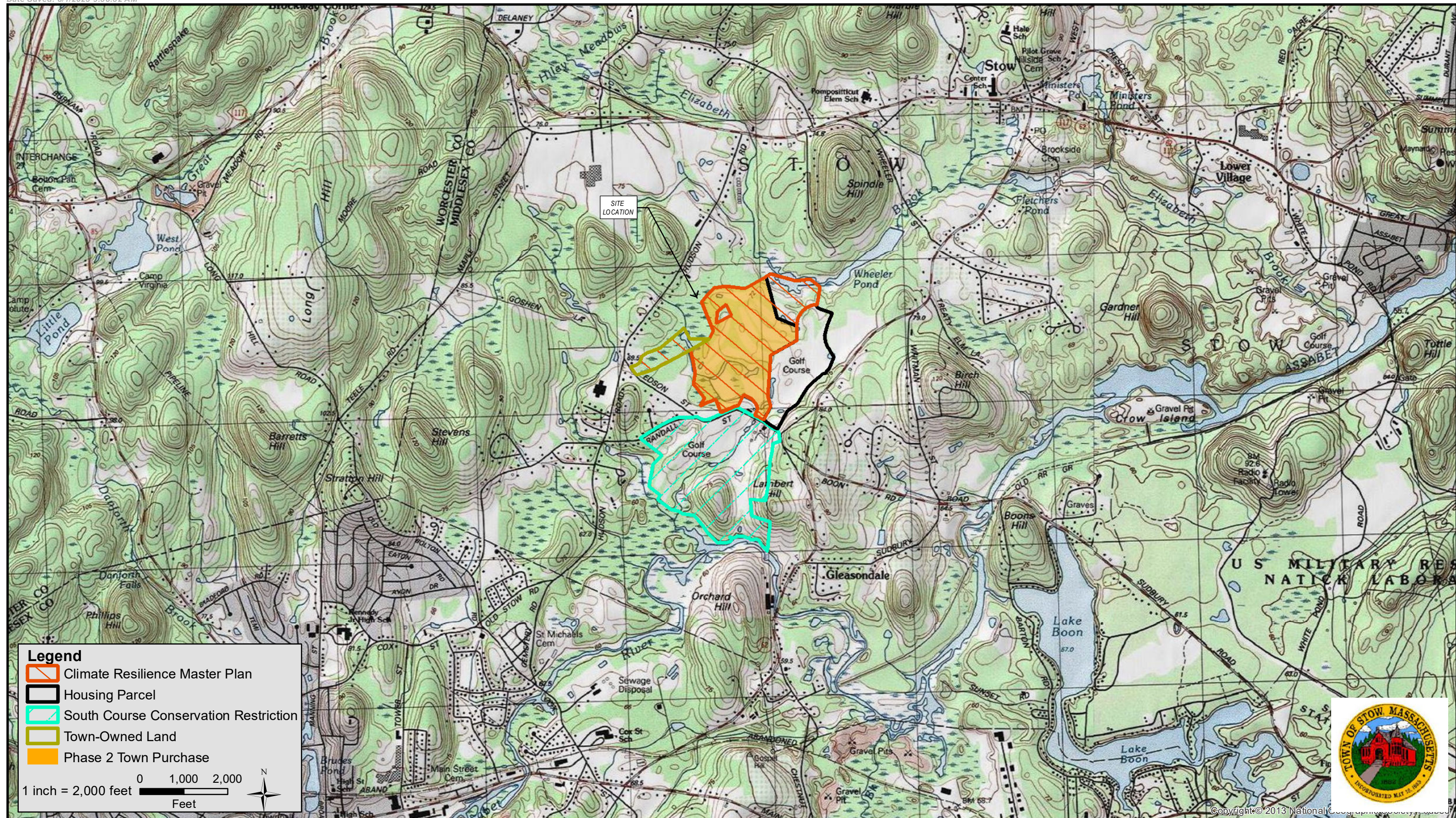
- Convert sand traps to turtle nesting sites or enhance/protect existing turtle nesting sites in sand traps.
- Add bat boxes where appropriate.
- Create bird nesting habitat, including rookery island(s) in pond(s).
- Investigate whether any of the existing ponds can become vernal pools.
- Coordinate head-start turtle releases with schools if the Natural Heritage & Endangered Species Program approves.
- Conduct fish surveys before and after ecological restoration.

