



Groton Historical Commission
173 Main St.
Groton, MA 01450

June 27, 2011

The Groton Historical Commission in collaboration with the Groton Planning Board is pleased to present the results of the CPA funded Groton Communitywide Reconnaissance Archeological Survey, Management and Interpretive Planning Project. The purpose of this project was to conduct a community-wide reconnaissance level archeological survey to identify the patterns of prehistoric/historic occupation and activity in Groton as well as to determine known and probable locations of archaeological resources associated with past cultures and civilizations. These past cultures and civilizations have deposited remnants of their existence only to be seemingly erased by the forces of nature and it is our hope that Groton students, residents, town planners and researchers will use the results of this project to understand, preserve and protect these irreplaceable resources. Protecting, preserving and interpreting historic and archeological sites, is an important factor in maintaining and enhancing the quality of life in our community. Understanding this hidden history will help understand who we are today and help in molding our town's future.

It is with sincere thanks to the Community Preservation Committee and the Town's People of Groton for recognizing the importance of this project and allowing the collaborative effort to take place. The Groton Communitywide Reconnaissance Archeological Survey, Management and Interpretive Planning Project compliments three previous years of CPA funded projects completed by the Groton Historical Commission which identified, researched and documented historic resources such as buildings and cultural areas throughout the town of Groton. All of these projects are available to the public either on Groton's town website or at the Groton Public Library and we encourage everyone to view, use and enjoy all of this important information.

Respectfully,

Alvin B. Collins Jr., Chairman

Groton Historical Commission

Alvin Collins

Michael Roberts

Richard Dabrowski

Shirley Wishart

George Wheatley

Michael Danti

Robert DeGroot



Groton Historical Commission

173 Main St.

Groton, MA 01450

As Local Project Coordinator for the CPA funded *Groton Communitywide Reconnaissance Archeological Survey, Management and Interpretive Planning Project*, it has been my privilege and responsibility to manage the Project from Notice to Proceed to Project Completion. I have managed the project not only as the Groton Historical Commission's Local Project Coordinator but as the official project liaison for the Groton Community Preservation Committee. We had an excellent consultant for this project, the University of Massachusetts at Amherst, who carried out the project with a well balanced mix of professional skills and experience. However, as in all projects of this type regardless of the experience, skill or lofty degrees of the consultant, there will be mistakes, misinterpretations, and just plain old errors. Fortunately there are always individuals in the community who know more historical details than any consultant could know so this is why we have errata sheets in these types of studies. You will note that we have already added errata sheets with information cheerfully provided by Historical Commission member, George Wheatley. We ask all who find errors of fact, misinterpretations, or other faults to provide that information to the Groton Historical Commission through me at redhawkma@gmail.com and the corrections will be added to the errata sheets.

Our purpose in placing this report on the Town's web site is to meet the responsibility in returning information to the widest possible cross section of Groton citizens who funded this survey in order to provide information, enjoyment and management of fragile nonrenewable historic resources. As we wrote the scope of services for this project we included tasks that would allow the project to be used in the interpretation of our history within the Town and to a broad regional and national audience. We want to make this newest written history of Groton available to every family, researcher and student, all of who have access to our town web site.

We hope you find this report interesting and useful.

Michael Roberts - Local Project Coordinator for the Groton Historical Commission

**COMMUNITY-WIDE
ARCHAEOLOGICAL RECONNAISSANCE SURVEY
OF GROTON, MASSACHUSETTS**

PUBLIC VERSION

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Archeological Survey Errata

- Page vi Fig. 4-5 access from Common Street is
across private property. 83
- Page vi Fig. 4-6 should read: Hollingsworth Paper
Mill at Route 119 crossing of Nashua
River. Scales and Son Saw Mill was on Squannacook
River. 84
- Page vi Fig. 4-7 should read: once an important
“crossroads” where the road crossed
under the railroad. 85
- Page vi Fig. 4-9 should read: The site is the
property of Dr. Paul Gunderson. 87
- Page ix Second paragraph, line 10: should read: Some
sites have been identified through artifacts
- Page 1 line 3 should read: Groton is located in
- Page 10 last sentence should read: in the National
Register of Historic Places.
- Page 30 Water Resources and Drainage
Line 7 should read: such as Lost Lake and
Knops Pond,
Second paragraph, line 6 should read: It
includes the Groton School and Cady Ponds.

- Page 60 Third from last. Unnamed mill. Site does not exist.
- Page 73 line 5 should read: The former Groton School Chapel was given to the Roman Catholics And moved from Farmers Row to Main Street c.1905 (MHC 1980a:7-8).
- Page 82 Second paragraph: Scales Saw Mill was on the Squannacook River near Flat Pond.



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MANAGEMENT ABSTRACT

Archaeological Services at the University of Massachusetts Amherst conducted a community-wide archaeological reconnaissance survey of Groton, Massachusetts. The project was conducted for the purpose of identifying previously recorded and possible archaeological resource areas within the town. Data produced by this survey are integrated into a proposed archaeological site protection plan for Groton.

The project included five aspects: 1) background research into Native American occupations that occurred before A.D. 1620, and historical uses of town lands after A.D. 1620; 2) ranking of town lands into zones possessing low and high potential (or likelihood) to contain archaeological resources, based on topography, water sources, soils, and previously recorded sites; 3) a walkover inspection of selected archaeological sites and areas of high potential; 4) interviews with local informants and town personnel; and 5) integration of this information into thematic narratives of the town's past and development of an archaeological site protection plan for sensitive resource areas. The study found that Groton contains many areas of high potential for additional, unrecorded Native American and historical archaeological sites. Most of these areas have been subject to minimal disturbance. Some sites have been indentified through artifacts collected from agricultural areas and are partially disturbed. When the survey began, three Native American sites and 16 historic sites in Groton were on record at the Massachusetts Historical Commission. During the course of the project, nine additional Native American sites and 41 historic sites were added to the state inventory. The sites represent a vital part of the town's heritage and have a high likelihood to contribute information of importance to archaeology. It should also be emphasized that the surroundings of historical structures often possess associated archaeological deposits, and should be considered as sites although site forms do not yet exist for them.

Residential development in Groton has increased in recent years, and small housing developments, single-family homes, roadwork, and similar construction projects often affect archaeological sites. It is recommended that the town adopt a bylaw and establish a system of review designed to require archaeological surveys of sensitive areas and to protect archaeological sites.

The system would begin with a review authority through which proponents of construction projects or development actions apply for permits. Using the archaeological potential maps provided with this document, town regulatory organizations can determine if a proposed construction area is located in a zone of high archaeological potential. If it is, the project should be referred to the Groton Historical Commission for review. If the Historical Commission determines that a construction undertaking will affect an area of high archaeological potential or will impact archaeological resources, the advice of the Massachusetts Historical Commission should be requested. In some instances, a professional archaeological survey may be warranted to determine the presence or absence of important cultural resources. If an archaeological site is determined to be significant, the proponent should be encouraged to modify project plans to avoid the site, and place it under a Site Preservation Restriction, a legal document in which the proponent agrees not to damage the site. If after the site preservation is in place, development were proposed that would impact the archaeological site in the future, an archaeological survey



could be required by the Groton Historical Commission. Compliance with Site Preservation Restrictions would be the duty of the Historical Commission because the Massachusetts Historical Commission has no means of monitoring local sites. If the project proponent were unable to meet the rules of the site preservation restriction, the Commission could require an archaeological survey in consultation with the Massachusetts Historical Commission.



ACKNOWLEDGMENTS

The staff of Archaeological Services is grateful to the many people who contributed information to the Groton community-wide archaeological reconnaissance. The list includes members of the Groton Historical Commission, staff from the Town of Groton and the Groton Public Library, and members of the Groton community, in addition to staff from the Massachusetts Historical Commission.

Essential assistance and advice was provided by Michael Roberts of the Groton Historical Commission, who served as Local Project Coordinator for the community-wide study.

Further acknowledgment is given to:

Edward Bell, Archaeologist, Massachusetts Historical Commission
Michael Bouchard, Town of Groton Town Clerk
Douglas Brown, Archivist, Groton School
Thomas Callahan, Groton Historic Commission
Earl Carter, local resident and collector
Alvin Collins, Groton Historical Commission
Michelle Collette, Planning Board
Troy Conley, local resident, knowledgeable about site location
Michael Danti, Professor of Near Eastern Archaeology, Boston University, Groton resident
Kara Fossey, Curator, Groton Historical Society
Mark Haddad, Town Manager
Katherine Hickey, Geographic Information Systems Specialist APPGEO
Robert Hill, local resident
Richard Jeffers, Archivist, Jeffers Heritage Preservation Center, Lawrence Academy
Robert Lotz, local resident
Dale Martin resident, knowledgeable about “slate” quarry
Georges McHargue, Groton resident and author
Jane Morris, Groton Historical Commission
Deborah Beal Normandy, Groton resident
Matthew Novak, local resident
Michael Passarelli, local resident
Jonathan Patton, Massachusetts Historical Commission
Susanne Olson, Groton Public Library Reference Librarian/Webmaster
Owen Smith Shuman, Library Director, Groton Public Library
Nancy Pierce, Town of Groton Assistant Town Clerk
Michael Roberts, Groton resident and archaeologist
Suzanne Sanders, local resident
Harold Sanford, local resident
Marion Stoddardt, Groton resident, environmentalist
Alfred Wyatt, Descendant of Williams Family





CHAPTER 1: INTRODUCTION

This report presents the results of a community-wide archaeological reconnaissance survey of Groton, Massachusetts carried out by Archaeological Services, a consulting organization at the University of Massachusetts Amherst. Groton is located in eastern Massachusetts in Middlesex County (Figures 1-1, 1-2). The Town of Groton provided funding for the survey through the Community Preservation Act. The research was conducted with the generous assistance of the Groton Historical Commission (GHC).

The objective of the survey was to produce a comprehensive inventory of known archaeological resources in Groton and to identify areas of high archaeological potential in the town in order to provide a guide for planning, permitting, and preservation. The project consisted of background research, interviews, field survey, analysis and interpretation, report writing, and presentations.

This report is similar to the official report submitted to the Groton Historical Commission and Planning Board for use in town planning. However, archaeological site locations have been removed to protect archaeological sites and property from vandalism.

Project Scope

The survey was undertaken as a community-wide reconnaissance-level project to identify and inventory archaeological resources in Groton. These resources provide evidence of Native American settlement that occurred during the pre-Contact period (between 12,000 and 400 years before present) and European-American settlement (A.D. 1620-1950). To facilitate the process, Archaeological Services subdivided the town into four survey units (Figure 1-3).

The archaeological survey had multiple specific objectives to be completed. These findings were incorporated into the final survey report:

- To identify known and possible pre-Contact and historical archaeological sites in Groton, and to assess possible eligibility of sites for listing in the National Register of Historic Places;
- To develop town-wide archaeological potential maps illustrating the likelihood for different sections of Groton to contain Native American and historical archaeological sites;
- To develop management recommendations for the identification and protection of significant archaeological resources and archaeologically sensitive areas, including recommendations for a local bylaw or review procedures, and for public and private land acquisition, protection and cultural resource management strategies;
- To incorporate the findings, potential maps, and recommendations into the town's planning processes.

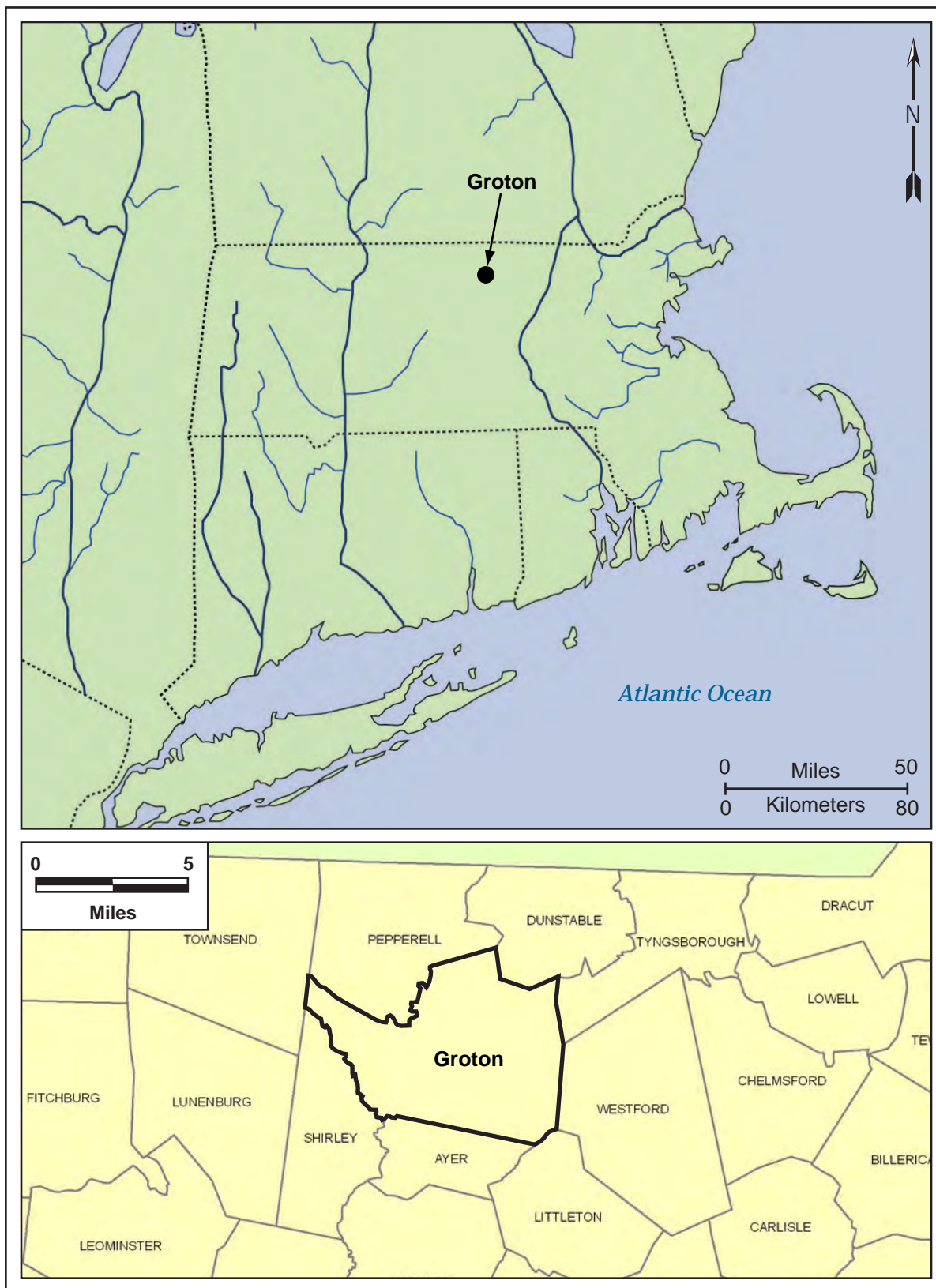


Figure 1-1. Map showing the town of Groton in southern New England.

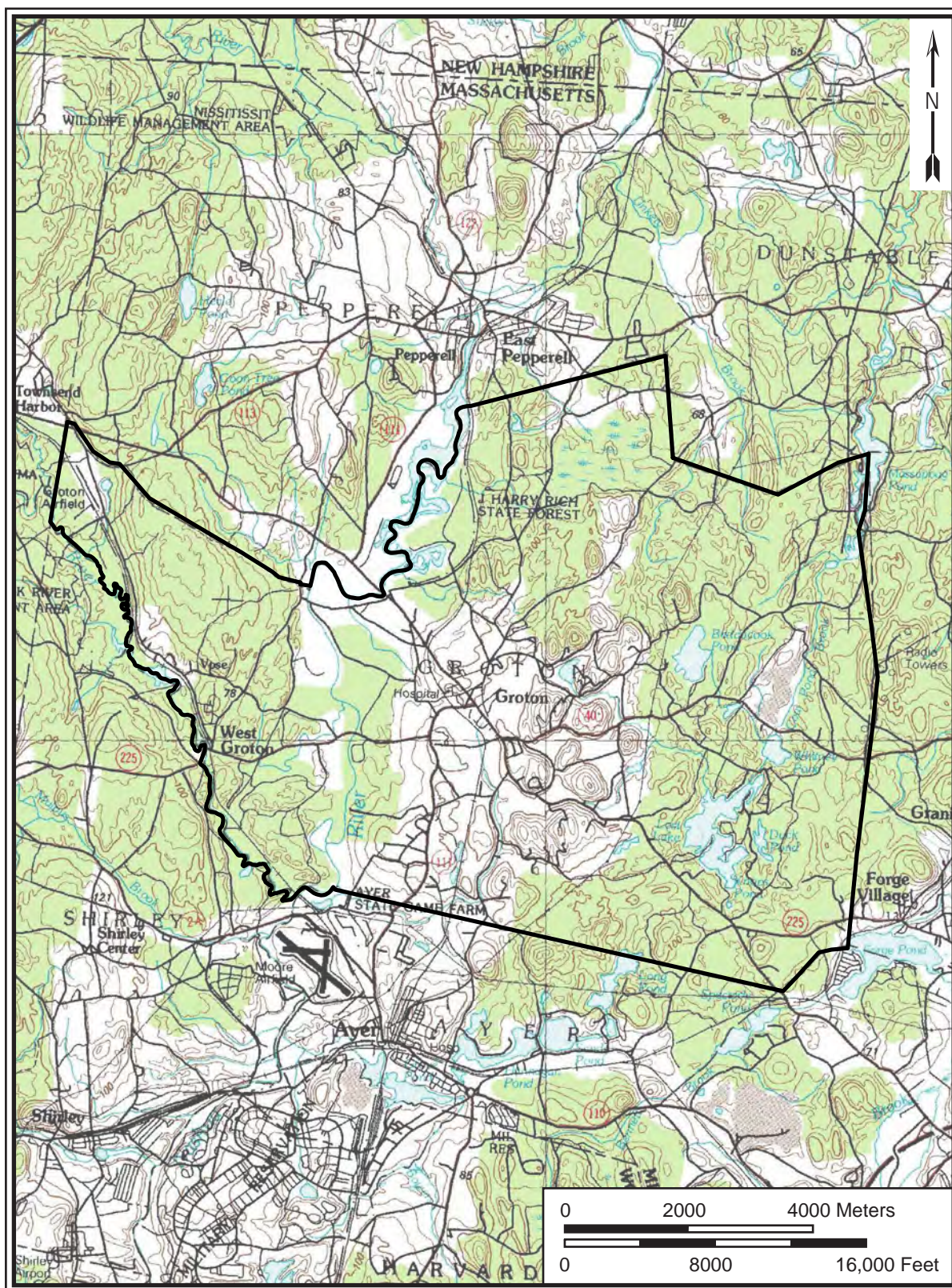


Figure 1-2. USGS 1:100,000 scale quadrangle map showing the location and topography of Groton (USGS 1988).



The *Community-wide Archaeological Reconnaissance Survey of Groton, Massachusetts* has been funded in whole by the Community Preservation Act from the categories of Historic Preservation and Open Space.

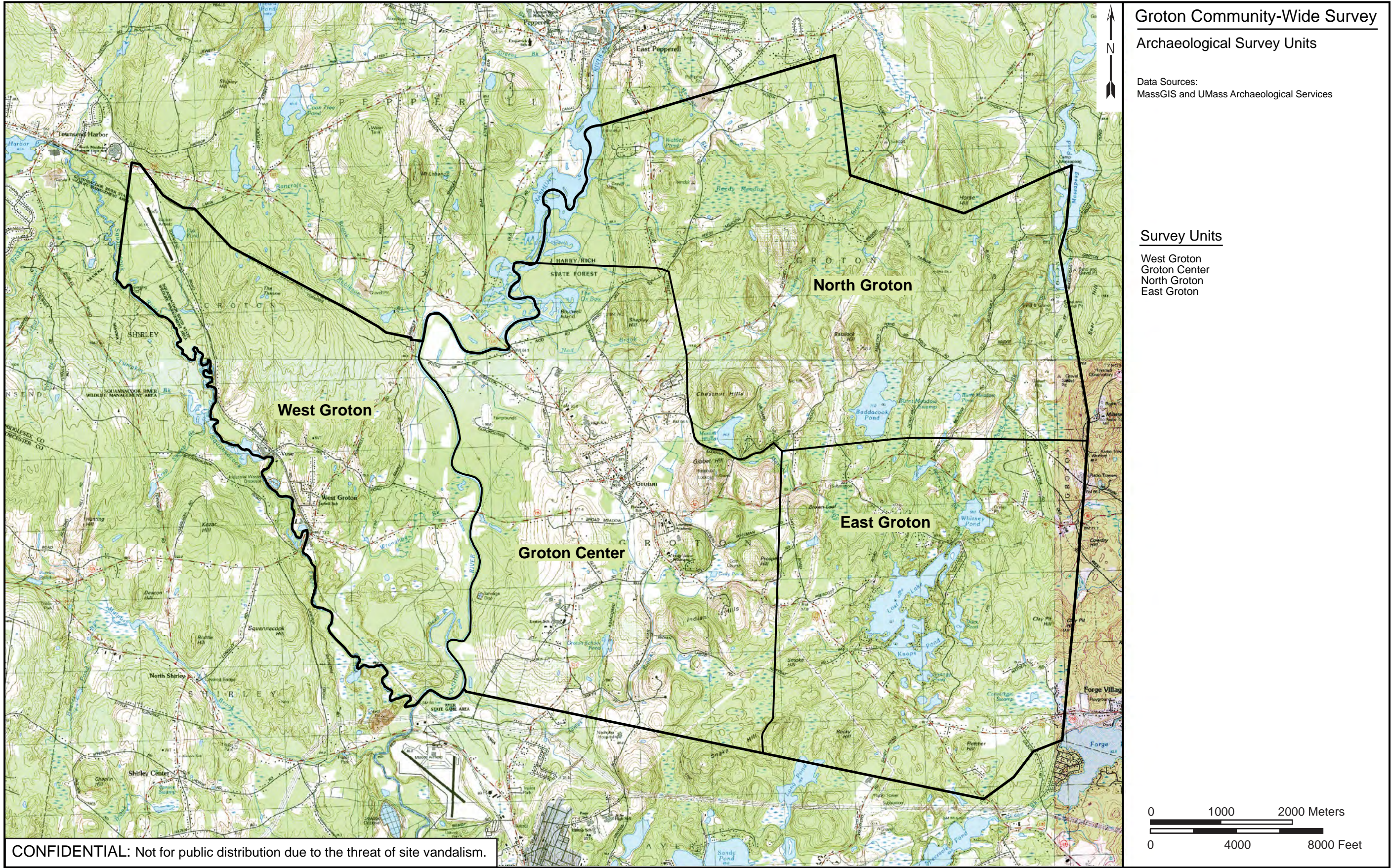


Figure 1-3. USGS 1:25,000 scale quadrangle map of Groton showing survey units used in the community-wide archaeological reconnaissance survey (USGS 1985, 1987, 1988).

**Project Authority**

Archaeological Services conducted the reconnaissance survey project under contract with the Groton Historical Commission. The Town of Groton provided funding through the Community Preservation Act. The archaeological reconnaissance survey fieldwork and report preparation were conducted in accordance with 950 CMR 70.14, the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716, September 28, 1983) and the Advisory Council on Historic Preservation's Handbook "Treatment of Archaeological Properties" (1980). The reconnaissance survey was conducted under a State Archaeologist's Permit 3154, issued in accordance with 950 CMR 70.00.

Project Personnel

Archaeological Services staff involved in the project included Christopher Donta (Project Archaeologist), Mitchell T. Mulholland (Principal Investigator), and Sheila Charles (Project Historian). Kathryn Curran produced the graphics for the report. Broughton Anderson completed the editing for the report.

Disposition of Project Materials

All project information (e.g. field recording forms, maps, photographs) is on file at Archaeological Services, Department of Anthropology, Machmer Hall, University of Massachusetts Amherst.



CHAPTER 2: METHODOLOGY

Archaeological Significance and Development of Interpretive Themes

The identification, documentation, preservation, and management of archaeological resources in Massachusetts entail several phases of research and investigation. Among the objectives of the Groton community-wide reconnaissance have been the identification of archaeological sites and the assessment of the archaeological potential of areas within the town where future development actions may be proposed. When an archaeological site has been identified, the type of management it will receive depends on its eligibility for listing in the National Register of Historic Places (NR). A site may be determined eligible if it retains a high degree of integrity and possesses high research value. Avoidance of such a site during a construction project, or additional research to mitigate the loss of knowledge incurred by construction impacts, may be recommended for a significant, NR-eligible site. Conversely, if an archaeological investigation determines that a site is disturbed or has low to moderate likelihood to address research questions that are central to the interpretation of the state's cultural heritage, the site may be determined ineligible for NR listing. In the latter case, avoidance of the site or mitigation in the event of construction may not be required. Thus, the significance and NR-eligibility status of an archaeological site is pivotal to the degree of protection it will receive. This report includes interpretive contexts that are intended to assist in the assessment of the research value and NR eligibility of the pre-Contact and historical archaeological resources in Groton.

In general, the sequential phases of archaeological investigation consist of the Phase 1A reconnaissance, the Phase 1B intensive (locational) survey, the Phase 2 site examination, and the Phase 3 data recovery. These phases embody preservation and planning standards for the identification, evaluation, registration, and treatment of cultural resources (National Park Service 1983). This planning structure is centered upon the eligibility of cultural resources for inclusion in the NR, which is the official federal list of properties that have been studied and found worthy of preservation. The results of a Phase 1 intensive (locational) survey with subsurface testing and Phase 2 site examination are generally used to make recommendations concerning the possible significance and NR eligibility of archaeological resources.

The determination of significance of cultural resources is a task required of federal agencies. Guidelines are designated as the National Register Criteria for Evaluation and are provided by the National Park Service (36 CFR 60). Four criteria are given to determine whether the "quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association" (36 CFR 60). According to these four criteria, National Register eligibility may be conferred to cultural resources:

- A. that are associated with events that have made a significant contribution to the broad patterns of our history; or



- B. that are associated with the lives of persons significant in our past; or
- C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. that have yielded, or may be likely to yield, information important to prehistory or history.

Most of the archaeological sites that are listed in the NR have been determined eligible under Criterion A or D. If a site is to attain eligibility under these criteria, several issues must be addressed, including the type of data contained in the site, the relative importance of research topics suggested by the data, if the data are unique or redundant, and the current state of knowledge relating to the research topic(s) (McManamon 1990). A defensible argument must establish that a site “has important legitimate associations or information value based upon existing knowledge and interpretations that have been made, evaluated, and accepted (McManamon 1990).

The criteria that are used to evaluate the significance of cultural resources are applied in relation to the historical contexts of the resources. A historical context is defined as “a body of information about past events and historical processes organized by theme, place, and time. In a broader sense, an historical context is a unit of organized information about our prehistory and history according to the stages of development occurring at various times and places” (National Park Service 1983). Historical contexts organize information about related historical properties based on a theme, geographic limits, and chronological periods. A historical context may be developed for Native American, historical, or modern cultural resources. Each historical context is related to the developmental history of an area, region, or theme (e.g., agriculture, transportation, waterpower) and identifies the significant patterns that a specific cultural resource may represent.

An historical context is typically developed by identifying the concept, period, and geographic limits for the context; collecting and assessing information concerning these limits; identifying locational patterns and current conditions of the associated property types; synthesizing the information in a written narrative; and identifying information needs. “Property types” are groups of individual sites or properties that have physical and associative characteristics in common. They serve to link the concepts presented in historical contexts with properties that illustrate those ideas National Park Service 1983). A summary of the history of an area can be developed by a set of historical contexts and is crucial to the evaluation of individual properties in the absence of a comprehensive survey of a region (National Park Service 1983). The result is an approach that guides the collection and analysis of archaeological information, and links work tasks to the types and levels of information that are required to identify and evaluate possibly significant cultural resources.

The following interpretive themes have been developed to organize the data relating to the Native American and Euro-American cultural resources in Groton:

- Native American Land Use and Settlement



- European American Early Settlement of Groton
- Population and the Social Fabric of the Community over Time
- Agricultural Pursuits
- Economy and Industry
- Civic Life and Public Buildings
- Overland Transportation
- Burial Traditions
- Late Twentieth Century Transitions

Historical contexts are intended to be referenced during the evaluation of the National Register eligibility of archaeological sites that have been recorded in Groton, or may be recorded in the future. Not all Native American sites and historical sites are eligible for listing in the National Register. The ability to protect or investigate archaeological resources prior to their destruction by development often hinges on the NR-eligibility of those resources.

Background Research and Information Sources

A wide variety of information sources were researched as part of the background research for the community-wide reconnaissance survey. These sources are located in various places across the state including Groton, the Massachusetts Historical Commission, the Massachusetts Archives in Boston, and at the University of Massachusetts Amherst.

In order to complete the archival and documentary background research for the survey, a variety of methods were employed. These included:

- Research concerning historical documents (e.g. town, county, and state histories and maps, and state or federal records) to determine the locations of previously reported Native American sites, and of historical structures and industrial sites within the area of investigation. The archaeological literature was reviewed to determine the typical characteristics of sites that exist in the town, and to inform expectations regarding archaeological potential. (The sources consulted during the background research are cited in the references section.)
- Researching the state archaeological site files maintained by the Massachusetts Historical Commission (MHC).
- Researching archaeological site data and documentary records maintained by the



University of Massachusetts Amherst, and the records of the Groton Public Library.

- Assessing the archaeological potential of different parts of the town using environmental factors (such as topography, soils, access to fresh water sources) and geographical factors (transportation routes and centers of settlement and trade) that are predictive for the locations of Native American and historical sites in eastern Massachusetts.
- Conducting a preliminary on-site walkover with visual inspection of selected areas of the town, including those thought to possess high potential to contain pre-Contact Native American and historical archaeological sites.
- Conducting interviews with local informants, amateur archaeologists, area historians, and other individuals knowledgeable in the heritage of the area of investigation.
- Canvassing local residents as to the location of previously recorded historical and archaeological resources. This step was facilitated by a public presentation that described the ancient Native American and historical heritage of the area, and summarized the scope of the project. The locations of several additional sites were recorded during the presentation.

Several histories of Groton have been written. These volumes include chronological overviews of the history of the town. Town records of interest to the current study included census records. Archaeological research that is directed at a specific historical property benefits from the examination of probate records and deeds, but these Groton records were not investigated for this study due to the general nature of the survey. A series of historical maps of Groton was reviewed for information concerning historical settlement patterns, land use and historical sites.

The town organizations in Groton that are primarily interested in the documentary, architectural, and archaeological heritage of the town are the Groton Historical Commission, The Groton Historic Districts Commission, Groton Historical Society, and the Groton Public Library. Private organizations with historical collections include the Lawrence Academy (Jeffers Heritage Preservation Center) and Groton School. The Town Clerk also maintains official records. These organizations provided great assistance in the background research, and made their archives available for this study.

As of 2007, sixteen previous archaeological surveys related to Groton had been conducted, resulting in archaeological reports that are on file at the Massachusetts Historical Commission in Boston. The previous surveys have provided important information about the known and possible archaeological resources in Groton.

Collections Research and Local Informant Interviews. As part of the public presentation for this survey, three presentations were held, and members of the public were invited to bring in any artifacts they had found for identification. Where possible, the original source locations of these artifacts were recorded and they, too, were added to the list of Native American sites.



Contacts with Native American Tribes. The Tribal Historic Preservation Office of the Nipmuc Tribe was notified concerning the Groton community-wide reconnaissance because much of central Massachusetts is located within their ancestral homelands. Principal Investigator Mitchell Mulholland met briefly with Tribal Historic Preservation Officer Donna Rae Gould of the Nipmuc Nation and a copy of the proposal was sent to her. Native American tribes are typically notified about archaeological projects that may involve Native American sites located within their homelands.

Historical Sources and Map Research. Sources of historic archival information include the Groton Historical Society, Groton Public Library, Groton School, Groton Town Clerk, Lawrence Academy, Nashua Public Library (NH), University of Massachusetts W.E.B. DuBois Library and Special Collections Department, the Massachusetts Archaeological Society, the Massachusetts State Archives, and the Massachusetts Historical Commission.

Cartographic research of Groton relied on numerous historic maps. The earliest map reference to Groton appears in Reverend William Hubbard's 1677 publication of *Narrative of the Troubles with the Indians in New-England*, engraved by the earliest Boston printer John Foster (Green 1890:501-2). Other maps date to 1794 (Prescott 1794; Figure 2-1), 1829 (Butler 1829; Figure 2-2), 1830 (Butler 1830; Figure 2-3), 1847 (Anonymous 1847; Figure 2-4), 1849 (Whiton 1849; Figure 2-5), 1856 (Walling 1856: Figures 2-6, 2-7), 1858 (Lothrop 1858; Figure 2-8), 1875 (Beers 1875; Figures 2-9, 2-10); 1889 (Walker 1889; Figures 2-11, 2-12); 1893 (USGS 1893; Figure 2-13); 1930 (Somes 1930; Figure 2-14); 1939 (USGS 1939; Figure 2-15).

Field Survey Methods

A central component of the Groton survey project was a field reconnaissance to assess the condition of a sample of sites that have been recorded in Groton, and to assess the pre-Contact Native American and historical potential of the town. The present study included: 1) pre-Contact Native American and historical background research, and 2) a visual reconnaissance. (The reconnaissance survey project did not include any archaeological investigations or subsurface testing.)

The locations of archaeological sites were identified through documentary sources including town histories, professional articles, site data repositories, cultural resource management survey reports, data from regional site databases, and local informants. This information, combined with consideration of landforms, environmental characteristics, proximity to wetlands and other food resources, and outcrops of lithic raw materials, made it possible to predict the likelihood for additional, unrecorded archaeological sites in different sections of the town.

The staff of Archaeological Services in consultation with the Groton Historical Commission conducted the field survey. Within each survey unit, a list of priorities was established based on the background research, particularly sites that were listed at the Massachusetts Historical Commission, and those revealed by local informants. During the field survey, a sample of sites was subjected to a walkover inspection. Due to time constraints, priority was given to sites located in proximity to roadways. Statements are provided in this report concerning the conditions of the sites and their possible eligibility for inclusion in the National Register of Historic Places.

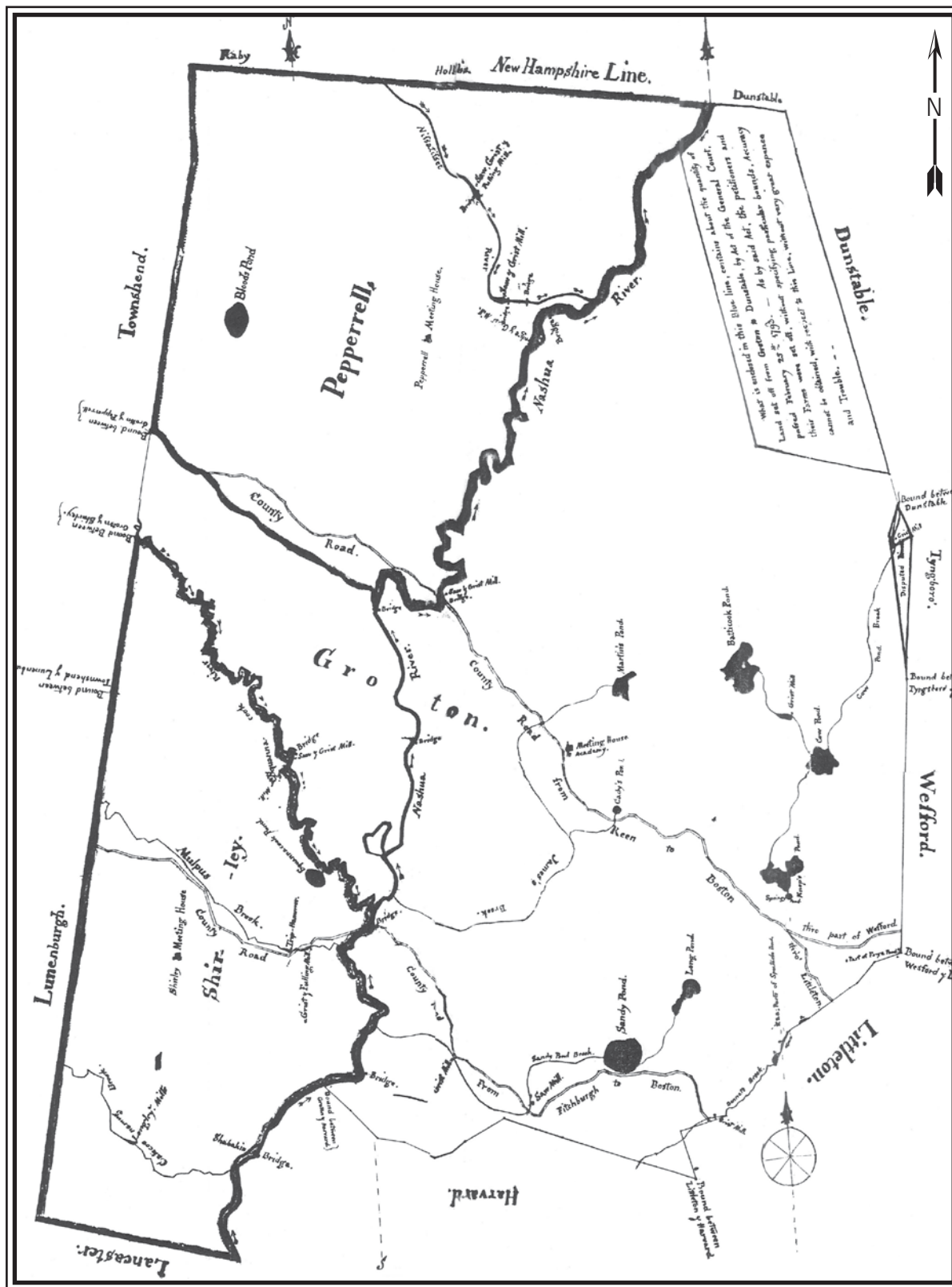


Figure 2-1. Plan of the town of Groton showing portions of Shirley and Pepperrell (Prescott 1794).