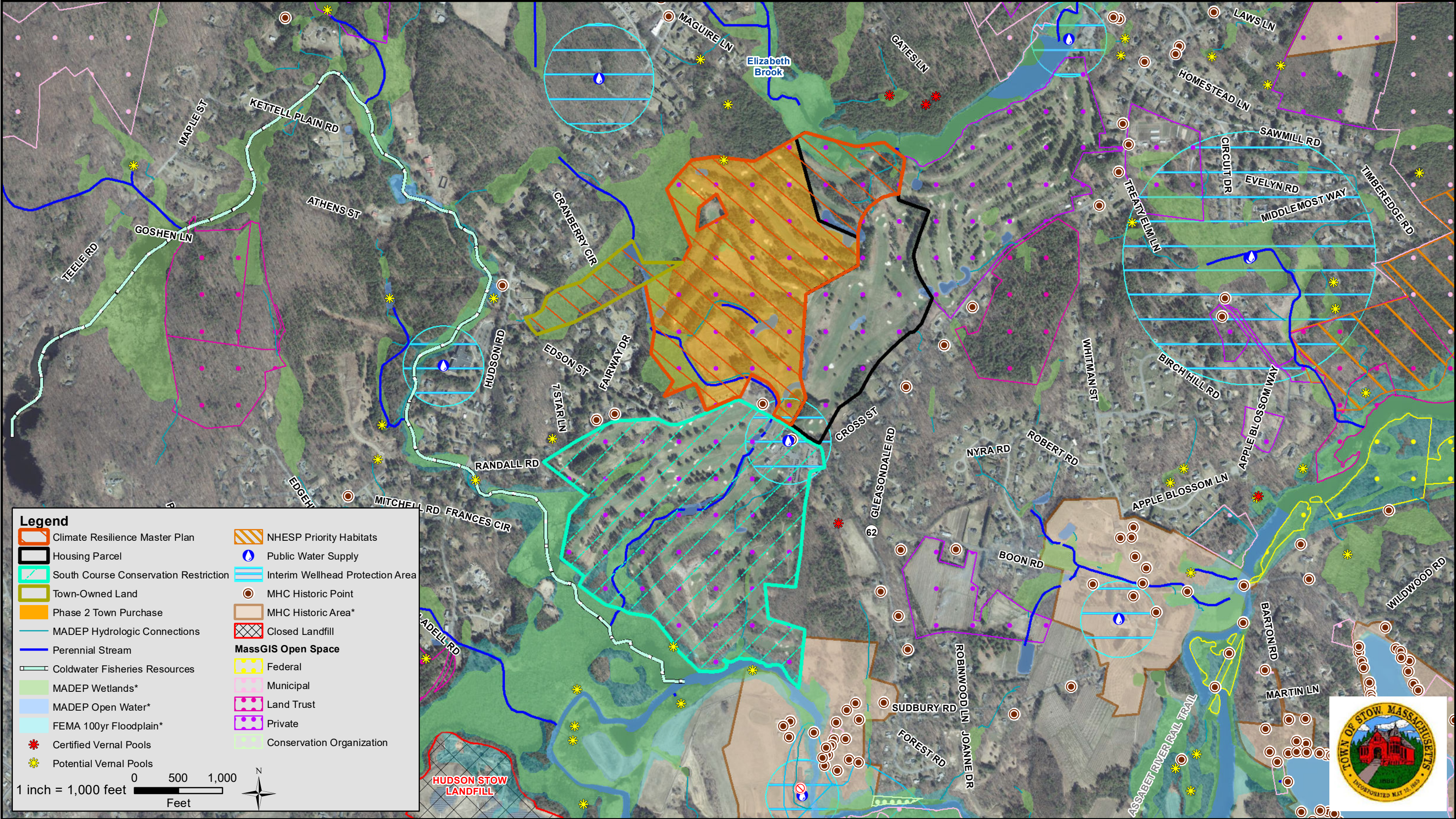
Specific Localized Site Recommendations

Focus Area	Recommendation
Elizabeth Brook	<ul style="list-style-type: none"> • Create additional floodplain capacity to expand flood storage capacity of Elizabeth Brook. • Floodplain and bordering vegetated wetlands represent a potential Blanding's Turtle head-start introduction site. • Redirect water courses within the Stow Acres Master Plan area northward to Elizabeth Brook to reduce impacts to 500-year floodplain connected to the Assabet River through south course.
Golf Course Fairways	<ul style="list-style-type: none"> • Reforest fairways based on long-term forest type goals (develop map to show specific locations).
Driving Range	<ul style="list-style-type: none"> • Retain parking lot for Conservation Land access. • Consider EV charging stations. • No Active Recreation at driving range. • Stream courses in the vicinity of the driving range should be enhanced with increased stream sinuosity with daylighted culvert segments. • Avoid disturbance of beaver dam. • The driving range presents opportunities to build vernal pools. • Restore wetland functions.
Pond at Northwest Corner	<ul style="list-style-type: none"> • Plant trees around edges to create shade. • Create rookery island.
Canal System	<ul style="list-style-type: none"> • Introduce sinuosity to canals. • Consider strategic filling of canals.
Water Hazards	<ul style="list-style-type: none"> • Restore/create bordering wetland fringes. • Create/convert to vernal pool habitat.

ATTACHMENT A

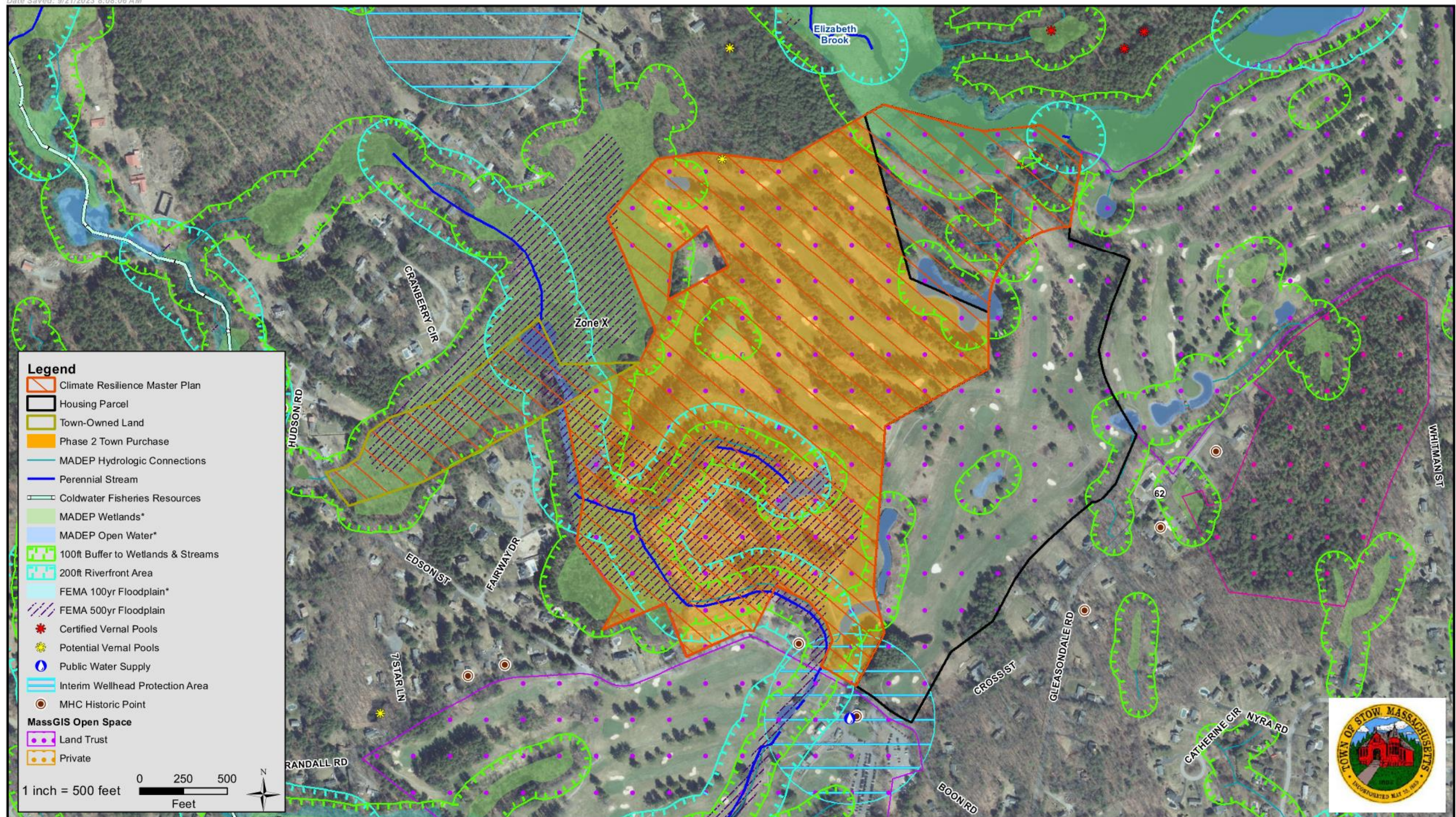
Figures



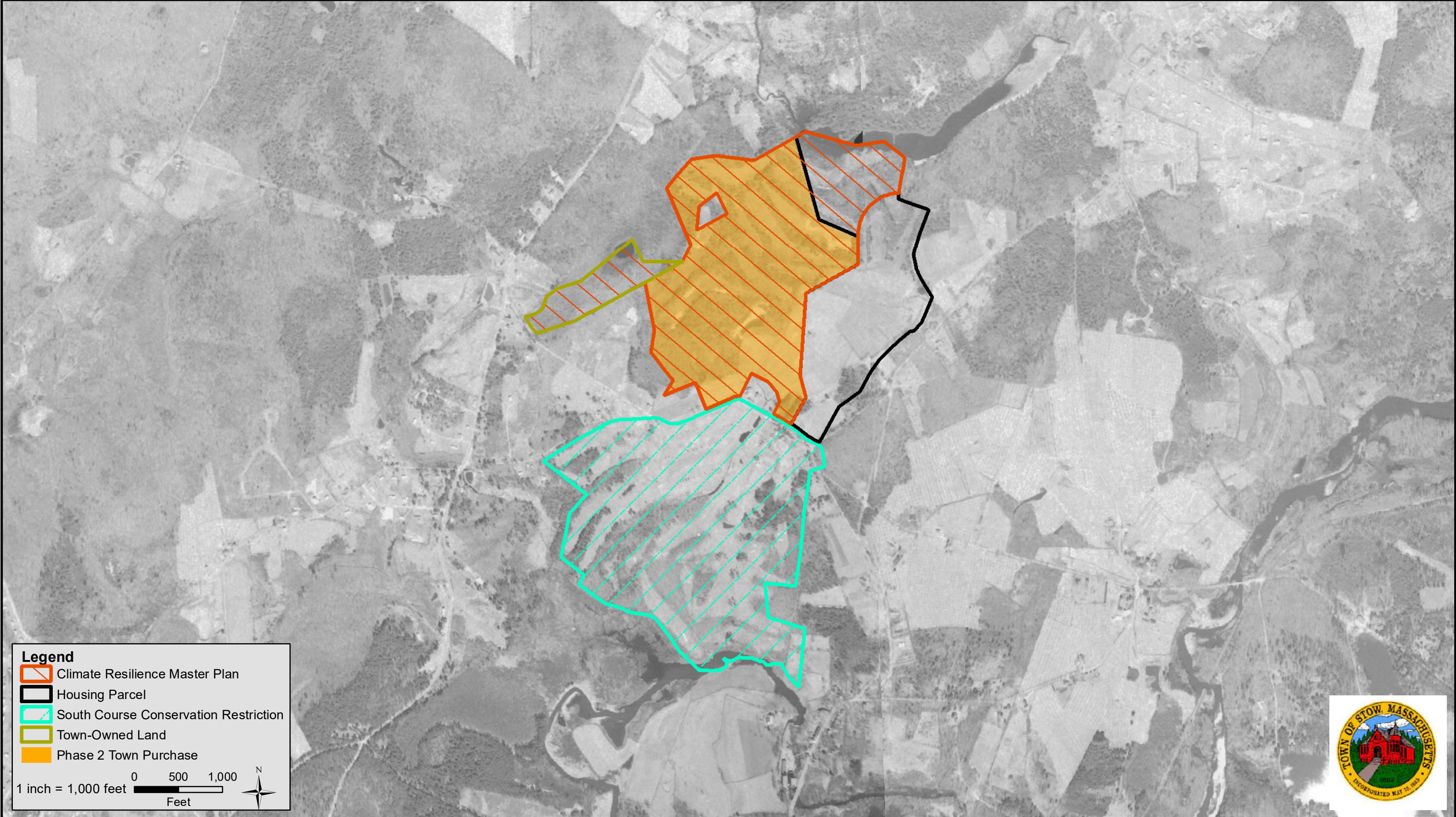


STOW ACRES MASTER PLAN



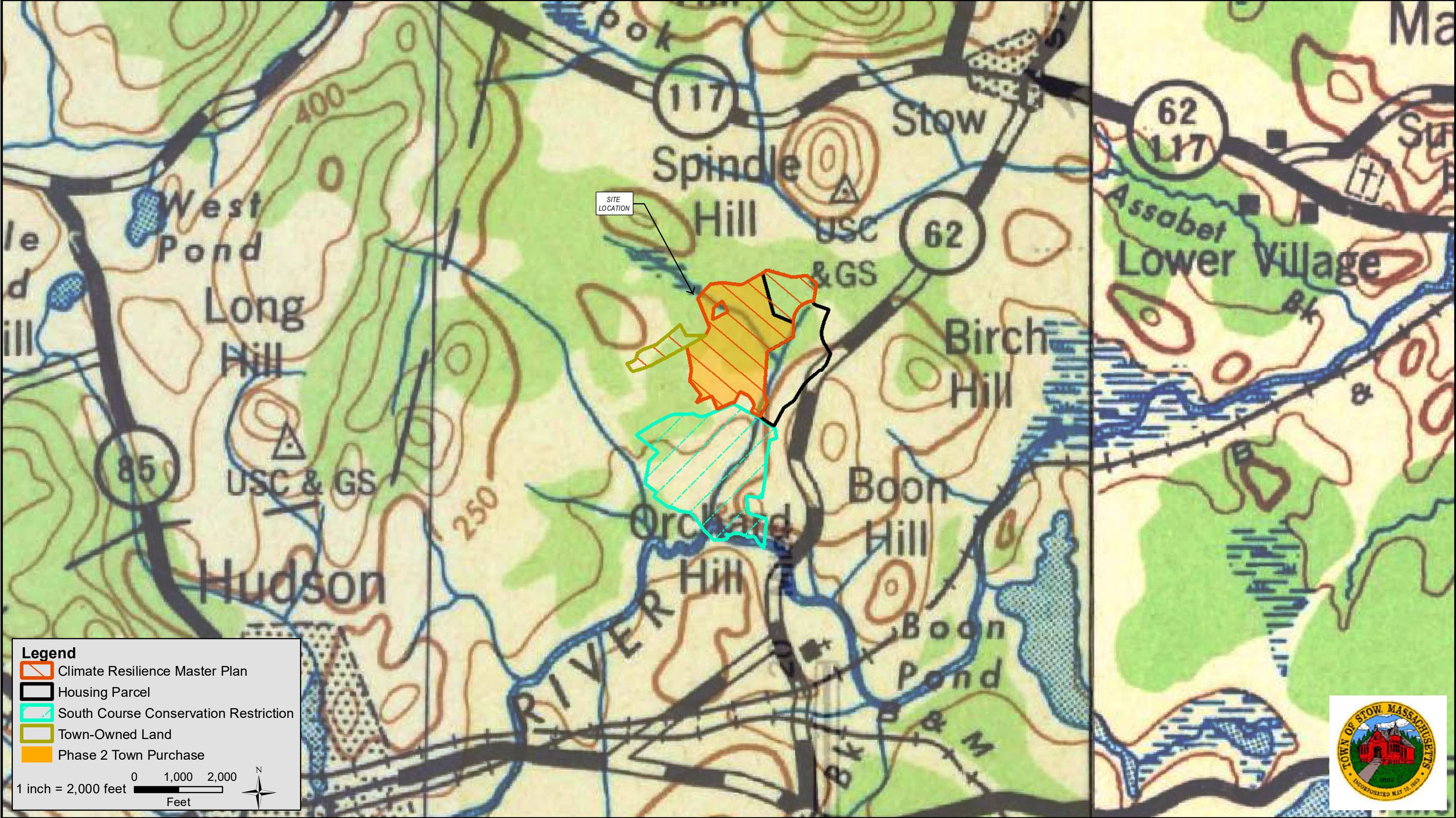


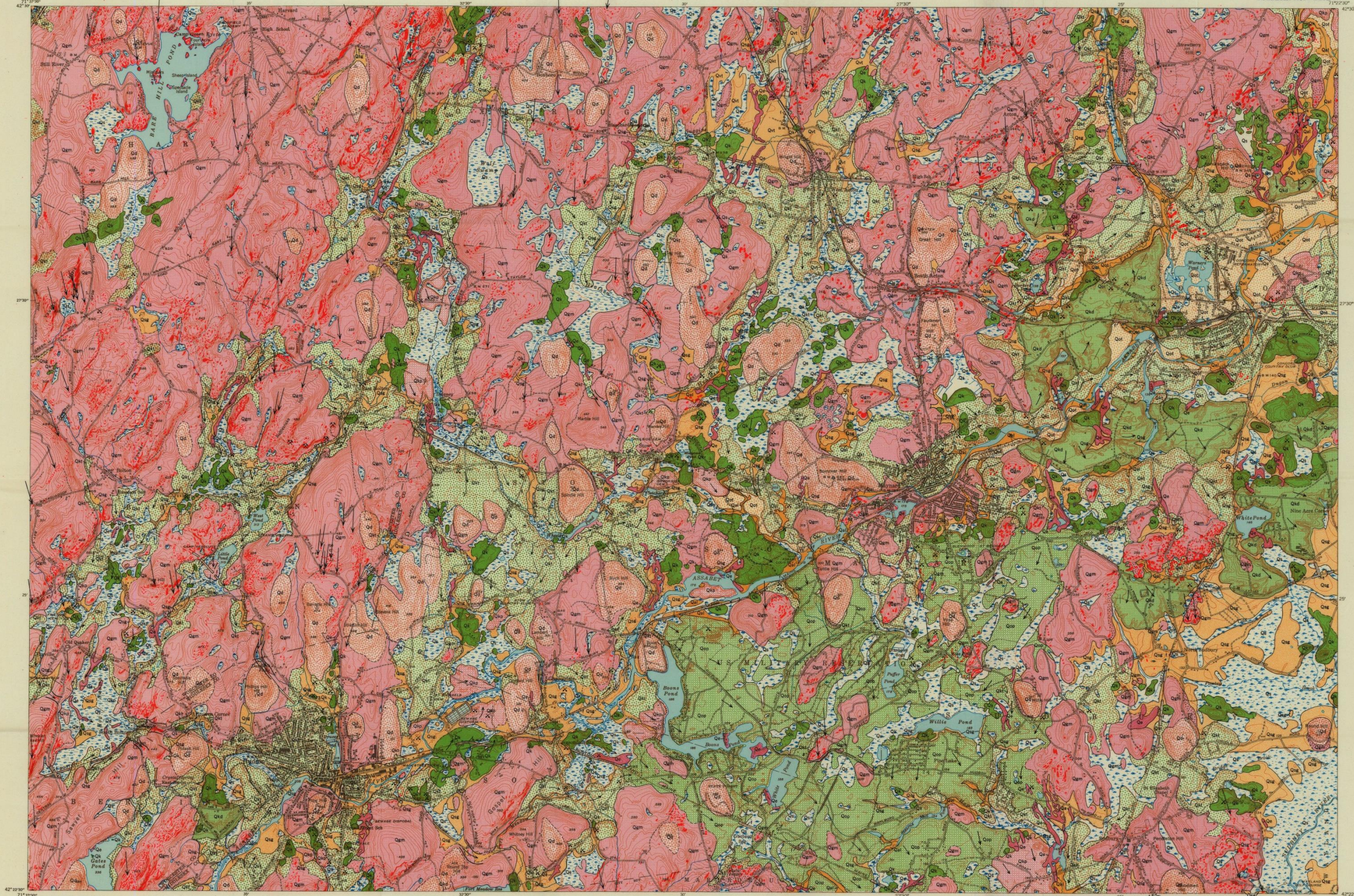
STOW ACRES MASTER PLAN



STOW ACRES MASTER PLAN







EXPLANATION

Recent

- Artificial fill**
Chiefly along highways and railroad embankments
- Alluvium**
Sand, silt, and fine gravel. Includes flood plains of Assabetz River, Fort Pond Brook, and Nashua Brook in Maynard quadrangle, and locally, accumulations of colluvial wash. Unsuperficial in Hudson quadrangle
- Swamps**
Mostly sand and silt, some peat. Deposited probably in part by late glacial indicators
- Sand and gravel**
Chiefly deposits of fine gravel, sand, and silt without distinctive morphology. Deposition includes late glacial deposits in ice-block areas and some low unconsolidated sand terraces above swamp levels. Lake-bottom deposits are included in the Lake Stubbins area
- Outwash terraces**
Terraces formed by stream entrenchment of valley trains
- Valley trains**
Late glacial sands and fine gravels confined by valley walls
- Kame terraces**
Sands and gravels, commonly well stratified; deposited by melt water between stagnant ice masses and uplands or valley walls, characterized by well-sorted ice-contact slopes
- Kames and kame fields**
Irregular mounds or hills of mixed sands and gravels, commonly poorly sorted, enclosed by ice-contact slopes. Commonly display collapse structures. Groups of several closely spaced or interpenetrating kames are called kame fields
- Kame deltas**