Figure 2-2. Plan of the town of Groton in 1828 & 1829 (Butler 1832).







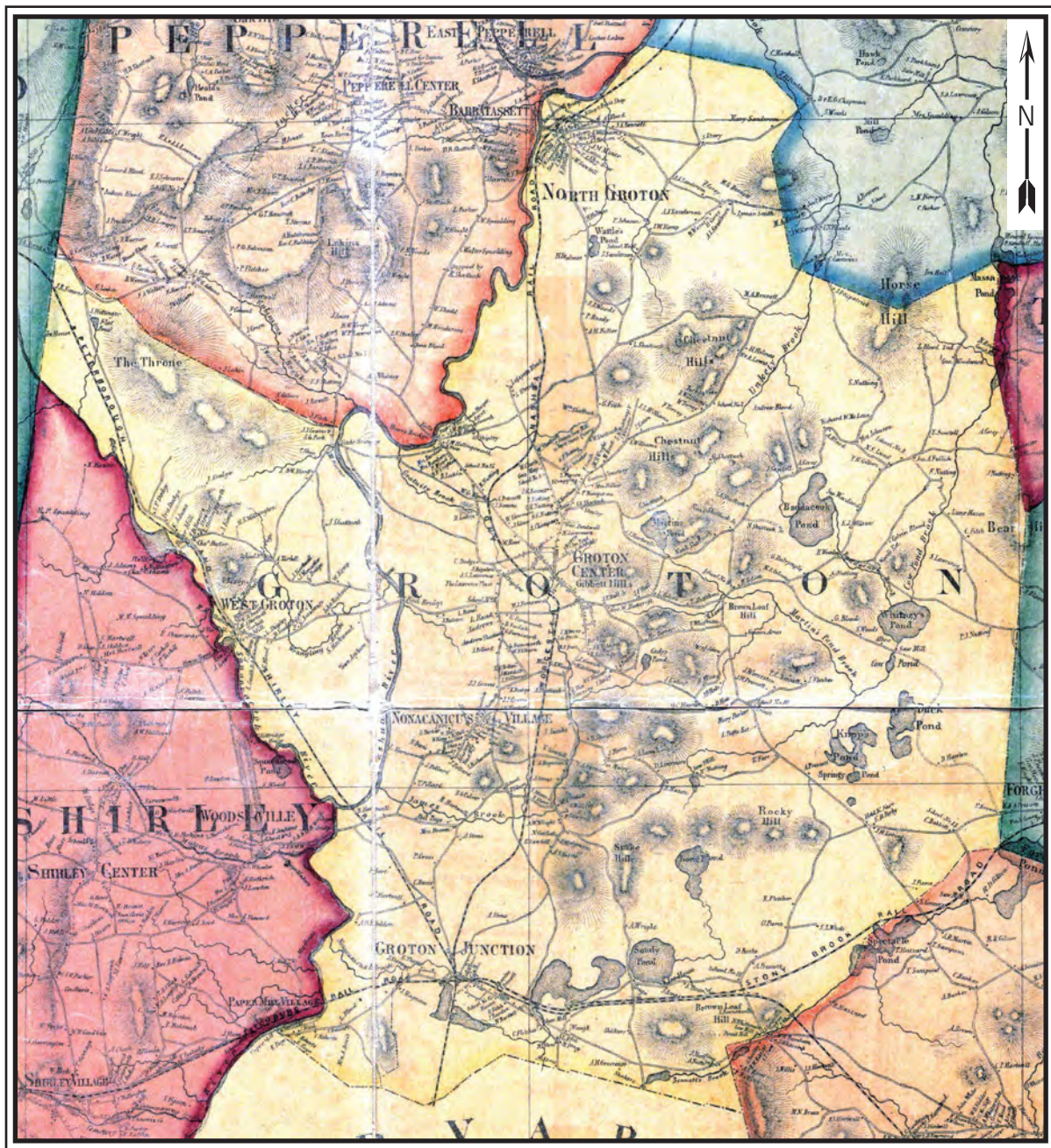


Figure 2-6. Plan of the town of Groton in 1856 (Walling 1856).

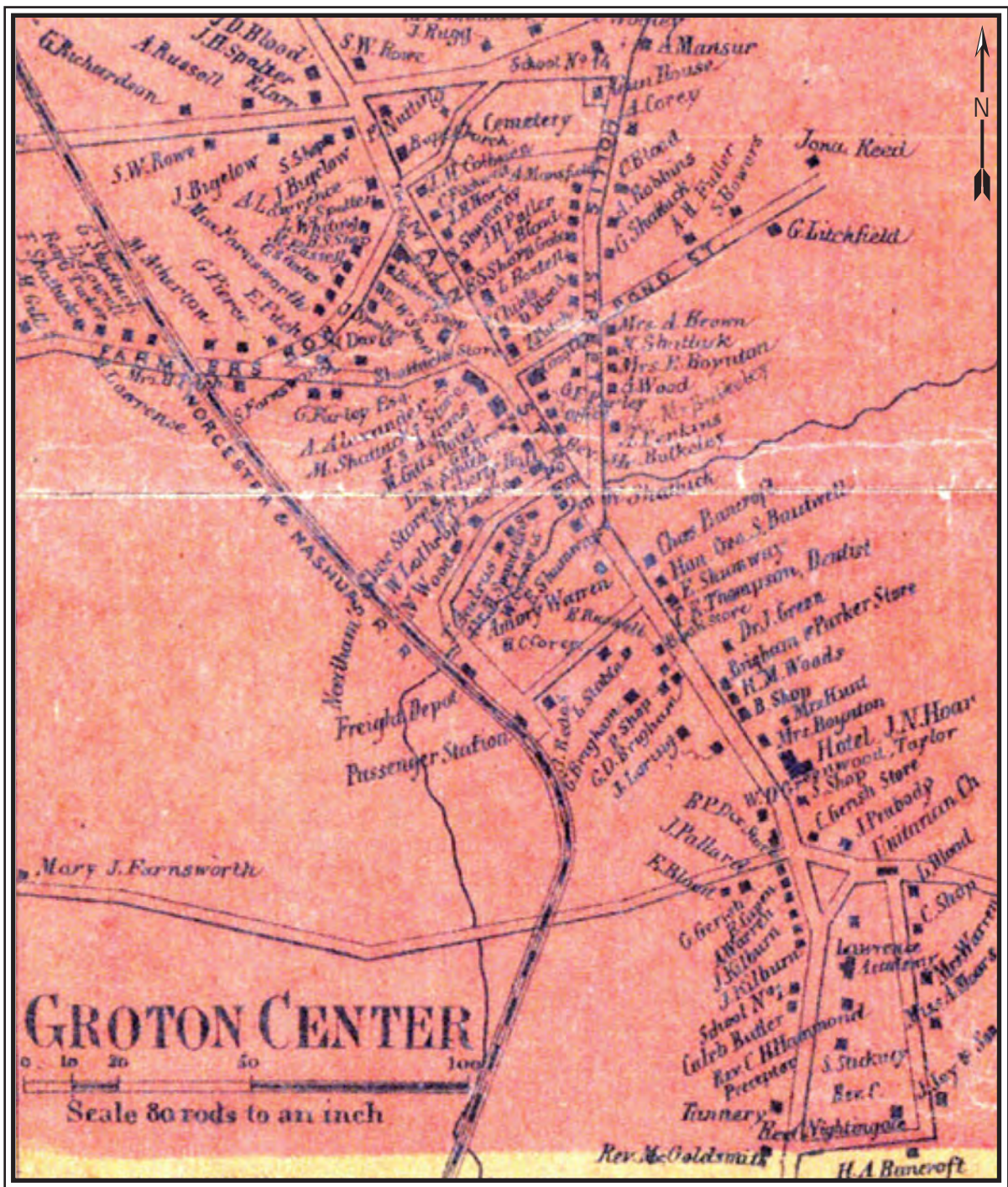


Figure 2-7. Plan of Groton Center in 1856 (Walling 1856).

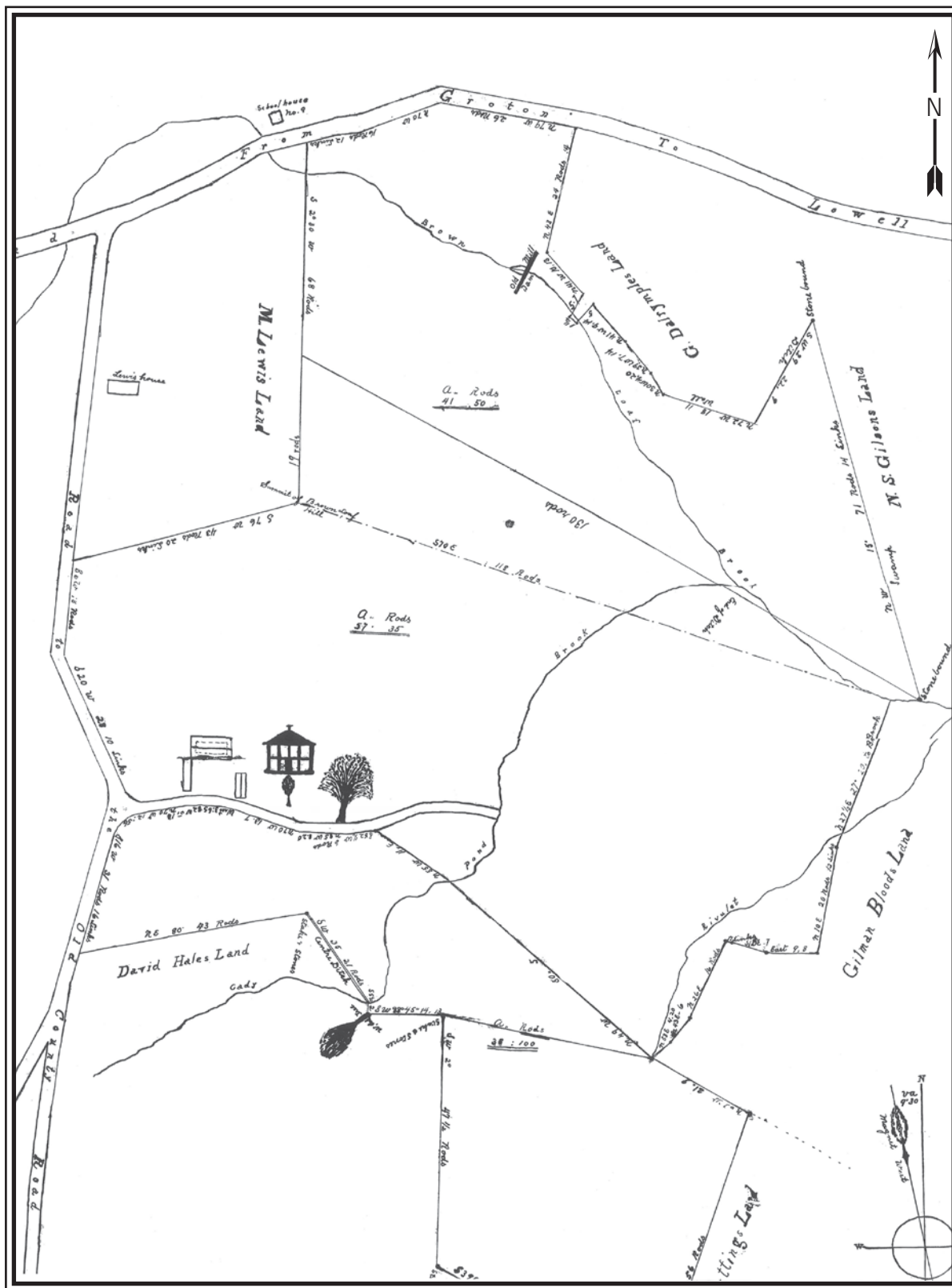


Figure 2-8. Plan of Simeon Ames Farm, Groton, showing the location of the Chamberlain sawmill in 1858 (Lothrop 1858).

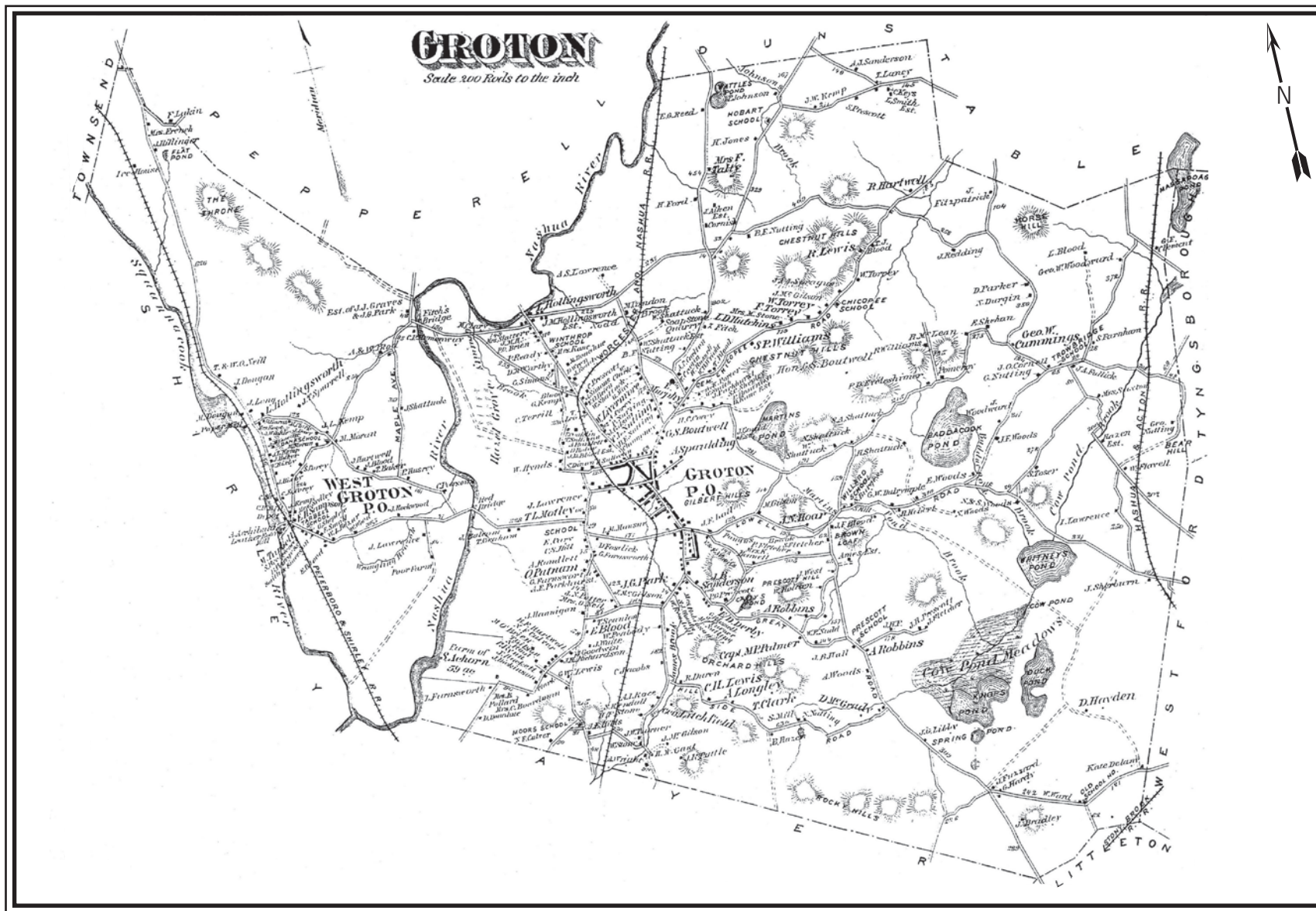


Figure 2-9. Plan of the town of Groton in 1875 (Beers 1875).

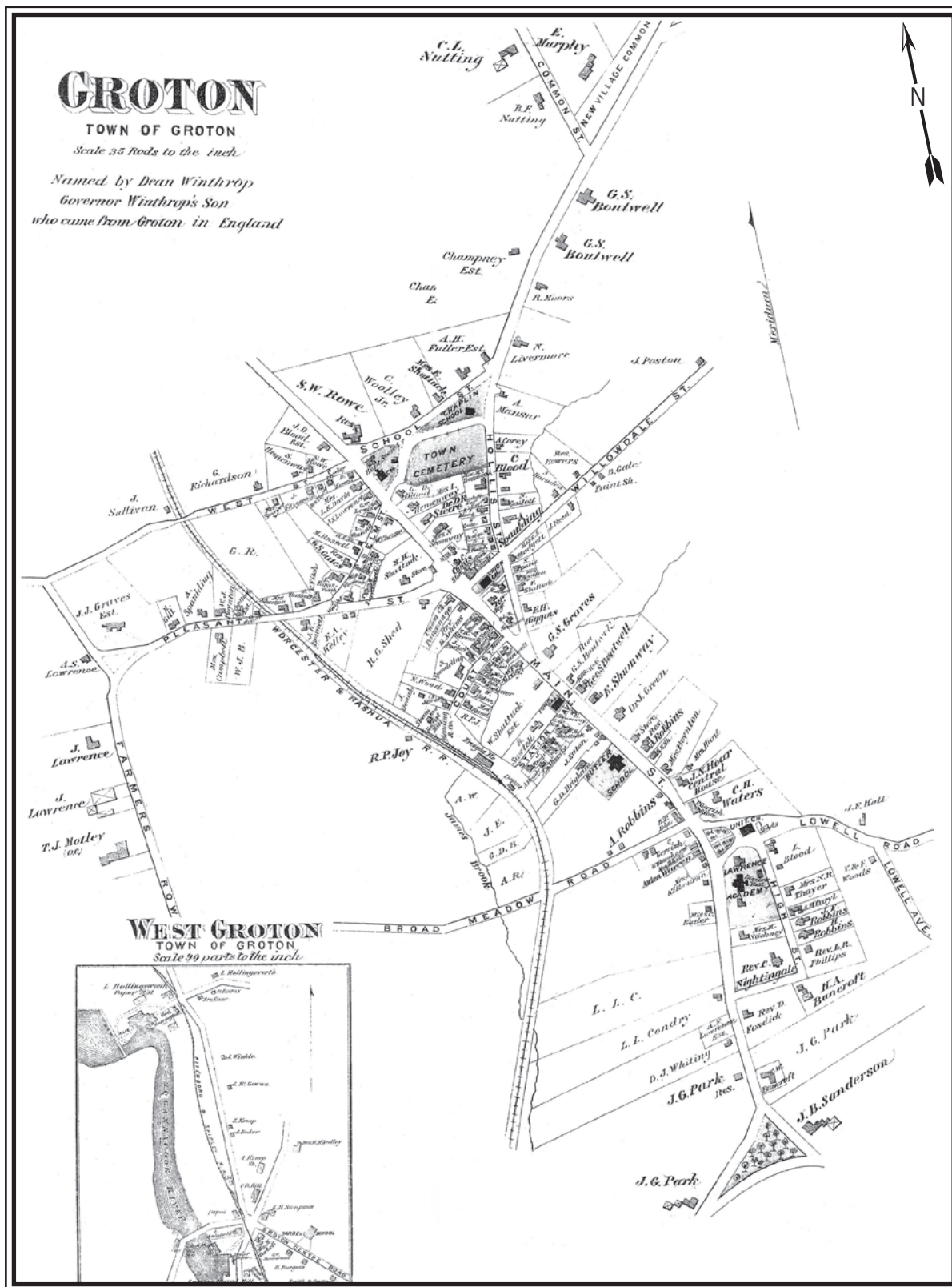


Figure 2-10. Plan of Groton town center in 1875 (Beers 1875).

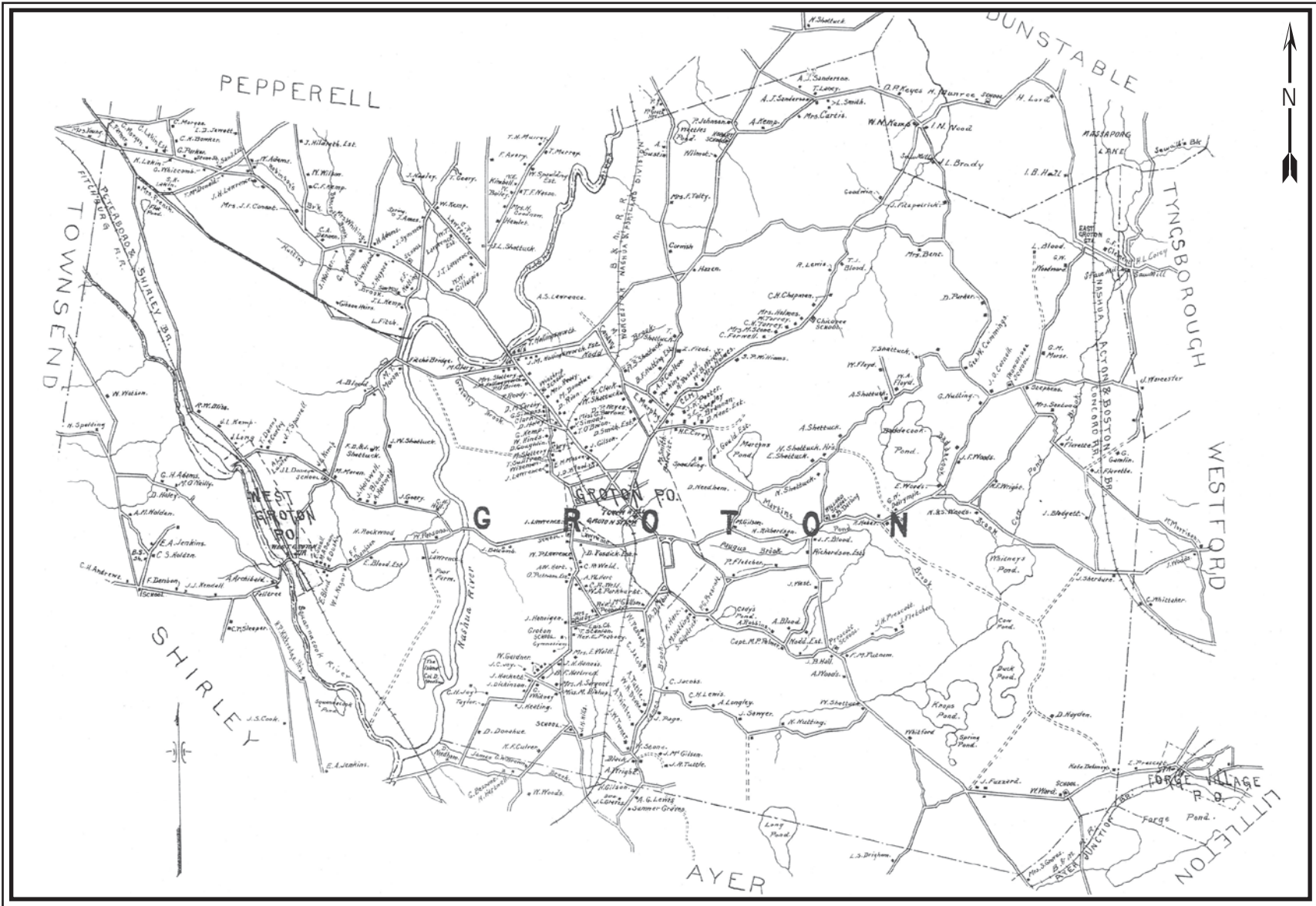


Figure 2-11. Plan of the town of Groton in 1889 (Walker 1889).

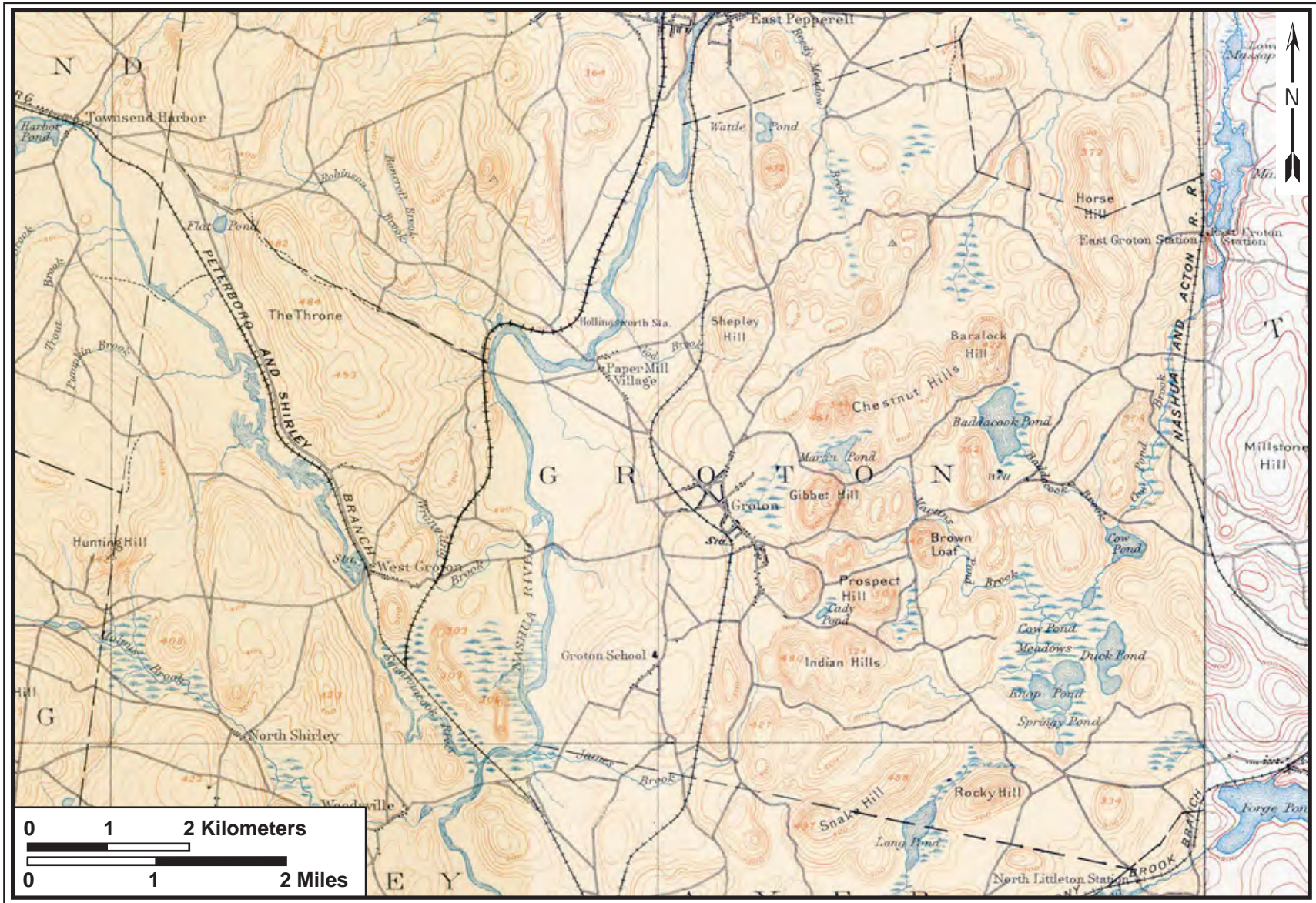


Figure 2-13. USGS topographic map of Groton in 1893 and 1917 (from 1893 & 1917 historic USGS maps).



Figure 2-14. 1930 Tercentenary map of Groton (Groton Historical Society - historic recreation of 19th century Groton (Somes 1930).

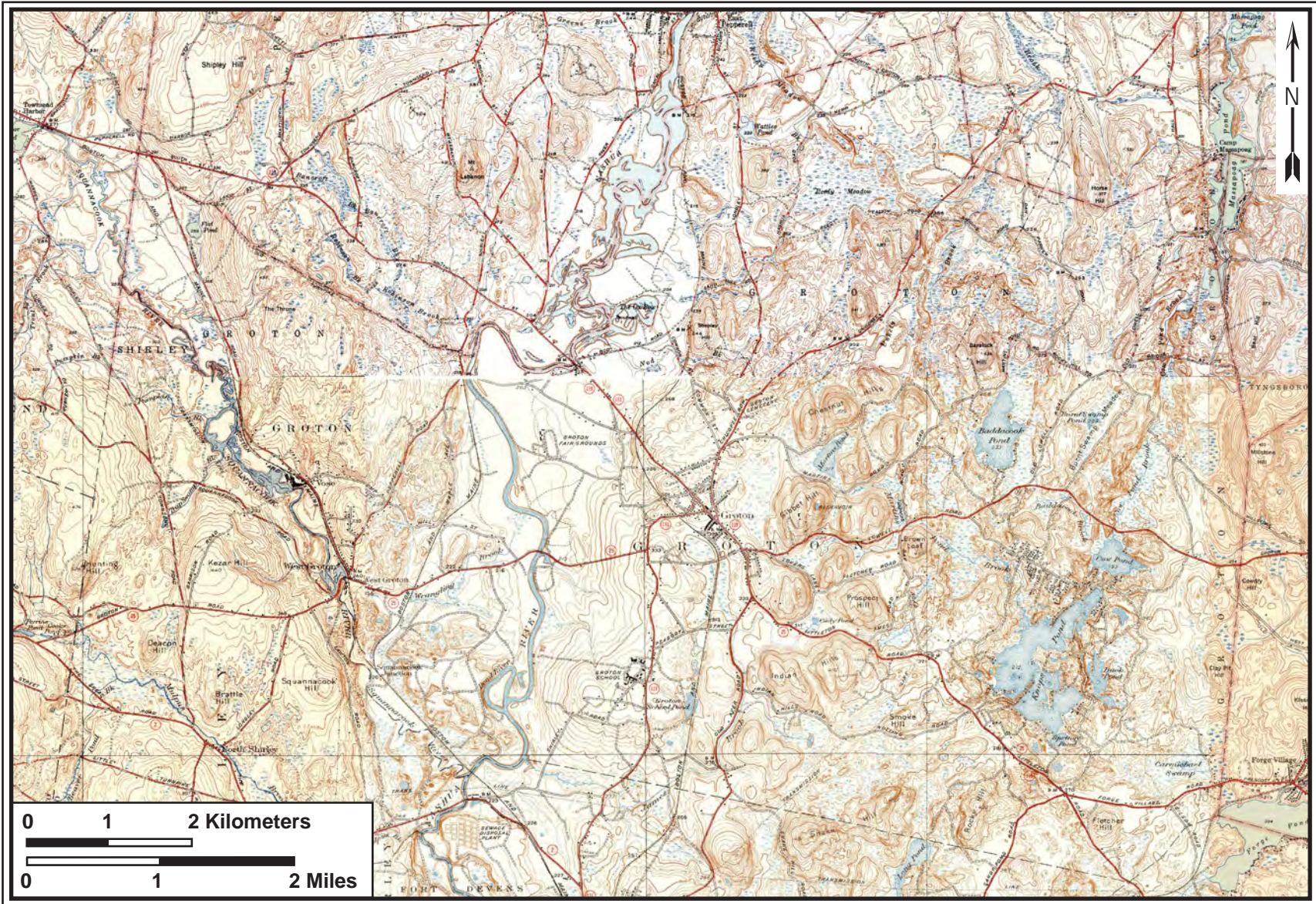


Figure 2-15. USGS topographic map of Groton in 1939/1941/1944 (1939, 1941 and 1944 historic USGS maps).



Information concerning soils, topography, historical maps, and pre-Contact Native American site distribution was used to assess which areas were most likely to contain sites. A sample of these areas was subjected to a walkover in order to determine their likelihood to contain unrecorded sites. The walkover included observations on sites, surrounding landforms, and development. Highest priority was given to visiting previously recorded archaeological sites to assess their condition and possible future disturbances. The reconnaissance covered both Native American and historical sites. Based on the available time, the top priorities in each survey unit were then addressed.

The objectives of the walkover survey were many. First, it was necessary to confirm the presence and then record the existing conditions of historical resources (such as cellar holes, dams, and stone foundations) identified during the background research. Second, identification and documentation of any other visible Native American and historical sites was required. Third, evaluation of site conditions was needed. Finally, it was essential to refine the archaeological potential maps that can be used to predict the likelihood for additional unrecorded sites.

In the absence of contrary evidence, such as pavement or previous ground disturbance, it is assumed that the house lots of all historical buildings in Groton possess high potential for archaeological resources such as sheet middens of domestic refuse, stone-lined wells, privies, or buried foundations. Consequently, site numbers were generally not assigned to standing structures, although high potential for significant historical archaeological deposits should be assumed for these properties. In decisions regarding historic preservation, areas surrounding historic houses should be considered by the Groton Historical Commission, Groton Historical Society, Groton Planning Board, and the Groton Conservation Commission.

Massachusetts archaeological site forms for pre-Contact Native American and historical sites were completed to document the sites found during this survey. The forms were produced at Archaeological Services, and are on file in Amherst as well as at the MHC in Boston.

Public Presentations

Public presentations were given in relation to the survey. Members of the public were invited to attend for information about the archaeological heritage of Groton and the community-wide reconnaissance study. The public also was asked to bring in Native American artifacts for identification, in order that locations where artifacts have been found in the town could be recorded. Project Archaeologist Christopher Donta provided a summary of the Native American cultural chronology for the Groton area in April of 2010. Historian Sheila Charles presented preliminary results of the historical portions of the survey at the same meeting in April of 2006. Principal Investigator Mitchell T. Mulholland met with the public at the Williams Barn in March of 2010 and October 2010 concerning the results of the survey. He interviewed several members of the public concerning the location of archaeological sites in Groton. Christopher Donta and Sheila Charles also gave presentations at the Town Hall.

Preparation of the Archaeological Potential Maps and User's Guide

The findings of the background research, predictive models, and field visits were combined



to prepare and refine archaeological potential maps indicating Native American and historical archaeological potential in Groton. Following synthesis of the background research, environmental attributes such as topography, soil type, and drainage were considered. During the fieldwork, areas of high and low potential were viewed and verified. This information was used to define zones of to-high and low archaeological potential in Groton. Zones of high potential are typically undeveloped, level, well-drained areas that are located near freshwater sources and may be near known archaeological sites or in locations that are analogous to those containing sites in Groton. Zones of low potential are typically previously disturbed, sloping, poorly drained, or rocky and are considered unlikely to contain archaeological resources. The zones of potential were plotted on the USGS topographic quadrangles for Groton based on data from MassGIS.

It is intended that copies of the archaeological potential maps be referenced by regulatory organizations in Groton to evaluate the potential of proposed construction areas and, as appropriate, refer permit applications to the Groton Historical Commission for review. In order to maintain the confidentiality of site locations and to protect these resources the potential maps do not depict the locations of known archaeological sites in Groton. A user's guide for the potential maps is included in this report. The maps are available to the public.

Archaeological Site Numbers and Designations

The MHC maintains and continually updates comprehensive archaeological site files for the Commonwealth of Massachusetts. The site files contain site forms and maps that represent all the Native American and historical archaeological sites that have been recorded in the state. Inventories are also maintained for a wide variety of other historical resources, such as structures, historic districts, cemeteries, and monuments.

Native American archaeological sites are numbered according to the state and county where they are located. Specific site numbers are assigned sequentially according to the order in which sites are added to the state site files. Using Native American site number 19-MD-576 (previously recorded in Groton) as an example "19" represents the state (Massachusetts being the nineteenth state alphabetically when excluding Alaska and Hawaii, which were added to the system after its inauguration); "MD" stands for Middlesex, the county in which Groton is located; and "576" indicates that the site is the 576th Native American archaeological site to be recorded in Middlesex County.

Historical archaeological sites in Massachusetts are numbered according to the town in which they are located and the sequence of their inclusion in the state site files. Using historic site number GRO.HA.04 (previously recorded in Groton) as an example "GRO" stands for the town (Groton); "HA" indicates a historic archaeological site; and "04" indicates that the site is the fourth historical archaeological site to be recorded in the Town of Groton. (Note: A historical residential building in Massachusetts is generally not assigned an archaeological site number unless some form of archaeological research or testing has occurred there.)

During the research for the community-wide reconnaissance in Groton, temporary site numbers and designations were used for archaeological sites, until official site numbers were assigned by the MHC.



CHAPTER 3: ENVIRONMENTAL CONTEXTS OF GROTON

The environmental context and its evolution is an essential factor to consider when assessing the likelihood for unrecorded Native American and historic archaeological sites in Groton. Using geological, soil, and climatic data, the environmental context and natural landscape that existed during different periods of the pre-Contact era can be reconstructed. These factors also may be used to describe the forces that have formed the current topographic landscape of the Groton area. According to the predictive model used to locate Native American sites, the likelihood for such sites to be present in an area is primarily based on the environmental setting. Bedrock geology helps to identify where Native American groups could have obtained raw materials for stone tool manufacture. Fresh water sources and transportation routes directly influenced the locations chosen by Native Americans for settlement sites. The variety and quantity of available natural resources are always dependent on soil composition and drainage, which play a significant role in determining wildlife habitats and forest and plant communities.