Deposited in temporary ice impounded lakes or islands. These landward or lakeward of ice margins. Commonly contain well-defined gravelly top-sets and sandy forested beds. In Lake Stubbins area kame deltas were not all formed contemporaneously but, rather, progressively from south to north
- Outwash plains**
Broad plains of well-sorted sand and gravel bounded on the north by ice-contact slopes. Characterized by many sources, ponds, and other closed depressions
- Kame plains**
Flat-topped deposits of well-sorted sands and gravels surrounded by ice-contact slopes
- Ice-channel fillings**
Include eskers and crevasse fillings. Elongated ridges, chiefly of mixed sand and gravel, deposited in marginal, terminal or in open, ice-enclosed channels. Characterized generally by well stratification and extreme range of grain size. Commonly display collapse structure
- Ground moraine**
Broad, relatively thin accumulations of till characterized mostly by gentle, undulatory relief that reflects a broad measure the shape of the underlying bedrock surface. Locally is hummocky. Composed of unsorted rock fragments of all sizes from minute particles to large boulders. Fragments mostly angular. Shifting indicates thin veneer of sand or gravel
- Drumlins**
Oval or elongated rounded hills of till. Similar in composition to ground moraine

Platiceous

- Bedrock outcrops**
- Geologic boundary**
Dashed where gradational or approximately located
- Boundary separating two deposits of stratified drift of similar genesis but of slightly different age**
For example, a high-level kame terrace adjoining a lower level kame terrace
- Bearing of glacial striae on bedrock outcrops**
Point of arrow indicates place of observation
- Generalized directions of glacial melt-water drainage**
- Gaps or cols to which melt-water streams were graded**
- Quarry**
- Sand or gravel pit**

QUATERNARY

MAP SHOWING SURFICIAL GEOLOGY OF THE HUDSON AND MAYNARD QUADRANGLES, MASSACHUSETTS

Scale 1:81,680

1 0 2 Miles

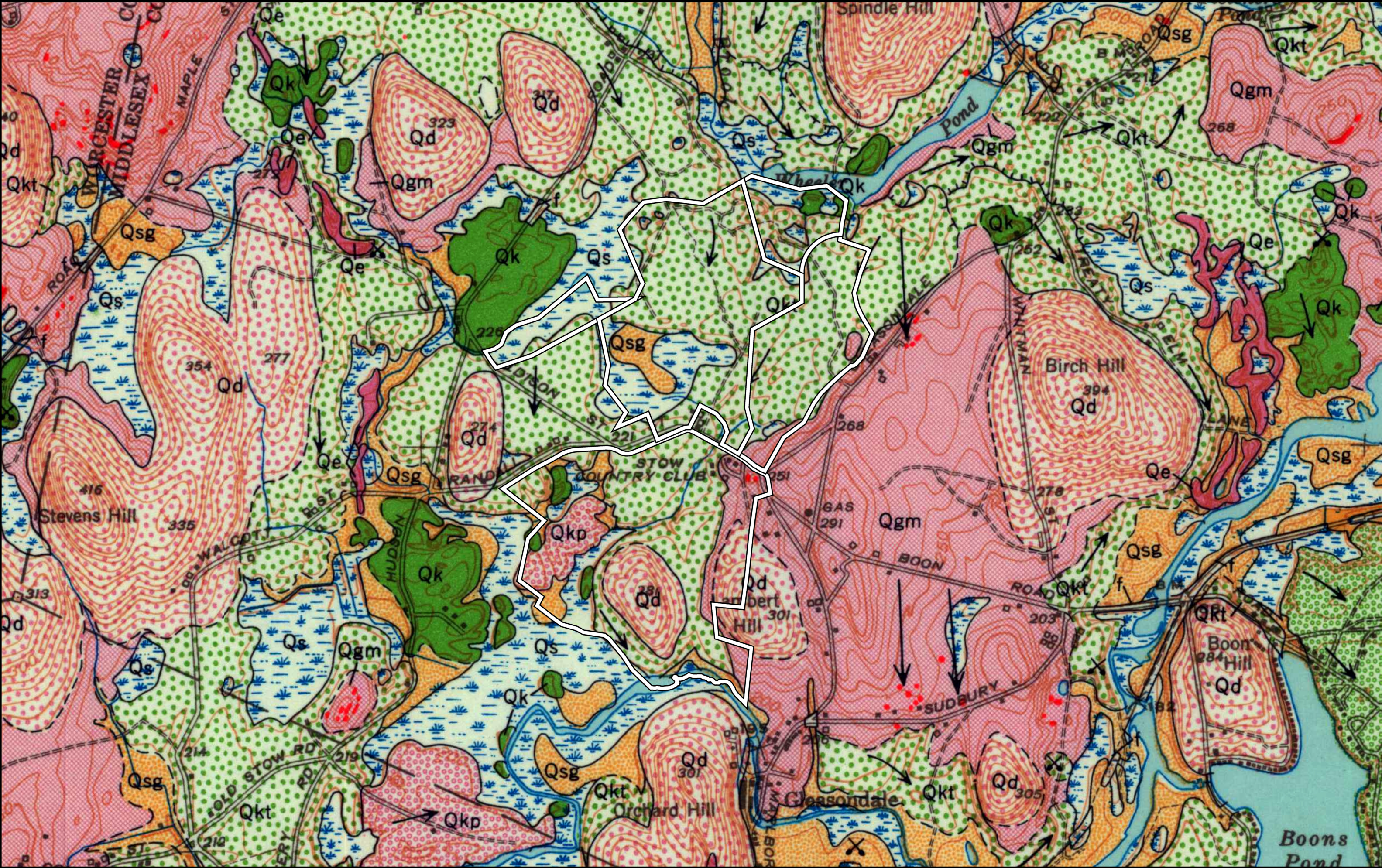
Contour interval 10 feet
Datum is mean sea level

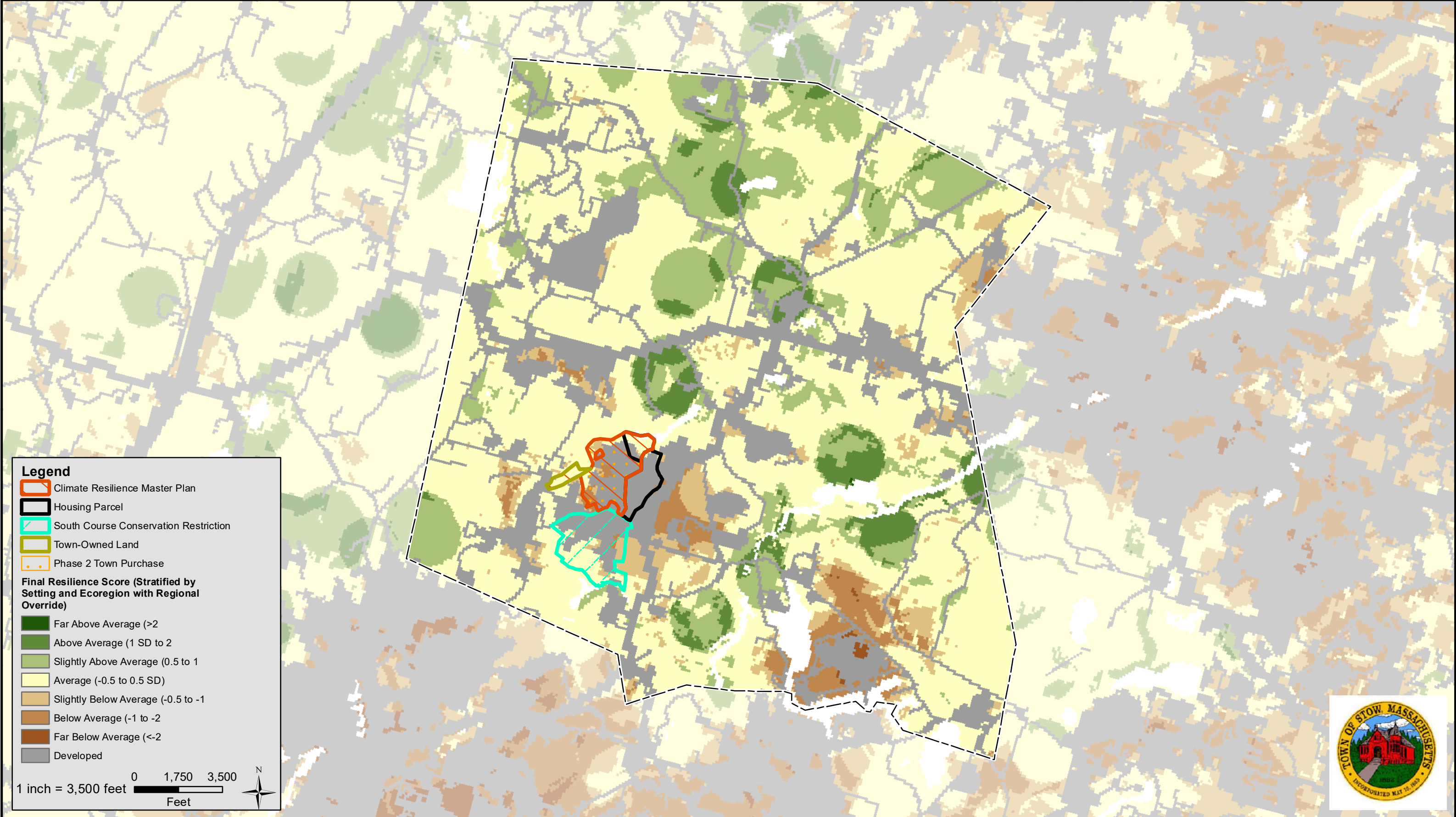
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DECLINATION 1980