Although the predictive model for historical site potential is primarily based on historical maps and documentation, the settlement patterns of the Euro-American settlers were strongly rooted in the environment of the region. In this chapter, the environmental context of Groton is discussed as it pertains to the predictive models.

Physiography

The area of study includes the entire Town of Groton, which is located in the northeastern part of Massachusetts, in the Nashua River valley in Middlesex County (Figure 1-1). Groton appears on the Lowell 1988 USGS 1:100,000 scale topographic map (Figure 1-2), as well as the Townsend, Lowell, Ayer, and Billerica USGS 1:25,000 quadrangles (Figure 1-3). Groton is one town away from the border with New Hampshire.

The Town of Groton is located on the eastern side of the New England Upland section of the New England Physiographic Province (Lull 1968). The New England Physiographic Province can be subdivided into sections including the White Mountain, the Green Mountain, the Taconic, the New England Upland, and the Seaboard Lowland sections. The entire New England province was laterally compressed creating the mountains of the western boundary and the plateau-like uplands to the east, divided by the Connecticut River Valley. The Seaboard Lowland section is characterized as the low coastal border of New England, and much of the population and industry in the region are concentrated in this lowland. The New England Upland consists of a plateau or raised peneplain that is divided by narrow valleys, with occasional monadnocks. The upland is typically about 300 to 330 m (1,000 to 1,100 ft) in elevation, with some higher peaks of exceptionally hard rock. The upland thus consists of an eroded plateau, sometimes called the Worcester Plateau, formerly consisting of more irregular terrain, but worn by many hundreds of millions of years of geological forces. Elevations in Groton are not as high as the central part of the uplands, as it lies along the eastern down-slope of the uplands, and is within the low-lying Nashua River valley. Elevations in Groton vary from lows along the Nashua River of about 60 m, with the plain next to the river ranging from 63-69 m, to a high of 156 m on top of Chestnut



and Gibbet Hills, near the town center. There are several other peaks above 150 m, including the Indian Hills, and Prospect Hill. The area of West Groton lies at about 73 m, while Groton center ranges between 93-99 m. East Groton is located at about 82 m in elevation.

Surficial Geology and Soils

The underlying bedrock in a region shapes the character of the environment by acting as a base for the overlying sediments and soils. Harder igneous and metamorphosed rocks form the uplands while the softer sedimentary rocks through the process of erosion form stream valleys, sand dunes, and other topographic features. The bedrock also provides the parent material from which the sediments and the soils that develop in the sediments consist of eroded bedrock and other parent material. All of southern New England is characterized as having undergone stagnation-zone retreat as the glaciers melted at the close of the Pleistocene. Live ice to the northwest was separated from meltwater deposits by a zone of stagnant, dead ice and accompanying debris. Ice-dams and deltas formed barriers to glacial meltwater, creating lakes and forming river and stream valleys. The forces of continental glaciation produced surficial geology in the area during the Pleistocene (prior to 10,000 years ago) with subsequent alteration by riverine action in the more recent Holocene.

As a result of the advance and retreat of the glaciers, the original soils, along with some of the bedrock, were scraped and scoured and subsequently re-deposited. The glacial ice sheets directly deposited some of these sediments, while others were laid down by stream action, or, as the case with finer sediments, settled on the bottom of glacial lakes. These deposits can range in thickness from thin layers over bedrock to sediments over 30 meters in thickness (Fessenden et al. 1975). Glacial features formed by the sediment deposits include a variety of ice-contact deposits (eskers, kames, etc.), outwash plains, drumlins, and localized glacial lake deposits (McIntire and Morgan 1963). Most of the Groton area is covered by till deposits of varying thickness, some of them overlain by alluvial sediments.

The ancient Native American inhabitants of the Groton area used a wide variety of lithic materials when manufacturing stone implements. These materials included quartz and quartzite, which are locally available in the form of cobbles in glacial till deposits, in addition to varieties of rhyolite and other volcanic materials that likely were transported into the area from sources in the Boston Basin.

Soils develop over time through processes of erosion and the accumulation and decomposition of organic matter within deposits of parent material. Therefore, the characteristics of the soil depend on many factors including topography, drainage, climate, and the composition of the parent material, as well as the flora and fauna in the area. As a result of glaciation, many soils in Groton developed in glacial related deposits, such as glaciolacustrine (glacial lake sediments), outwash, and till deposits and can be categorized into four major groups: wet organic soils, lake bottom soils, till soils, and outwash soils. The surficial geology of Groton consists of glacial till with sand and gravel deposits, which became the parent material in which Groton's soils developed. The exact type of deposit depends upon the landform, and its relationship to the drainage pattern. For instance, soils along the Nashua River are primarily Hinckley-Freetown-Windsor soils, which are soils formed in glaciofluvial deposits. Some of these soils have a thin mantle of loamy material overlying the stratified fluvial sands and gravels (Peragallo 2009).



Much of the remainder of Groton is comprised of Quonset –Carver soils, which formed in glacial outwash plains. There are also three areas of Bernardston-Pittstown soils, which formed on drumlins, and include the Indian Hills, Gibbet Hill, Chestnut Hills, and the Throne in West Groton.

Water Resources and Drainage

The town of Groton includes numerous wetlands, rivers, and ponds that lie within the greater Merrimack River drainage system. Waters in Groton generally flow to the north and northeast, towards the New Hampshire border, and into Pepperell and Dunstable. The indigenous Nipmuc people knew the area around Groton as *Petapawag*. This Algonquian word translates into English as a “swampy” or “wet place.” Groton has large rivers, such as the Nashua and the Squannacook, within its boundaries. The town also hosts numerous ponds, some of which are large, such as Lost Lake (once Knops Pond), Baddacook Pond, Massapoag Pond, Martin’s Pond, and Whitney Pond (though many are relatively recent mad-made water bodies). Scattered throughout the town are many smaller wetlands, which include small streams and swamps. This includes many acres of land in the eastern part of the town, along the Nashua River, but also along Unkety Brook, Cow Pond Brook, and Martins Pond Brook.

Groton is located primarily within the Nashua River basin. The Nashua flows west of the center of Groton, through Pepperell, into Hollis and Nashua, New Hampshire. The Nashua flows into the Merrimack River in Nashua, and runs to the southeast to Lowell, then to the northeast through Lawrence and Haverhill, before flowing into the Atlantic Ocean at Newburyport. The Nashua passes through Shirley and Ayer before entering Groton. The James Brook watershed lies east of the Nashua and is centered in the town. It includes the Groton School and Cody Ponds. About a fourth of its 4.3 square miles, including Indian Hills and Half Moon Swamp, is considered a Natural Heritage and Endangered Species Project Biomap Core Area. James Brook flows into the Nashua at the Ayer State Game Farm. Salmon Brook, which flows to the northeast into the Merrimack River, is located in the easternmost portion of the town. The Salmon Brook drainage includes Massapoag Pond, Cow Pond Brook, and the Lost Lake wetlands.

Native Americans and later settlers would have been attracted to this area for not only the well-drained soils and fresh water supply, but also the wildlife that would have inhabited the many local wetlands. Wetlands in particular offered an often overlooked variety of relatively predictable, abundant, and nutritional resources for humans and their hunted prey. Wetland plants include emergent wetland species such as cattail, water plantain, and arrowhead, deep water species such as water lily, and wet meadow plants such as nutsedge. Ground nut also grew abundantly along riverbanks in the region before the introduction of domesticated pigs by Europeans.

Climate

Climate in the Middlesex County area is temperate, with cold winters and warm summers, but moderated somewhat by the proximity to the Atlantic Ocean. Mean daily temperatures range from 69 degrees to 80 degrees Fahrenheit in the summer and 18 to 28 degrees Fahrenheit in the winter with extreme temperatures on record of -19 and 101 degrees Fahrenheit. The average



growing season is approximately 158 days and the precipitation is mostly distributed uniformly over the entire year (Peragallo 2009). The climate, with its moderate summers, cold winters, and annual precipitation, is favorable for the cultivation of many crops.

Flora and Fauna

The type and abundance of fauna are dependent on the amount and distribution of flora, which in turn is dependent on the soils, topography, and hydrology of the area. Vegetation in Middlesex County is predominantly of the mixed oak-pine forest type common to the coastal regions of the Atlantic states. White pine, black oak, and white oak are most frequently encountered, with red maple, various birches, hemlock, and beech common. A large number of introduced species are also present in heavily developed and landscaped areas. However, most forests remain dominated by indigenous species.

After the glaciers retreated, the local vegetation evolved from tundra to spruce forest, and then to deciduous forests of variable composition (Ritchie et al. 1973). Forest classifications are based on climatic differences at different altitudes and latitudes. In general, the project area is currently located in a zone between northern and southern flora known as the Central Hardwood region. This region is classified as having a variable climate, rich soils, and regular precipitation. Trees typically found within this classification include maples, oaks, ashes, hickories, basswoods, black walnut, American sycamore, yellow poplar, yellow buckeye, sweetgum, and conifers (Brockman 1986). As European Americans moved into the region, the original forest cover was cleared for agriculture and other pursuits. Today the majority of Groton's town lands consist of a combination of undeveloped cleared lots, wooded lots, and manicured and landscaped lawns. The most common trees are white pine, oaks, and red maples.

Immediately after the glacial period, large mammals roamed the area including caribou, musk ox, and mammoth. When the tundra gave way to pine forests, moose, elk, and deer were prevalent, and as the forests became deciduous, black bear, white-tailed deer and elk became numerous. Although their distribution and numbers varied, smaller mammals remained present throughout the varying changes in the local flora. These included beaver, muskrat, raccoon, woodchuck, bobcat, timber wolf, red and gray fox, otter, fisher, and other small rodents. In addition to these animals, turkey, coastal and migratory birds were once numerous. Because of the rivers and lowlands in the area, the environment was also ideal for amphibians and reptiles such as different species of turtle, snake, and frogs. Shellfish and fresh water fish including trout, bass, pike, and sturgeon were found throughout the ponds and rivers in the area (Funk 1972).



CHAPTER 4: PRE-CONTACT AND HISTORIC PERIOD CONTEXTS FOR MANAGING AND INTERPRETING THE ARCHEOLOGICAL RESOURCES OF GROTON

Today, Groton is a direct result of the economic and social patterns of the past as well as the environment and character of the land. This section of the report develops a pre-contact and historic period history of Groton which will be used to guide further studies, management of archeological resources and interpretation of Groton's past. These themes can be used to organize events and displays about Groton's past, or be used to develop research questions for future projects. The themes are presented here as a way of understanding the contexts for Groton's archaeological heritage.

Nipmuc groups, who called the area *Petapawag* or a "swampy place," occupied Groton for many thousands of years. The many wetlands of Groton have played a big part in all of the town's history, from the earliest settlers many millennia ago, to the most recent decades. Wetlands have served as transportation corridors, life sustaining sources of drinking water for people, plants, and animals, as well as sources of power, and places for recreation. The locations and types of wetlands spread across Groton have influenced how the town has developed, and continue to be important to the different themes that make up Groton. The interpretive themes presented in the following section refer back to the role of water and its influence on history within the town. The following interpretive themes have been developed to organize the data relating to the Native American and historic period cultural resources in Groton:

- Native American Land Use and Settlement
- European American Early Settlement of Groton
- Domestic Life and the Social Fabric of the Community over Time
- Agricultural Pursuits
- Economy and Industry
- Civic Life and Public Buildings
- Overland Transportation
- Burial Traditions
- Late Twentieth Century Transitions

The interpretive themes are intended to be referenced during the evaluation of the National



Register eligibility of archaeological sites that have been recorded in Groton, or may be recorded in the future. Not all Native American sites and historic period sites are eligible for listing in the National Register. The ability to protect or investigate archaeological resources prior to their destruction by development often hinges on the NR-eligibility of those resources.

Native American Land Use and Settlement

Only a small number of Native American archaeological sites have been recorded in Groton (Table 4-1). In many towns across Massachusetts, members of the Massachusetts Archaeological Society reported site locations during the twentieth century, as local collectors continue to do who are interested in Native American history. However, no such sites were ever recorded in Groton. All three known sites in the town were recorded as the result of cultural resource management surveys. Additional sites have been recorded as a result of the present community-wide reconnaissance survey.

Pre-Contact Native American sites are typically rare, fragile, and not visible on the ground surface. Groton contains sites dating sporadically across much of the pre-Contact era. In order to interpret the Native American archaeological heritage of the town, this interpretive theme presents a chronological cultural history of Native American settlement in Groton and the surrounding area.

The Groton area has been home to humans for approximately 13,000 years. Only the last four centuries of these millennia are documented through written records. The history of the years preceding can be constructed only through Native American oral traditions and the study of material remains of human behavior (archaeology). The following brief narrative of culture history focuses on the vicinity of Groton, but incorporates information gathered from the region as a whole. General cultural trends are emphasized for each segment of the area's history. This overview of culture history uses many of the chronological periods generally employed by archaeologists in the Northeast (e.g., Dincauze 1990; Funk 1976; Ritchie 1980; Snow 1980).

Paleoindian Period (ca. 13,000-10,000 Before Present (B.P.)). The first inhabitants of southeastern New England were women, men, and children who lived in small, mobile groups and who gathered and hunted in a land that had only recently been freed from the grip of a massive continental ice sheet. They were Massachusetts' first pioneers (see Dincauze 1990); archaeologists call them Paleoindians. They were descendants of the first people who, between 15,000 and 20,000 years ago, crossed the Bering land bridge to North America and gave rise to almost all of the indigenous peoples of the Americas. According to archaeological evidence, the first human occupations in Middlesex County occurred during this period, more than twelve millennia ago.

Evidence from the greater Northeast indicates that Paleoindians first settled in the area not long following the retreat of the Wisconsin glacier, which vacated New England by around 13,000 years ago. Close assessment of radiocarbon dates indicates that the initial settlement of North America clusters around 13,400-13,000 B.P. in the West, Midwest, and Southeast, with first settlement in the Northeast slightly later than in the western part of North America, but certainly by 12,500 years ago (Fiedel 1999; Haynes et al. 1984). Claims for earlier occupation of North America based on a few unusual sites (Adovasio et al. 1978, 1980; also see Meltzer 1989;



Lynch 1990) remain unconvincing to many archaeologists, despite reports to the contrary in popular magazines and newspaper articles.

Table 4-1. Native American Sites in Groton.

Site No.	Site Name	USGS Quad	Components	Diagnostic Artifacts	Date	Comments
19-MD-572	Martins Pond Brook	Ayer	Unknown	None	1986	Alan Strauss, OPA
19-MD-1026	East Groton #1	Ayer	Unknown	None	2005	Barbara Donohue, Timelines
19-MD-1027	East Groton #2	Ayer	Unknown	None	2005	Barbara Donohue, Timelines
UM-1	Red Bridge	Shirley	Unknown		2010	From Green 1894: 22; Dincauze AYR004
UM-2	Eastern Chestnut Hill	Ayer	Unknown	Gouge	2010	Francis Boutwell; Groton Historical Society O 74; found 1889
UM-3	Balcum Farm	Ayer	Unknown	Small Stemmed, Susquehanna, Levanna	2010	Groton Historical Society O 2415
UM-4	Upper Nashua River	Ayer	Unknown		2010	Dincauze AYR003
UM-5	Lower Nashua River	Ayer	Unknown		2010	Dincauze AYR 002
UM-6	Stoddart site	Ayer	Unknown		2010	Marion Stoddart
UM-7	Conley site	Pepperell	Middle Archaic	Stark	2010	Troy Conley
UM-8	Wyatt site	Pepperell	Unknown		2010	Al Wyatt
UM-9	Stoddart Stone-Axe Findspot	Ayer	Unknown	Ground stone axe	2010	Marion Stoddart

The Paleoindians of southern New England inhabited an environment quite different from that of today. It was an environment that was rapidly changing as glacial margins retreated north, new plant and animal species entered the region, soils and landforms matured and stabilized, climate warmed, and both sea levels and land rose. Spruce, birch, and alder dominated the forests. Soils were younger, thinner, and less developed, and wetlands, some of which were



remnants of large pro-glacial lakes, were much more extensive. Fauna were also different and may have included animals now extinct (such as the mammoth and mastodon), or now found only far to the north (such as caribou). Some archaeologists have suggested that eastern Paleoindians were specialized hunters of these now-vanished big game animals (Ritchie 1980; Snow 1980). Little evidence of human interaction with these “megafauna” has been forthcoming, however, and more recent interpretations have focused on smaller species such as caribou, elk, and birds as primary food sources (Curran 1987; Curran and Dincauze 1977; Dincauze 1990, p.c.; Dincauze and Curran 1984).

Essentially nothing about social structures, family life, and religion among Paleoindians is known. No house features, burials, or ceremonial objects have been recovered from Paleoindian sites in the Northeast. This lack of data is the product of 10,000 years of organic decay, geological forces, and urban development impacting the archaeological record. All that remains of this time, in most cases, are stone tools. Projectile points with a distinctive basal flute can be identified as originating from this time, as this style occurs across North America in the Paleoindian era. In addition to fluted points, scraping tools, drills, graters, and utilized waste flakes are also found at Paleoindian sites. The most common artifacts are the waste flakes resulting from the making of stone tools. Little else is ever found in addition to stone artifacts, making interpretation of Paleoindian lifeways difficult.

Based on comparison with other hunting and gathering peoples across the globe, it is assumed that peoples of this time were seasonally nomadic, following the movement of game with the changing weather conditions of the year. Similarities in artifact forms among Paleoindians all across North America argue for a generalized character of adaptation, with few specializations to local conditions evident (Haynes 1980:119). A correlate of this fact is that population densities among Paleoindians were almost certainly very low. Raw materials utilized by these first inhabitants come from only a few sources, often from relatively distant locations (Spiess and Wilson 1989; Spiess et al. 1998). This may indicate a high degree of mobility, established trade networks, and a high frequency of interaction among units of population.

Sites of these original pioneers are extremely rare, with only a handful of well-documented examples known from New England. This includes the one of the first of such sites found in the Northeast, the Bull Brook site, located to the east of Groton, in Ipswich (Eldridge and Vacaro 1952; Byers 1954, 1956; Grimes 1979; Grimes et al. 1984). The Bull Brook site contained at least 50 fluted points excavated by members of the MAS, along with end scrapers, graters, drills, and retouched flakes. Other Paleoindian sites that have been excavated in eastern Massachusetts include the Wapanucket site (19-PL-203) in Middleboro (Robbins 1980:272-285), and the Neponset site, in Canton (Carty and Spiess 1992; Donta 2005).