Geology by W. R. Hansen, 1948

Base from U.S. Geological Survey maps of Hudson
and Maynard quadrangles, Massachusetts

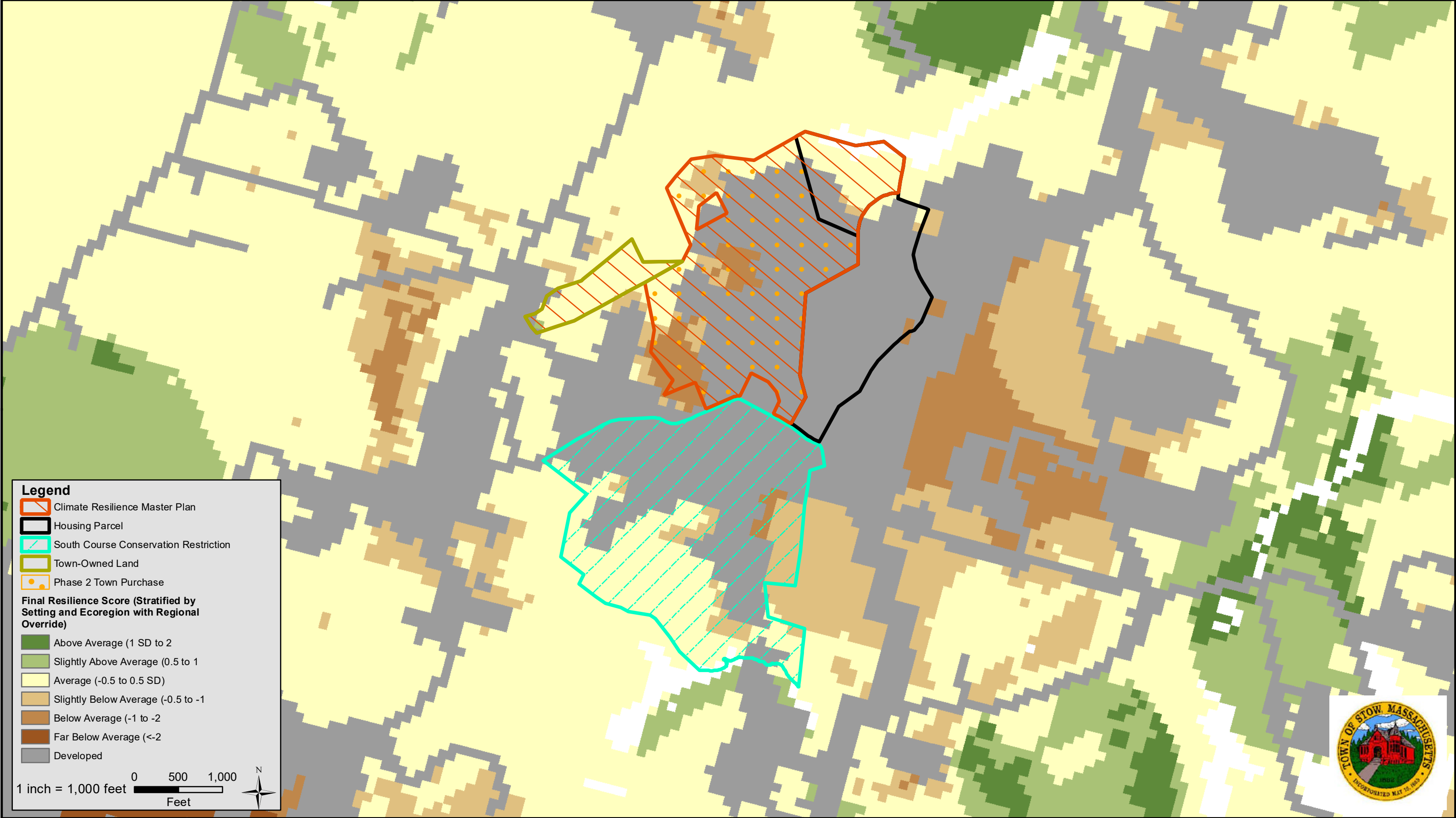
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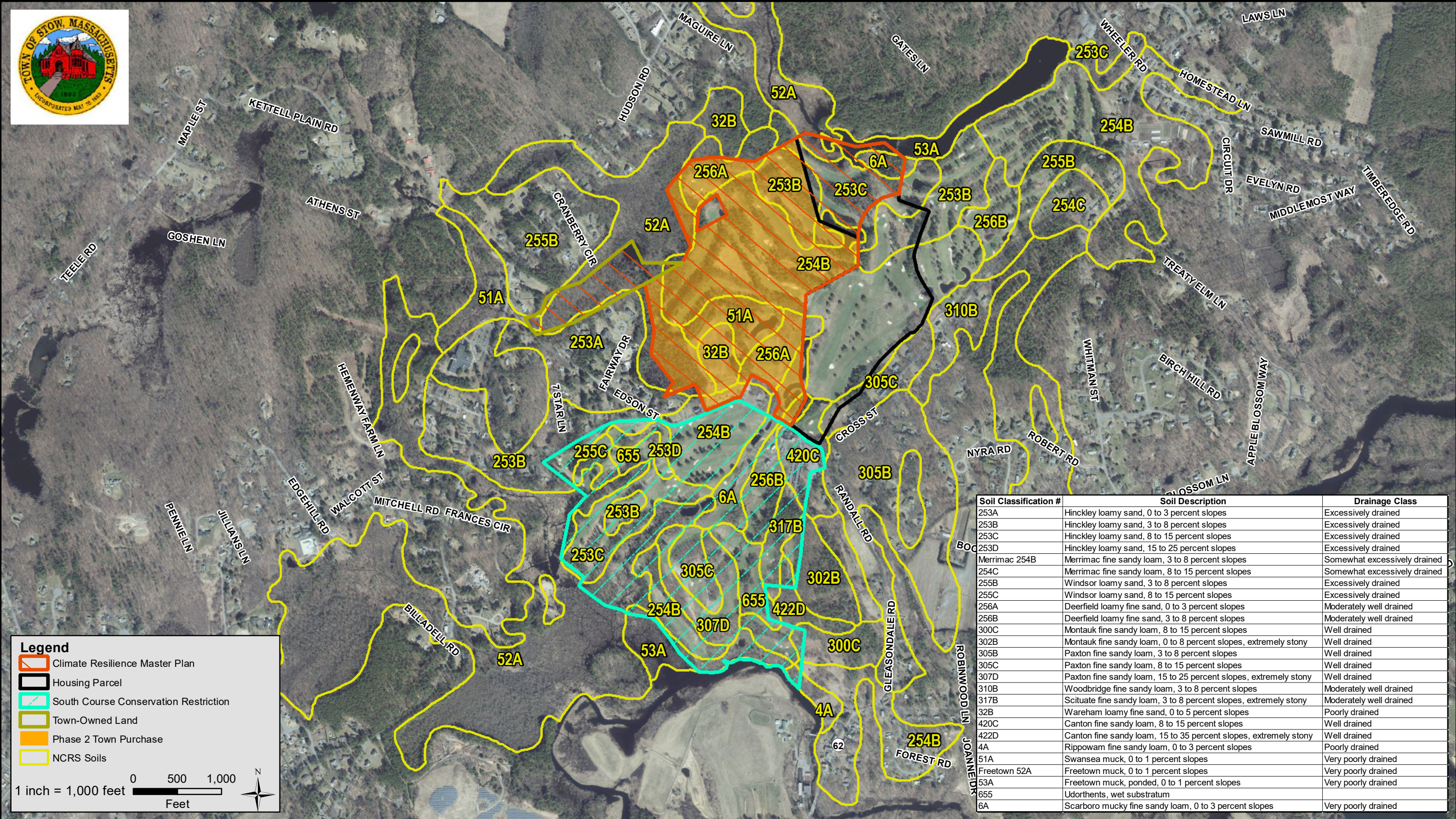
STOW ACRES MASTER PLAN





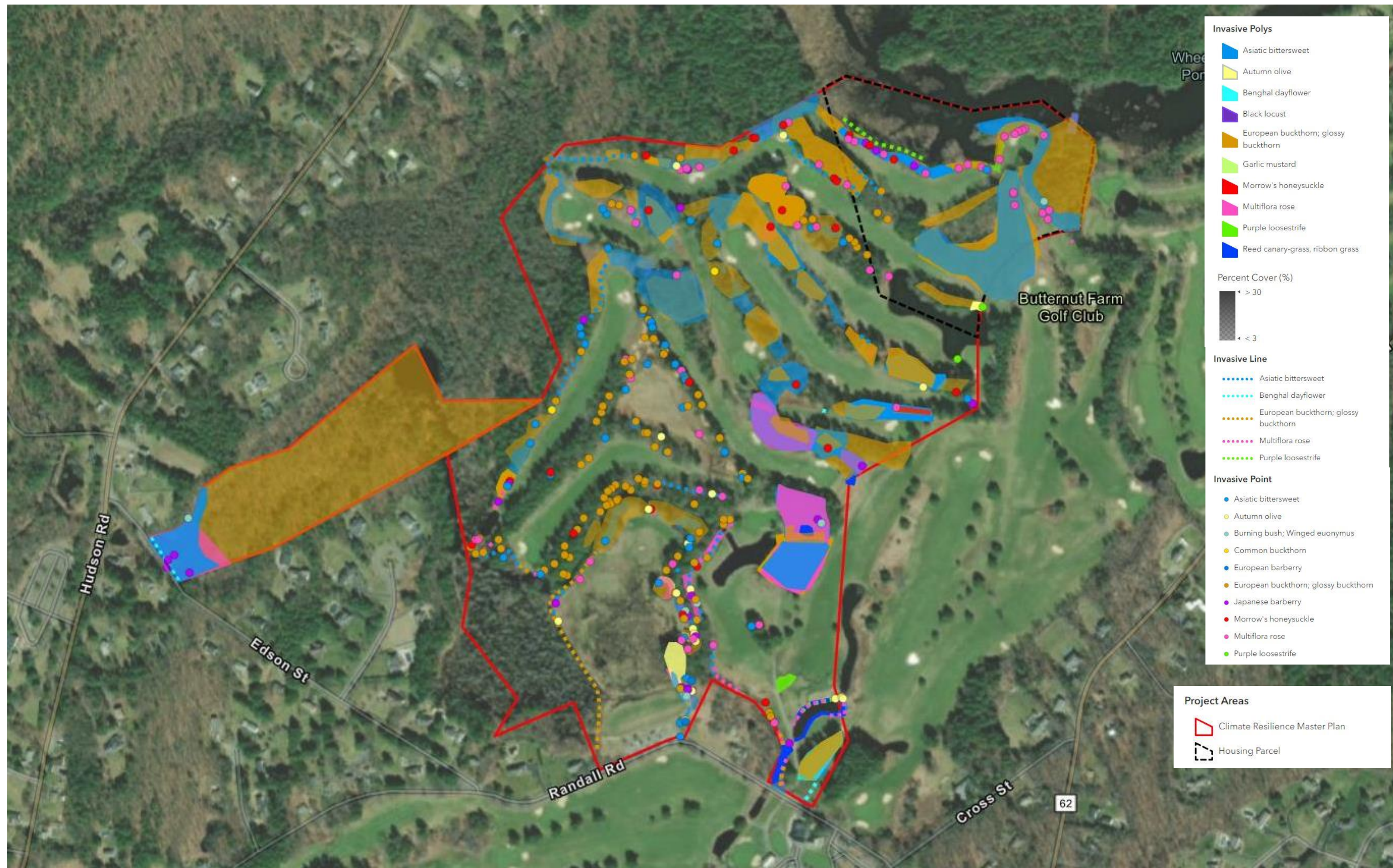
STOW ACRES MASTER PLAN





STOW ACRES MASTER PLAN

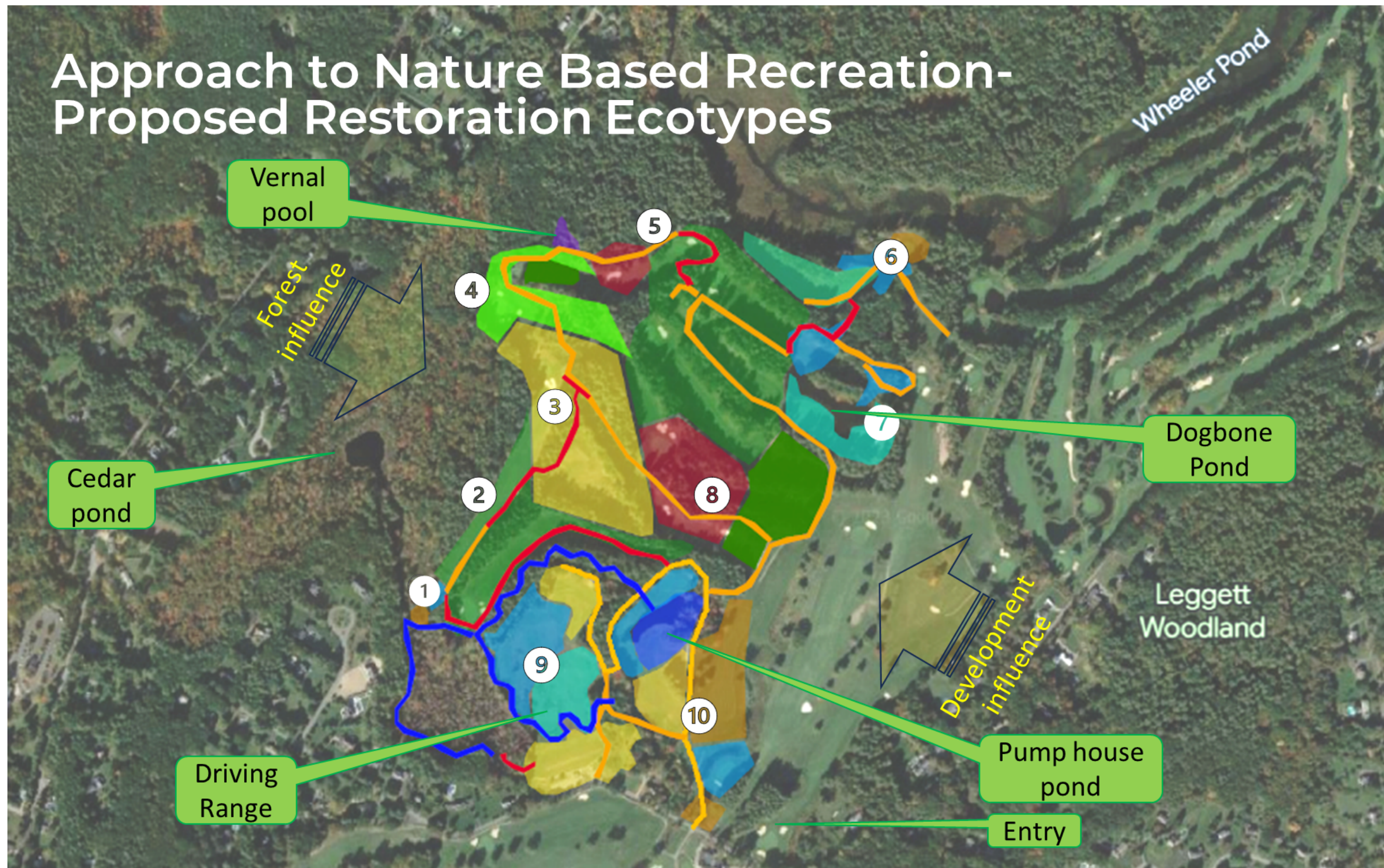




ATTACHMENT B

Site Photographs & Nature Based Restoration Concepts

Approach to Nature Based Recreation- Proposed Restoration Ecotypes

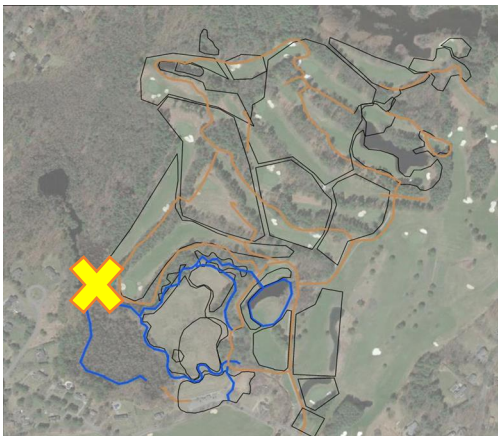


Site 1: The Rookery

A golf tee was created by filling a wetland. Excavating that historic fill but leaving an upland island creates potential nesting habitat for wildlife that need upland conditions for nesting but that prefer the isolation created by a wetland complex.



Stow Acres location



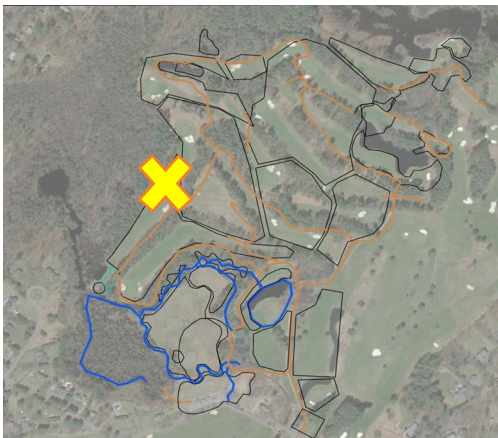
Similar ecological restoration site

Site 2: Spruce Bog

Farthest away from human influences on the site in the northwest of Stow Acres, the wetland forest can be encouraged, with opportunities for Spruce and Fir dominated wetlands.



Stow Acres location



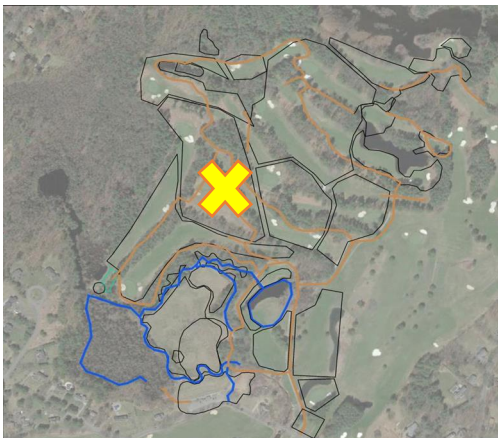
Similar ecological restoration site

Site 3: Upland Meadow

A fallow field in the middle of the Stow Acres site presents opportunities for developing pollinator habitat with native meadow plantings.



Stow Acres location