Slightly more common are Paleoindian sites known only from single projectile points diagnostic of this time period, usually found in plowed fields by archaeology enthusiasts. Single points or small sites of this period have been reported from Bedford, Lowell, North Andover, Andover, Boxford, Concord, Wayland, Lancaster, and New Braintree (Luedtke 1985; Anthony 1978; Johnson and Mahlstedt 1984). The Neville site in New Hampshire also contained fluted points (Dincauze 1976).

No reports have yet surfaced of fluted points at any sites within Groton. However, based on the locations of known Paleoindian sites, we know that they stayed close to major rivers and/or lakes, and that they were in the greater Merrimack drainage. To date, very little research has been done in Groton, and it is expected that the town includes large Native American sites that



would have spanned many millennia. *Petapawag* would have been attractive to such early settlers, as it is located along one of the area's major rivers, and it is considered likely that such sites exist in the town. One or more of these sites may contain evidence of Paleoindian occupation that has not yet been recognized, or has been lost.

During the next several millennia the environment of the Nashua River basin, and of the Northeast, changed and became more similar to that of the present. This period, following Paleoindian occupation but predating the use of pottery and horticulture, has been designated the Archaic period by North American archaeologists. During this time, people developed patterns of subsistence and settlement, elements of which persisted into the seventeenth century. The Archaic period witnessed the growth of native populations and the development and florescence of several cultural traditions. Archaeologically, the period provides evidence of an increase in the expression of ritual, particularly in the burial of the dead.

Early Archaic Period (10,000-8000 B.P.). During the Early Archaic Period, profound environmental changes continued in New England, as the landscape adjusted to warmer post-glacial conditions. Lasting effects of melting glaciers included rising sea levels that inundated low-lying coastal plain areas. The regional climate became warmer and drier, and a mixed pine-hardwood forest came to dominate the landscape.

In the Northeast region generally, archaeological sites from the Early Archaic Period are very rare. The social and technological adaptations devised by the indigenous populations of New England at the time are not yet well understood for much of these 2,000 years. Research indicates that Early Archaic social groups moved within smaller territories than their Paleoindian ancestors, practicing an increasingly generalized subsistence strategy based on river and lake systems and particularly wetland mosaic physiographic zones. The megafauna of the late Pleistocene had disappeared, leaving smaller mammalian species such as moose and beaver. Deer were not likely abundant until the end of this period as oak and other mast-producing trees became more numerous. Environmental conditions would have made seasonally available natural food resources somewhat more predictable and abundant than they had been during the Ice Age, allowing human populations to exploit a wider range of territories.

There is, at present, no consensus as to how people of the Early Archaic period were related to those of the preceding Paleoindian period. Some researchers have argued that there is a "clear discontinuity" between Paleoindian and Early Archaic peoples, following some type of ecological over-exploitation (Ritchie 1969:16; Snow 1980:157-159). Others see important technological similarities that are interpreted as evidence of continued occupation by Paleoindian descendants during the Archaic period (Custer 1984). The present scarcity of data, whether due to environmental degradation, urban development, or simple scarcity of sites, prevents firm conclusions either way, despite arguments to that effect.

The diagnostic artifacts most closely associated with the Early Archaic Period are the Bifurcate-based projectile points, and, less commonly, stemmed or corner-notched points of the Palmer and Kirk types. Evidence from the greater Northeast indicates that large hilltop sites, apparently an important location for Paleoindians, were no longer as useful as in the preceding period. In fact, sites produced by bifurcate point makers are generally smaller and more ephemeral, probably indicating that people were not organized in large bands. The extensive herds of game were apparently gone by this time, explaining the lesser importance of hilltop sites. By this time the tools of the bifurcate tradition were being more frequently made of



regional materials, such as Boston Basin rhyolites (Braun and Braun 1994:29-31).

While Bifurcate-base projectile points are the traditional hallmark artifact of the Early Archaic period in southern New England, it is now understood that most of these artifacts date to the end of this period. The distribution of surface finds of the bifurcate-base point type indicate that people associated with these Piedmont Tradition tool types were present throughout New England primarily after about 8500 radiocarbon years ago. Most of the major rivers must have been established very near to their present courses by this time (Dincauze and Mulholland 1977).

Recent research suggests that an earlier cultural tradition of the Early Archaic featured a quartz cobble lithic industry, represented by steep-edged unifacial scrapers and a distinct lack of projectile points in artifact assemblages (Robinson and Petersen 1993). Ongoing research in southern New England continues to provide important new information concerning seasonal, complex habitation sites of the Early Archaic Period (Forrest 1999a and b).

Excavations at sites such as Sandy Hill, in southeastern Connecticut (Forrest 1999b; Jones and Forrest 2003), and the Whortleberry Hill site in Dracut (Dudek 2005), as well as new dates from the site of Wapanucket in southeastern Massachusetts (Robinson 1992), indicate the development of this local cultural tradition that predates the period of bifurcate point manufacture. Focused on the manufacture of simple unifacial tools from quartz, crude “chopping tools” of other local stone, and the development of groundstone technology, this early culture is referred to as the Gulf of Maine Archaic Tradition based on its initial association with deeply-buried sites in Maine (Peterson and Putnam 1992). Robinson (1992) has documented a complex burial ceremonial aspect of this culture, while the Sandy Hill site provides evidence for long-term large habitation areas that included pit house dwellings. The economy of this group was focused largely on plant foods, including hazelnuts and a variety of wetland species such as cattail, water lily, and nutsedge.

The origins of this tradition remain obscure, but it appears to represent a widespread local adaptation to the resources of the postglacial wetland habitats of New England. Initial dates for the tradition fall primarily between 9,000 and 8,500 radiocarbon years ago, and thus predate the arrival of bifurcate makers in the region. The Gulf of Maine Archaic Tradition continues to develop in northern Maine through the Middle Archaic period, but elsewhere is displaced by Early and Middle Archaic Piedmont traditions, associated with groups from the mid-Atlantic region, who adapted hunting in the mast-forest environments that dominate the region after 8,000 years ago. The nearby Whortleberry Hill site in Dracut, with radiocarbon dates between 8,100 and 7,800 years ago is an example of a transitional Gulf of Maine Archaic site clearly influenced by contact with Piedmont tradition peoples. Similar sites likely exist in Groton. But have not yet been located.

As was the case for the Paleoindian period, Early Archaic sites are rare. At least 16 Bifurcate-base points were found from sites along the lower Sudbury and upper Concord Rivers (Ritchie et al. 1990), which includes at least five sites in Wayland, and four in Concord. Research into collections and site information shows that at least 14 sites in Middlesex County contain Bifurcate-Base points (MHC site forms; and see Johnson 1993). Less is known about the distribution of Bifurcate points in nearby Worcester County.

Important sites in the Northeast that form the basis of generalizations on the Early Archaic are the Sandy Hill site (Jones and Forrest 2003), Titicut site in Bridgewater (Robbins 1967), Hollowell site on Staten Island, New York (Ritchie and Funk 1971), and the Weirs Beach site in New Hampshire (Bolian 1980). An apparent concentration of Early Archaic materials is situated



in the upper Taunton River area, including the Titicut site (Taylor 1976). No sites in Groton are known to have yielded Early Archaic materials, although it is expected that some of the extensive wetlands in the town were formed by this time, and would have been attractive to these early settlers.

Middle Archaic Period (8000-6000 B.P.). During the Middle Archaic Period, environmental conditions in the area began to approach those of today. The warming trend following the retreat of the glaciers continued. The deciduous forest became established, providing a diverse array of plant and animal foods (Dincauze 1976; Dincauze and Mulholland 1977). Sites of this period are more numerous than those of the Early Archaic, but still rare in comparison to subsequent stages. Sites from southern New England provide evidence that a substantial degree of population growth had occurred by the end of this period (Mulholland 1984).

A variety of site locations during the Middle Archaic indicates that a multi-site settlement system had become established, as seen in a variety of tool assemblages and types of food waste (Dincauze and Mulholland 1977; Barber 1979). It is likely that this seasonal settlement system had begun during the preceding Early Archaic period (Ritchie 1980), though as noted, there is very little evidence from this earlier time. Sites of the Middle Archaic are sometimes large, appear to be reused, and include sizable food waste dumps, as at the Neville site in New Hampshire (Dincauze 1976). Anadromous fishing was an important activity, and Merrimack Valley sites such as the Neville site are frequently located at falls and rapids—good spots for intercepting migrating fish (Dincauze 1976). A number of other activities were also carried out at the Neville site, including hide working, tool manufacture, and woodworking. All of this indicates that the settlement system included permanent or semi-permanent base camps to which social groups returned.

The first evidence of religious beliefs becomes available at this time, though only from a few select sites. The most informative is L'Anse Amour, at the southeastern tip of Labrador. A Middle Archaic burial mound was excavated here, which included evidence of fire, the use of red ochre, and numerous grave goods (McGhee and Tuck 1975). This collection of materials may be interpreted as indicative of a belief in the afterlife. Cremated human remains of the Middle Archaic period were also found at Annasnappet Pond in southeastern Massachusetts (Doucette and Cross 1997). Projectile points, winged atlatls, red ochre, and other tools were found in association with the burnt bones, dated to 7570-150 B.P.

Presently, three major projectile point styles are recognized as diagnostic of the Middle Archaic period. These were defined by Dincauze in her excavations at the Neville site (Dincauze 1976). These are the Neville point, dating from approximately 8000-7000 B.P.; the Stark, from around 7700-7200 B.P.; and the Merrimack, from close to 7200 B.P. to the end of the period at 6000 B.P. Other artifacts used during this time include atlatls or throwing sticks, knives, perforators, axes, adzes, scrapers, abraders, ulus (semi-lunar ground stone knives), gouges, and harpoons (Doucette 2003, 2005) (see Figure 4-1). One of the most important and most thoroughly excavated Middle Archaic sites in the region is the Annasnappet Pond site, in Carver, Massachusetts. This site contains the largest assemblage of Middle Archaic artifacts in association with radiocarbon dates in New England (Doucette and Cross 1994). Six radiocarbon dates ranging from 7880 to 7290 B.P. were obtained from human burials, hearth and storage pit features, in addition to more than 170 Neville and Stark projectile points (Doucette 2005).

Middle Archaic materials have been recovered from numerous sites in the Groton area. This



includes at least 18 towns in Middlesex County, including approximately 100 sites. Essex County has at least eight towns with Middle Archaic sites, numbering 29 sites. The site distribution is dramatically higher than that of the preceding period, when Essex County included four towns with some five sites, and Middlesex County included seven towns with 15 sites. At least one site in Groton is known to contain a Stark type projectile point. The Conley site, identified by UMass during this project, has yielded a diagnostic point of this time period.

Late Archaic Period (6000-3000 B.P.). Late Archaic Period sites in northeastern Massachusetts are much more numerous than from previous periods. Peoples of southern New England now occupied a wide variety of environmental settings (Mulholland 1984:277-280), and there appears to be a significant diversity in site type and function. Modern environmental conditions were largely established and the wild resources available were the same as those observed by the early European settlers and explorers.

Population densities may have been sufficient to result in the development of multiple ethnic groups in the Northeast (Dincauze 1974). Three cultural traditions have been identified based on artifactual materials: the Laurentian, Susquehanna, and Small-Stemmed, all of which are present in the area, although Small-Stemmed materials appear to be most common (see Figure 4-2). Along with the development of multiple traditions, increased specialization and the exploitation of a broad spectrum of resources are interpreted for this period.

The relationship between the three recognized Late Archaic traditions remains unclear, even after decades of debate (Ritchie 1971; Dincauze 1974, 1975). Laurentian materials are more numerous in the central and western parts of the state, raising the possibility that this tradition represents an interior, upland adaptation. An alternative interpretation is that the Laurentian, part of the greater Lake Forest tradition, which has a distribution that extends from New Brunswick to Wisconsin, represents some form of ethnic identity. Laurentian materials appearing approximately 4,500 years ago may be indications of some form of population movement, probably originating from the Great Lakes region.

The significance of the more common Susquehanna and Small-Stemmed traditions is not known. Dincauze (1974, 1975) has suggested that the two represent different populations, with the former consisting of an intrusive group, which peacefully coexisted with the latter people for some thousands of years. Alternative explanations include the possibility that these traditions are somehow different in function, representing separate types of tool kits. At present there is some agreement that the technological precedents for Susquehanna tools are found in the southeastern United States, ultimately deriving from Middle Archaic stemmed biface types in the Mid-Atlantic region. Small-Stemmed, or Narrow-Point tradition artifacts, are widely viewed as a pan-northeastern phenomenon, probably deriving from the indigenous people of New England in the Middle Archaic. It is likely that the presence of Small-Stemmed and Susquehanna artifacts in a single site represents some combination of technological exchange and population mixture, contingent upon local conditions (Ritchie 1969; Dincauze 1976; Snow 1980; Custer 1984; Bourque 1995).



Figure 4-1. Stone axe from the collection of the Groton Historical Society.

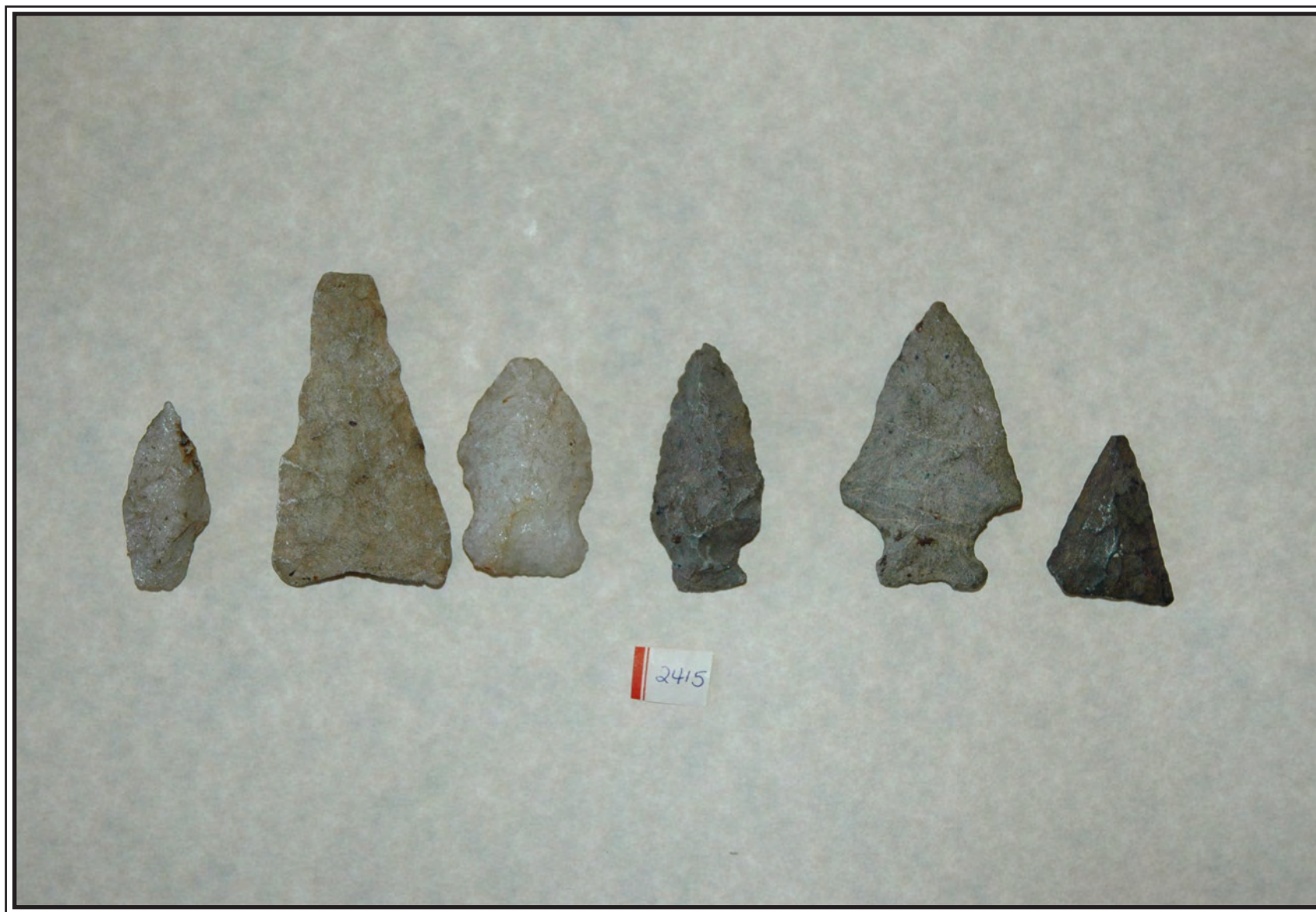


Figure 4-2. Stone projectile points from Groton, including a Small Stemmed (left), and Susquehanna (second from right), Late Archaic period, in the collection of the Groton Historical Society.



Late Archaic sites are more common in northeastern Massachusetts than in previous periods. In fact, throughout southern New England, sites dating from the fifth and fourth millennia (5000-3000 B.P.) are the greatest in number of any period (Mulholland 1984). In the Groton area, this is reflected in the records of professionally excavated sites and in the inventories of artifact collections (Hoffman and Edwards 2002). However, the large representation for this period may be somewhat overstated, due to the over reliance on certain projectile point styles as temporal markers of the Late Archaic. Small-Stemmed points are the most common artifact styles of this era, and they have traditionally been utilized as a diagnostic type for the Late Archaic. However, closer examination of radiocarbon dates associated with this point style show a wider range, extending well past the 3000 B.P. end date for this period. It is likely that a substantial number of sites currently attributed to the Late Archaic actually postdate this period (Filios 1990).

People of the Late Archaic period in southern New England developed a more locally focused subsistence economy than during previous times. This may be due to increasing population levels, requiring groups to remain in more confined territories to avoid encroaching on others. Some degree of sedentism, based on changes in subsistence strategy, is interpreted by at least the end of the period. Shell middens begin to appear in some coastal locations, indicating increased use of shoreline resources (Bourque 1976). Extensive fish weirs have also been documented for this time, where large numbers of fish could be speared in an organized manner (Johnson 1949). Some limited experimenting with cultigens also occurred, the idea probably spreading from the southeastern and central part of the continent. Squash, gourds, and sunflowers grew wild in parts of the Northeast, and a few Late Archaic people began to purposefully plant these species to supplement their diets.

There is also more information on the ceremonial life of Late Archaic times. Burial sites are much more commonly encountered in excavations, relative to earlier periods, providing a glimpse at the religious beliefs of the era. The “Red Paint People” of Northern New England and the Canadian Maritimes are one example. These people used large quantities of red ochre and included decorated tools and ornaments in the burials of some of their dead (Sanger 1973; Tuck 1976). Another burial site of note is the Wapanucket site (Robbins 1980) in Middleboro, Massachusetts, which also included tools and red ochre. Cremation burials of the Susquehanna tradition are present across New England, featuring stone and bone artifacts and faunal remains (Dincauze 1968).

Late Archaic sites are well represented in the area around Groton. This includes sites in eastern Worcester County, such as Bolton, Westborough, Worcester, as well as numerous sites in Middlesex County. There is a particularly dense cluster of sites located at the junction of the Assabet and Sudbury Rivers in Concord, one of the highest concentrations anywhere in New England. As these rivers were transportation corridors, the location undoubtedly functioned as a hub, leading up the Concord River to the Merrimack. Similarly, Groton’s location on the Nashua placed it along a transportation artery, leading up to present day Nashua, New Hampshire, where the Nashua flows into the Merrimack.

Although there have not been any actual excavations of Native American sites conducted in Groton itself, one site tested in neighboring Pepperell dates from this time period. The Reedy Meadow Brook site is located on the Nashua River, just east of the center of Pepperell, and produced a radiocarbon date of 4415 +/- 205 years B.P. on a fire hearth (MHC site files). In neighboring Shirley, the Herfco Knoll site produced several Susquehanna derived projectile



points, including a Wayland Notched point (ca. 3600-2900 BP), and a Mansion Inn blade (ca. 3700-3700 BP). That site is located just across the Squannacook River from Groton.

Soapstone (steatite) became an important mineral resource during the final stages of the Late Archaic Period (Terminal Archaic), especially after about 3,000 years ago. Soapstone was used to manufacture large bowls and platters and represents a precursor to ceramic technology that develops during the following Early Woodland period. The presence of an historic period soapstone quarry in town and a description of this material lying on the surface when first discovered in the early nineteenth century (Green 1884, in Green 1887, Groton Historical Series No. IV: 21) suggests Native craftsmen used the location as well, though this remains to be documented.

Early Woodland Period (3000-2000 B.P.). The third major era of Native American times is called the Woodland period. This period was originally defined to include a broad area of the Northeast, encompassing new technologies such as ceramics, the bow and arrow, and horticulture involving exotics such as corn. As with the Archaic period, archaeologists have divided the Woodland into three stages, used to demarcate changes in adaptation.

For many years the Early Woodland Period was considered to be a period of population decline following high population levels in the Late Archaic. However, research over the last two decades has shown that projectile point styles used to date the Late Archaic also include much of the Early Woodland period. The Early Woodland is now thought to probably continue some trends of the Late Archaic, such as population increase, while new technologies, such as pottery and some crops were added to an already rich and diverse lifestyle.

Some changes in food gathering strategies are apparent during this time, probably representing a continuation of the trend toward a more localized, semi-sedentary settlement system. Camps that were more permanent were established along the coast or inland watercourses, where waterfowl, fish, and sea mammals could be easily exploited. Shellfish were also taken, although it seems that these were not a major dietary component until the Middle Woodland. The general pattern remained one of hunting and gathering, particularly along water bodies where fish could be included in the daily fare. Technological changes are an important component of how archaeologists understand the Early Woodland period. This millennium witnessed the first widespread use of ceramics across the Northeast. Traditionally, ceramics were thought to coincide with the appearance of horticultural practices, serving as a convenient means of storing the surplus foods obtained through purposeful planting. It is now known that in most of New England cultigens were not an important part of most people's subsistence routine for at least 1,500 years after ceramics became established in the area. Further, ceramics were probably an outgrowth, at least in part, of earlier use of stone vessels made of steatite.

The rich burial ceremonialism of the Late Archaic continued into the Early Woodland, with exotic artifacts such as gorgets, birdstones, tubular pipes, copper beads, and red ochre placed in graves with human remains (Ritchie 1965; Ritchie and Funk 1973; Spence and Fox 1986). The significance of these religious practices is not known, but they do not appear to reflect a dramatic change in the way the social order was conceived. The presence of exotic goods in sites provides evidence of established trade routes that extend to the Midwestern portion of the continent, where the Adena complex was well established.

Much remains to be understood about this period. Hindered by confusion with the Late Archaic period, sites of the Early Woodland have often gone unrecognized, or are misinterpreted.



Recent research disentangling this time from the Late Archaic will be of great importance in understanding the emergence of historic period ethnic identities.

Sites that may date to the Early Woodland are well represented in the Middlesex County area. The site distribution for Early Woodland sites is almost exactly the same as those of the Late Archaic. A large cluster of sites is known from the Concord-Wayland-Sudbury area, and it is expected that many locations along major riverways, such as the Nashua, would have been frequently occupied. Closer to Groton, the Reedy Meadow Brook site in Pepperell, mentioned above, contained a feature radiocarbon dated to 2190 +/- 165 years BP. The Herfco Knoll site in Shirley also contained 99 shell-tempered sherds of pottery.

Middle Woodland Period (2000 to 1000 B.P.). The Middle Woodland Period witnessed a continuation of trends of the Early Woodland. Again, however, technological innovations provide evidence of change. This part of the Woodland period is differentiated from the preceding millennium by a change from simply decorated ceramics to widespread use of more elaborately decorated wares. No functional interpretation for this change appears accepted; rather, the increased decoration probably had to do more with style and ethnic identification, a traditional archaeological interpretation. Another new technology became important; the bow and arrow is thought to have become a part of regional technology at this time. Projectile points that may be of the Middle Woodland period are in the collections of the Groton Historical Society, although they cannot be attributed to a specific location (Figure 4-3, far right).

Subsistence trends of the Early Woodland continued. In parts of New England, it has been hypothesized that large, semi-permanent, or perhaps even year-round settlements were utilized by this time (see McManamon 1984). These locations would have been supported by specialized subsistence foci, such as shellfish, fish, and sea mammals. While there is evidence that the first large shell middens appear in the archaeological record at this time, there is little evidence for large permanent settlements. Continued experimentation with horticulture using local cultigens is inferred for this time, though evidence for such activity is rarely preserved.

The sometimes-elaborate burial ceremonialism of the Late Archaic and Early Woodland periods is rarely seen during this millennium. The reasons for this are not clear. Contacts with neighboring areas are still thought to be important, as exotic lithics were still frequently used throughout most of the Northeast.

Late Woodland Period (1000 to 400 B.P.). During the Late Woodland Period and the preceding period, the pattern of settlement witnessed by the first European explorers was established. Horticulture, including exotic domesticates such as corn and beans, became a widespread important dietary element. More evidence of permanent settlements appears, or at least locations that were used for much of the year, especially on the coasts (Carlson 1986; Yesner 1988). It has traditionally been assumed, in part due to the early historic descriptions, that permanent settlement became widespread as a result of a dependence on corn. However, corn is infrequently found at sites in New England, despite all efforts to recover evidence for its use (Bumstead 1980; Thomas 1979), and permanent settlements have generally been lacking in the archaeological record (Luedtke 1988; Thorbahn 1988). Indirect evidence of horticulture comes from large storage pits or "granaries" which are thought to represent the production of large quantities of grain. However, the lack of permanent settlements may be a product of a highly adaptable population that could be characterized as mobile farmers (Chilton 2005). Archaeology



is not perfect in documenting these features and other parts of indigenous culture, as much of the materials used was fragile and did not preserve well. An example of this is a carved wooden spoon and comb in the collection of the Groton Historical Society (Figure 4-4). Such fragile Native American artifacts are rare.

Regardless of the role of domesticated plants in the overall diet, wild plants and animals were still very important in daily subsistence (Mulholland 1988). A great diversity of environmental settings was occupied and a wide array of resources continued to be exploited. The hunting/gathering/fishing system with seasonally based camps continued to be the basis for subsistence and settlement in many parts of the Northeast. The growing population levels may have in part prompted some to turn to horticulture to relieve a decreasing degree of flexibility in food sources. Other mechanisms adopted included using more marginal areas and expanding the variety of foods to include what had previously been considered less desirable resources (Luedtke 1980; Lightfoot 1985).

During the Late Woodland period, the cultural identities of the Pawtucket, Nipmuc, Massachusetts, Wampanoag, Pequot, Nehantic, Mahican, and other groups came into full form in southern New England. All of these peoples were part of a larger group of tribes known as the Eastern Algonquians. All Algonquians spoke related languages, which differed from the Iroquoian languages prevalent in New York State and southern Canada (see Goddard 1978). Each group developed relationships with particular geographic areas as well as distinctions between cultural traits and material traditions.

At the time of the first European arrival in the area, the Massachusetts lived in the area around Boston Harbor and the Wampanoag occupied most of the southeastern part of the state, including the Cape and Islands (Simmons 1986; Goddard and Bragdon 1988). To the north and west of the Massachusetts were the Pawtucket (or Pennacook) and Nipmuc, while to the southwest were the Narragansett and Pequot. These groups were not without conflict; The Massachusetts were reportedly in frequent conflict with the Pawtucket (Gookin 1970[1792]:9).

Contact Period (A.D. 1500-1620). In the fifteenth century prior to the Contact Period, Italian, Portuguese, and French fisherman and explorers navigated the coastal waters off New England but did not permanently settle. Therefore, the beginning of this period is generally set at ca. AD 1600, when the first intensive European occupations appear in several locations along the eastern North American coast.

Evidence for intensive Contact period Native American occupations in the area that is now Groton is difficult to assess because the Massachusetts, the Pawtucket, and the Nipmuc homelands overlapped. However, the area appears to have been primarily an area of Nipmuc settlement during the early historic period. Between 1616 and 1618, an epidemic struck Native populations along the New England coast with devastating effect (Salisbury 1982; Bragdon 1996). These epidemics wiped out large segments of the Native American population in the interior, especially those grouped closer together in larger settlements. Native American population figures for the Middlesex County region are unavailable for the period before 1620 partly due to these epidemics. This has further complicated understanding aspects of the Contact Period. Such losses radically changed Native lifeways; decreasing population greatly diminished parts of the traditional culture. Though sites from other parts of southern New England have been confirmed, no such sites are yet known in Groton.



Figure 4-3. Stone projectile points from Groton, including a Jacks Reef (right), Middle Woodland period, in the collection of the Groton Historical Society. The two points on the left are from outside of the region and are made of obsidian.



Figure 4-4. Rare hand-carved wooden spoon and comb of Native American manufacture from Groton, in the collection of the Groton Historical Society. The label reads “Comb and spoon of wood tied together and bearing a paper reading “comb and spoon used by natives” Given by Mrs. James Starr, Pepperell, MA - Date unknown.”



European American Early Settlement of Groton and its Villages

The first settlement of Groton by European Americans was heavily shaped by the water resources of *Petapawag*. The rivers were used for travel. The wetlands were filled with abundant flora and fauna, and the many wetlands frequently flooded nearby plains, richly fertilizing the soils. This initial European American settlement was also influenced by their predecessors, the Nashaway Nipmuc. In the same way that the primary transportation route was along the Nashua River for the Nipmuc, the first reported permanent settlement was situated on the Nashua River. This first settlement was a trading house established in 1656 to conduct business with the Nipmuc. The trading post focused on commerce in furs. Around 1655 the trading post was operated by John Tinker (Roberts 2010), and was situated at the confluence of Nod Brook and the Nashua River. Figure 4-5 shows the locations of historic archaeological sites in Groton, beginning with the early settlement of Groton in the seventeenth century.

Settlers and their families soon followed the first traders, drawn by the environmental diversity, with freshwater resources for fishing, and fertile soils for farming. The trading post evolved into an early seventeenth century frontier European American settlement, albeit at the extremity of the Massachusetts Colony, in a vulnerable outlying position. By the mid seventeenth century, the settlement center grew into a linear village on a terrace on both sides of James Brook, along Hollis and Main Streets (MHC 1980a:3).

Land Grant. The General Court in Boston issued the original European American land grant of the township (8 miles square) on May 23, 1655. Called “The Plantation of Groton,” the town name honored the first named petitioner for the land grant and one of the original Town Selectmen, Dean (Deane) Winthrop of Groton, Suffolk County, England, son of Governor Winthrop.

Beginning in the eighteenth century, the land around Groton was altered in order for new towns to be formed (i.e., Harvard in 1732, Shirley and Pepperell in 1753, Ayer in 1871) and adjacent towns in Massachusetts and New Hampshire (i.e., Westford in 1730, Dunstable in 1753, Nashua and Hollis in 1742) (MHC 1980a:1) to be better developed. The earliest map reference to Groton appears in Reverend William Hubbard’s 1677 publication of *Narrative of the Troubles with the Indians in New-England*, engraved by the earliest Boston printer John Foster (Green 1890:501-2). The current irregular shape of the town varies from the original plan on all boundary lines, except adjacent to Tyngsborough (MHC 1980a:1).

Indian Raids. Groton’s European settlement began precariously. Situated along the vulnerable frontier of the colony, the early settlers took precautions against raids by Native Americans by erecting five garrison houses. These places of refuge for the inhabitants were commonly surrounded by a strong timber or stone wall and “built as high as the eaves [of the house], with a gateway, and port-holes for the use of musketry” (Green 1890:508).

The location of these garrison houses (Green 1890:508-9) included:



- Mr. Willard's house, which stood near the 1890 High School,
- Captain Parker's house, which stood just north of the Town Hall,
- John Nutting's house, on the other side of James Brook,
- a site north of John Nutting's and south of Mr. Willard's,
- a site most likely occupied by Richard Sawtell, the first town-clerk and a soldier in Major Appleton's Company during King Philip's War, that was situated near the house formerly owned and occupied by the late Eber Woods, "near a mile distant from the rest [of the garrison houses]."

Town growth was severely impeded by Indian wars of the late seventeenth and early eighteenth century, which subjected Groton to multiple and devastating Indian raids. The first of the raids occurred during King Philip's War, which broke out in 1675. In 1676, Indians attacked the town on March 2, 9, and 13, burning some of the garrison houses. Reports of March 2 detailed the pillaging of 8 to 9 houses, cattle being driven off, and the death of Timothy Cooper, who probably lived "somewhere between the Baptist meeting-house and the beginning of Farmers' Row." On March 9, four men were entrapped while at work, resulting in one death, one capture, and two escapes. On March 13, as many as 400 Native Americans attacked the town of Groton and burned the first meetinghouse as well as about 40 dwelling houses (Green 1890:509). As a result, the surviving residents abandoned the town and fled to Concord and other safe havens.

Within two years, settlers began to return and rebuild the town (Groton Community Preservation Committee 2009:13; Murray 2005:xiv). Groton suffered another round of major raids in 1689, 1704 (Queen Anne's War) and 1723, during which time several citizens of the town were abducted and taken to Canada. Despite these attacks, the population of Groton continued to grow.

The importance of Groton as an early European American settlement area cannot be overemphasized. From the earliest time, the settlement of Groton was the home of several prominent early settlers, including the first named petitioner for the land grant and one of the original Town Selectmen, Dean (Deane) Winthrop, son of Governor Winthrop. As such, archaeological sites in Groton associated with prominent people, have a high potential to yield information on seventeenth and early eighteenth century life. Undisturbed sites may be eligible for inclusion in the National Register of Historic Places (see Table 4-2, end of chapter).

Contact and European American early settlement period sites may be expected to include artifacts reflecting contact between the two cultures and the entry of European items into the Native American assemblage. For example, sites located in Seabrook, New Hampshire contained diagnostic Contact Period artifacts including a wampum bead, a kaolin pipe, iron axes, iron knife handles, copper or brass triangular points cut out from kettles, and a deer effigy made from European sheet lead (Robinson and Bolian 1987). Another type of artifact that may be expected is ballast flint, knapped and reworked by Native people. Originating in Europe and transported to North America as ballast in ships, this flint was trimmed and often utilized as strike-a-lights or in flintlock guns (Potter 1994).

Although types of artifacts and features may vary considerably, first settlement residences



and industrial buildings were constructed with local and imported materials. During the early settlement period, the homestead was often the first built central structure of the farmstead. These were built along the roadways, often as close as 25 feet from the edge of the road. There may be evidence of earth fast construction for residences as well as garrisons, and meeting houses. Sites are likely to contain low to high densities of historic artifacts made of metal, ceramics, and glass. Subsistence remains, such as animal bone may be present. Archaeological correlates of first settlement sites are also expected to include artifacts and features reflecting historic activities, such as logging, agriculture, trade, and road building. The presence of human burials, outside of documented burial grounds, is also possible.

Settlement Clusters. By the eighteenth century, Groton was a prosperous agricultural community. The main village was “situated principally on one long street, known as Main Street, a section of the Great Road, which was formerly one of the principal thoroughfares between Eastern Massachusetts and parts of New Hampshire and Vermont” (Green 1890:501). This village was the town’s early residential center and hub of commercial activities and the oldest extant house was built in c. 1706 (Ruckstuhl 2001:85).

The second main settlement cluster developed in West Groton. Situated advantageously within a "V" formed by the Nashua and the Squannacook Rivers, West Groton arose as a late industrial period New England mill village. This community established its own post office, fire station, and water department. Other settlement clusters in Groton were designated as east, south, and north, but only West Groton's name survived. The Lost Lake area in the southeast quadrant of town developed at the turn of the twentieth century. The damming of nearby streams and flooding of an existing field created the focus of a popular summer resort for city residents. Today, both permanent and summer residents occupy the Lost Lake community.

Social and Political Fabric of the Community

Groton as a Shire Town

The historic role of Groton as a shire town, the seat of government for the district where the circuit court of superior jurisdiction sat, had numerous implications for the evolution of the community, pertaining to administrative activities, transportation, economy, architecture, and residential patterning. Although Groton had no sovereign jurisdiction of its own, as one of the state’s regional administrative and judicial seats where the circuit court met, it had authority to enact and enforce municipal ordinances and administer state or provincial law at the local decentralized level. The shire town served as the location of legal, legislative, and political functions, as well as religious and social activities. The presence of these administrative activities drew lawyers, legislators, other professionals, visitors and new residents to town.

Groton Village, located on Great Road, was situated along one of the principle thoroughfares between Eastern Massachusetts, New Hampshire, and Vermont (Green 1890:501). As the shire town, Groton became a busy center for traffic, transportation and accommodations (Ruckstuhl 2001:v). While the first stagecoach in Groton ran in 1793, by 1820 transportation options broadened to include daily excursions in different directions. Taverns and hotels were established fronting the busy stagecoach and transportation routes.



Widespread access to multiple transportation systems and routes maximized the movement of agricultural and industrial goods and led to Groton becoming a hub of diverse commercial and industrial activities. The substantive demands of the stable population encouraged commercial operations to obtain and sell diverse and high quality consumer goods, which reflected the vitality of trade and the broad access to trade networks. The economic potential of businesses in this shire community attracted important and talented individuals, captains of industry, and entrepreneurs.

The strength of the economy and role as the regional administrative and judicial seat stimulated the process of urbanization and the establishment of architecturally distinguished buildings, such as churches, schools, public buildings, commercial establishments, and private residences, to reflect the high social status and wealth of the community. In turn, these complexes formed a cultural center for the region.