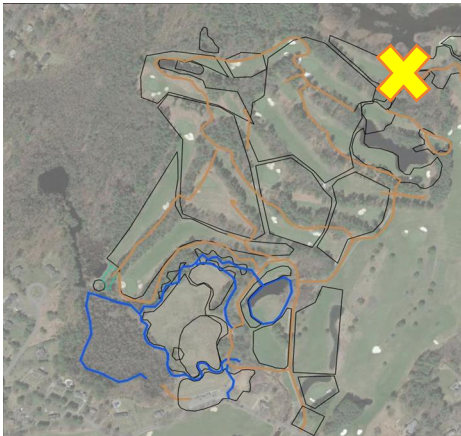
Similar ecological restoration site

Site 6: Habitat Integration & Drainage

Existing site features that could provide important stormwater treatment of the planned residential neighborhood and that has interesting wildlife habitat enhancement opportunities.



Stow Acres location



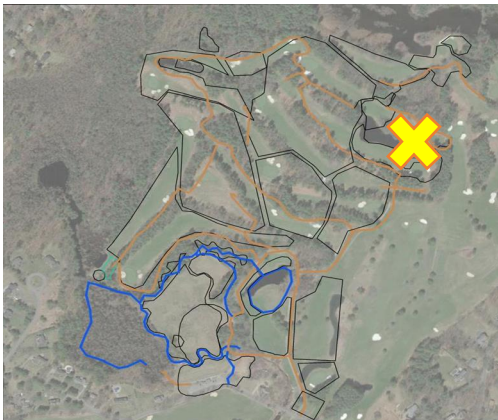
Sand traps could be repurposed as turtle nesting habitat

Site 8: Pond Restoration and Outdoor Recreation

The natural Dogbone Pond can be restored and enhanced with goals of natural history observation, education, and possibly recreational fishing in mind.



Stow Acres location



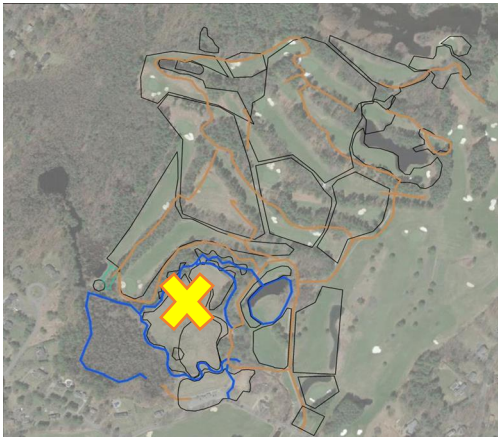
Possible fishing dock with enhanced habitat

Site 10: Wetland Restoration at the Driving Range

Historic mapping resources indicate that the Driving Range was once a wetland ecosystem. It has been significantly altered through time to retain dry conditions (to the extent it was feasible) but the area presents an excellent opportunity to recreate functioning wetland habitat with a natural stream course.



Stow Acres location



Natural history interpretation at a visitor center or similar gathering point