To support and safeguard the community, the town required the development of town utilities and services, as water and sewage systems, fire reservoirs, and telegraph and telephone services.

Historic maps (Figures 2-1 to 2-15) identify the location of the major highways and the clustered residential growth of the town along Main Street and the dispersed residential growth along roadways radiating from the village center. Residents often included prominent men of the region and the newly formed nation, state and community leaders, as well as prominent individuals and families, including Massachusetts Governor George Sewall Boutwell, Colonel William Prescott who commanded the rebel forces at Bunker Hill, and Samuel Green who served as mayor of Boston.

In summary, the establishment of Groton as a shire town was a key factor transforming the community from a rural agricultural landscape to a focal point of administrative, judicial, political, economic, commercial, and social affairs of the region.

Euro-American Population

Population data of Groton show there was initially a slow, but steady rise in Groton's population from its early settlement period through the mid nineteenth century. Data on Groton revealed that the town incorporated on May 25, 1655 and the early population included about 10 families, mainly from Watertown, Massachusetts (MHC 1980a:3). However, population figures of October 1659 indicate the town remained "v[u]npeopled" (Green 1890:542), suggesting occupancy was temporary and European Americans in the area retained their residency elsewhere. By 1680, after the Indian raids of 1676 and the town abandonment, 40 families had re-established residency and the population grew slowly over the next few decades due to ongoing hostilities. As conditions stabilized after 1730, the town population experienced rapid growth and jumped from 300 in 1676 to 1,408 in 1765, even though portions of the town were annexed to neighboring towns (i.e., Westford in 1730; Harvard in 1732; Nashua and Hollis (NH) in 1742; Dunstable, Shirley, and Pepperell in 1753) (MHC 1980:1,3).

Between the years 1860 and 1865, there was a small decrease in the number of inhabitants, attributed to "the disturbing effects of the Civil War" (Green 1890:542). By 1860, the population included over 3000 inhabitants, peaking in 1870 at 3,584. The significant drop in Groton's population between 1870 and 1875 (when the population numbered 1,908) stems from the separate incorporation in 1871 of Ayer (made up almost entirely from the territory of Groton).



Population comparisons for towns in Middlesex County in 1885 revealed 32 towns with larger populations and 23 towns with smaller populations (Green 1890:542). Over the next few decades, much of the population increase was due to the arrival of foreign immigrants. Murray et al. (2005:79) affirmed, between the Civil War and 1955, “Life in Groton made the change from a community of exclusively old Yankee farming families to a broader mix of ethnic and religious backgrounds.”

Over time, various foreign residents, in addition to those of British heritage, immigrated and resided in Groton. Although prior to 1830 population records of Groton did not indicate the presence of foreign-born residents, between 1830 and 1845 a small foreign-born population is indicated, primarily made up of Irish Immigrants (MHC 1980:4, 6). Subsequently, much of the population increase between 1870 and 1915 is attributed to immigrants, who represented approximately 10% of the total population in 1875 increasing to 18% in 1915 (MHC 1980:7). Again the largest single immigrant group was the Irish. Other immigrants also added to the foreign populations, including Italians, many of whom worked on the railroad and lived with other Italians “in the mill neighborhood” (Ruckstuhl 2001:50). One of Groton’s hospital cooks, Miss Jeannie Brown, was a “highland lassie from Scotland” (Ruckstuhl 2001:50).

The increased number of factories and associated growth in the region required a larger labor pool and along with improved transportation in the twentieth century, the population of Groton increased, as did the number of foreign-born residents.

Enslaved and Free Blacks in Groton

Groton’s historic period population also included enslaved and free people of African descent. When Europeans first arrived in the Americas, they found opportunities to utilize enslaved people to perform labor. While approximately 25,000-50,000 Native Americans were enslaved, African slaves outnumbered them as early as the mid 1600s, partially as they were more resistant to European diseases and could not flee as easily back to their former homes (Taylor 2007:2). Ultimately, as many as 12 million Africans were captured and enslaved. Initially, these individuals, similar to their white counterparts, acted as indentured servants and were subsequently freed. But over time, the route to freedom became more difficult to achieve. In time, men and women of color ultimately obtained freedom via old age, infirmity, purchasing emancipation, fighting in the Revolution, affection, or escape. While Massachusetts abolished slavery in 1783, emancipation did not immediately follow and slavery was not abolished nationally until 1865 in the passage of the 13th Amendment.

While census figures are not available for the African American population in Groton in the seventeenth century, census records and newspaper accounts indicate their presence in the seventeenth and eighteenth centuries. The census of “Negro slaves” in Massachusetts revealed that in 1755, there were 14 “Negro slaves,” including 7 men and 7 women (16 years old and older) in Groton. Eleazer Robbins had a “Negro or mulatto” servant and slave, William Banks, who became somewhat notorious. Hannah Wansamug, a Native American of Lancaster, bought Banks, then freed Banks and married him on December 21, 1719. When Banks deserted her, she defaulted on the payment to Robbins, and she was sent to prison. The case was settled when Edward Ruggles of Roxbury advanced the fees until he could sell her property in Natick.

Advertisements and offers of rewards for runaway slaves appeared in *The Boston Evening-Post* on July 30, 1739 and in the *Boston Gazette and County Journal* on June 13, 1774. The first



account indicates Mr. John Woods, a slaveholder, would pay 5 pounds each for the return of his “Negro Man Servant,” 22-year-old Ceasar, and his white accomplice (Green 1890:543). The second news advertisement of 1774 offered a \$10 reward and payment of necessary charges for the return of a “Molatto Man Servant, named TITUS, about 20 Years of Age” to Joseph Moors of Groton.

Town history also relates the December 28, 1742 marriage of a “negro couple,” Priamus, Captain Boyden’s “Negro man servant,” and Margaret, a “Molatto formerly servant” to Samuel Scripture, Jr. One or both of their surnames may have been Lew (Lue). While their family grew, they resided “on the west side of the Nashua River, a short distance north of the county road to Townsend” (Green 1890:543). Green (1890:543) also relates that, “to this day the rise of ground, near the place where the Pepperell road leaves the main road, is known as Primus Hill, so called after him.”

While slavery existed in the early settlement period of Groton, in 1780 the Bill of Rights in the Massachusetts Constitution forbade it (Murray 2005:73). Groton’s history commemorates one of its free black residents and farmers, a Civil War soldier, Adrastus Hazzard. Hazzard was a Private (Company F) in the 54th Regiment of Massachusetts led by General Robert Gould Shaw and comprised mostly of free black volunteers. Hazzard family members had lived in Groton for many years, when Adrastus Hazzard enlisted (Murray et al. 2005:75). Hazzard was among the 281 casualties of the 54th Regiment who died on July 18, 1863 when they led the assault on Fort Wagner, South Carolina. His name, among the 40 names of those lost in the Civil War, appears on the large marble plaque in the Town Hall (Murray et al. 2005:75).

Archival research and field investigations confirming enslaved and free individuals of African descent in Groton serves to debunk the widespread myth that there were no slaves in the North. Archaeology can also fill in gaps in the limited historic record and provide indicators on how enslaved and free people of African descent managed their ethnicity and cultural traditions in the face of adversity.

Prominent Early European American Residents. Some of the prominent early European American residents of Groton deserve note as Groton “has been the home town of many renowned and literate people for centuries” (Ruckstuhl 2001:v). It has already been mentioned that the first named petitioner for the land grant and one of the original Town Selectmen was Dean (Deane) Winthrop of Groton, Suffolk County, England, son of Governor Winthrop. Groton was also the home of several Revolutionary War veterans and distinguished colonists, including:

- Colonel William Prescott (1726-1795) who commanded Colonial rebel forces at the Battle of Bunker Hill and served to suppress Shay’s Rebellion in 1786;
- Major Samuel Lawrence (1754-1837), American revolutionary, Continental Army veteran of the Battle of Bunker Hill, and founder of the Groton Academy in 1793;
- Captain Job Shattuck (1735-1819) was a member of one of Groton’s oldest families, one of the largest landowners in Groton, and a town selectman (1778,1779, 1781), as well as a Continental Army veteran who fought at the Battle of Bunker Hill and the Ticonderoga and Saratoga campaigns. He was also



one of the most prominent figures in Shays' Rebellion in 1786, led by 18 men who were incensed over the debt and heavy taxation following the Revolutionary War. Their actions resulted in imprisonment and all 18 received death sentences. Sixteen of the groups were pardoned including Shattuck who had resisted arrest and been wounded and “crippled for the rest of his life” (Murray et al. 2005:21). His extant 1782 house is situated on Longley Road across from Wattles Pond.

- Reverend Samuel Willard (1640-1707), an original proprietor and Groton’s first installed minister (1663-1676), left town when the 1676 Indian raid led to the town’s abandonment. Willard later became acting president of his alma mater Harvard from 1701-1707. His garrison house “on a lane off Main Street in Groton Center next to the present-day Prescott School” was one of a few houses that survived the Indian raid. It is one of the oldest extant houses in Groton (Murray et al. 2005:13-14).
- Lydia Longley (1674-1758), known as the “First American [born] Nun,” is also renown for her survival and captivity following the brutal murders of most of her family on July 27, 1694 on their farm in the remote northern part of town, approximately 1 ¼ mile from the village on the east side of Longley Road (marked by a monument erected in 1879). Abenaki raiders spared twenty one year old Lydia, 17-year-old Betty, and 12-year-old John, as they were deemed useful as hostages or slaves. Taken to Montreal, Lydia was ransomed by a wealthy French humanitarian Jacques Le Ber, and placed in a convent where she ultimately converted to Catholicism and became a nun (Murray et al. 2005:9).
- Abbott Lawrence, businessman, founder of Lawrence, Massachusetts
- Amos Lawrence, merchant and philanthropist
- Amos Adams Lawrence, abolitionist, founder of the University of Kansas and Lawrence University
- George Sewall Boutwell, Governor and Statesman
- Caleb Butler, historian

In addition, notable nineteenth century residents include:

- Margaret Fuller (aka Sarah Margaret Fuller Ossoli, 1810-1850) was a teacher, journalist, editor, and nineteenth century pioneering women’s rights activist who became famous as a Transcendentalist writer and friend of Ralph Waldo Emerson. Born in Cambridgeport, Massachusetts, Fuller attended (1824-25) “A School for Young Ladies in Groton” on Main Street near the Groton Academy and lived with



her family (c.1833-36) when her father bought a Groton farmstead, The Elms, located “at the beginning of Farmers Row” (Murray et al. 2005:35).

- Edmund Charles Tarbell (1862 – 1938), born in West Groton, renowned American Impressionist painter
- Frank Bigelow Tarbell, scholar

The residences and/or businesses of notable residents in Groton may be eligible for listing on the National Register of Historic Places under Criteria A, B, C and D.

Archaeological evidence for ethnic populations and neighborhood transitions over time could be encountered within Groton. Historic and archaeological investigations coupled with background research can yield information on the former inhabitants’ social, cultural, and economic status. Archaeological evidence for evolving social structure often includes changes in material culture (e.g., the disposal of household goods as they are replaced by the new residents), changes in architectural details (e.g., additions to floor plan, demolition of unused outbuildings), and neighborhood reconfiguration of single-family residences as tenements or boarding houses with introduction of immigrant populations.

Archaeological evidence of community leaders and prominent wealthy individuals is associated with a wide and diverse range of artifacts, which are seen as indices of social status and wealth. Harrington (1986:1) suggests the choices used in the house, property, furnishings, dress, diet, and slaves “ensure and reinforce” one’s social and political relationship standing. The consumer goods also reflect the vitality of trade that the prominent individual had access to. In effect, these represent “essential accoutrements” of one’s rank and prosperity (Harrington 1986:5). Material culture studies identify patterns that demonstrate the highest quality consumer goods and dietary food consumption practices. Ceramics in the household are likely to reveal more individualized utensils and vessels and full dining and tea sets with matching plates, cups, saucers, twifflers, muffin plates, and a myriad of other forms (Harrington 1986:21). To keep up with fashion, kaolin wig curlers, fancy metal buttons, and copper clasps would have been acquired and may appear in the archaeological record. Culinary choices include more complete carcasses and higher quality cuts of meat, which proportionally means more lamb and mutton (Harrington 1986:18). In addition, the archaeological record might also reveal containers for imported foodstuff, such as tea, coffee, chocolate, brown sugar, West Indian limes, oranges, rum, molasses, London wine and ale, butter and pork from Ireland (Harrington 1986:10-11). Artifacts that may be encountered also include personalized objects reflecting ownership, such as lead bale seals and glass wine bottle seals with the initials or name of the prominent family.

While prominent men and women of history are of interest, current historical and archaeological research interests also focus on people of everyday life and “all of America’s common folk” (Deetz 1977:138). Historic research indicates historic inhabitants of Groton were gentlemen, farmers, ironworkers, millers, mill workers, lumbermen, tavern and inn keepers, craftsmen, merchants and traders, brick manufacturers, laborers, and immigrants.



Agricultural Pursuits

Agricultural expansion in eighteenth century. From the earliest European American settlements in the seventeenth century to the present, agriculture has been fundamental to the physical, economic, and cultural character of Groton. Today's landscape contains tangible evidence of the area's strong agricultural base in the form of extant structures and environmental features, including rolling hills, fields, woodland, farmland, and orchards. Though fur trading was an early industry, agriculture provided a strong economic base, especially where the landscape contained fertile, tillable soils necessary for planting or fields for grazing or livestock fodder production (MHC 1980:1).

Initially, agricultural pursuits were undertaken on small, diversified family farms, a system combining small-scale family farming with mixed husbandry and home industries (Hubka 1984:9). Occupations were both seasonal and resource specific. In summer, people farmed their land and in the winter people turned to other activities as home craft industries, lumbering, coopering, and woodworking. Another seasonal product was ice.

The earliest farmsteads, positioned along the sides of historic period roadways, reflect patterns of settlements from the late 1600s. Issues of transportation and market access, however, were determining factors encouraging specialization.

Farms were diversified and mixed crops were grown, including rye, Indian corn, grains, vegetables, and in the nineteenth century, potatoes. While the initial concern of early settlers was survival and land clearance took several years, Groton's proximity to major urban markets encouraged the sale of surpluses and early specialization. Cash crops were grown for trade in addition to the family's basic needs for grains, dairy products, meat, eggs, and vegetables. Dairy cows, sheep, chickens, and hogs were the livestock raised for home and market production. Apple orchards, dairy farms, and poultry farms persisted into the twentieth century. Surpluses and cash crops were bartered or sold for other goods as salt, rum, coffee, tea, molasses, and ironware and ceramics. By the twentieth century, agricultural pursuits of Groton included poultry-raising and cranberry growing, though not reaching the production levels of some neighboring towns.

The farm served as the primary social and economic unit of life. Cartographic review documents settlement clusters occupied by people with the same surname, providing evidence of kinship based neighborhoods. Typically, the family's first house and central structure of the farmstead was a crude log cabin with livestock housed in a single shed or barn. They were built along the roadways, often as close as 25 feet from the edge of the road. While early cabins were placed directly on the ground (as in earth fast structures) or on footings, eighteenth and nineteenth century houses frequently had foundations and cellar holes. A cellar hole would extend 4 to 6 feet (1.2 to 1.8 meters) below ground. Stone foundations provide evidence of the plan and dimensions of the house. Foundations and walls were comprised of fieldstones, split stones, cut stones and/or brick. Builder's trenches may be found along the exterior faces of the foundations. One-room deep houses are recognized by their narrow width measuring 15 to 20 feet (4.5 to 6 meters); two room deep houses are significantly wider extending 25 to 35 feet (7.6 to 10.6 meters) (Sanford et al. 1994:6). For example, the c.1770-1790 Eliphalet Walker house measured 18 by 35 feet (Hubka 1984). These house plans were easily be modified and expanded.

Over time, as families grew and farmstead and domestic activities became more diversified, more structures were added to the landscape. The agricultural practices and activities undertaken



on the farmstead helped determine the size, design, function, location, patterning, complexity, technological developments, and number of structures and elements of the agricultural property (VDHP 1990:5). Their footprints can be seen in the ground and interpreted as periods of change reflecting family and economic growth over generations. The specific patterning of eighteenth century farmsteads has not been discerned and analysis of their composition would present unique opportunities for research. Typical historic barns before 1800 were small, measuring 15 by 20 feet (Hubka 1984), while additions as ells or stables or back buildings might range between 16-20 feet by 20-50 feet. These agricultural outbuildings were typically built on footings, not foundations, so their archaeological correlates may be harder to discern at ground surface. In time, the New England farmstead characteristically included a cluster of structures and specialized activity areas, a pattern derived from the English tradition (Hubka 1984; Russell 1982). The basic composition of a farmstead included a main dwelling house, the ell (which included the kitchen and activity center), a back house (which included a privy and storage areas), and the barn (Hubka 1984). These linked complexes might obtain over 100 feet in length, depending on the size, number of attachments, and periods of constructions. In New England, this unique rural architecture arrangement, the connected (attached) pattern, supplanted the clustered detached pattern and became predominate especially between c.1820 and 1880. This “stylish” concept (similar to the English country house folk tradition) offered convenient passage and protection during severe weather and a practical organization of farm buildings (Hubka 1984:10-23).

Farm complexes may also have included a well (extending in some cases 20 to 30 feet deep) or spring house, other outbuildings, yards, paths and roads, a dump, kitchen garden, agricultural fields, orchard, pond, fields, pasture and woodlots bounded by fencing, hedgerows or stone walls (VDHP 1990). While evidence of some of these elements may be obvious, others as animal yards may be represented by hard packed earth and relatively artifact free soil horizons. Over time, technological, economic and social changes made certain types of building unnecessary or obsolete, consequently they were destroyed or frequently moved and/or readapted “in a practical no-nonsense spirit of farm improvement and modernization” (Hubka 1984:138-9).

Farmstead sites may contain foundation features reflecting construction and use of houses, sheds, barns, outbuildings, privies, dumps, gardens, plantings, animal yards and paths, and artifacts reflecting diverse activities and occupation sequences. Associated landscape elements may also include gardens, agricultural fields, stone walls, stone dumps, tree lines, hedgerows, orchards and groves. Specific types of outbuildings are defined by Thomas Hubka (1994:61-68) and divided into six categories:

- animal shelters (e.g., horse stable/, carriage house, sheep barn, chicken shed/barn, cow/dairy barn or “shippon,” pigsty);
- produce storage (e.g., corn crib, grain house/hay barn, hop barn, granary, manure shed, milk house, apple barn, silo, sugar house, root cellar, field barn);
- vehicle storage (e.g., wagon/carriage shed, tractor barn, automobile garage);
- home industry (e.g., wagon makers shop, blacksmith shop, tannery or bark house, carpentry, slaughterhouse, tool shed, gun shop);



- domestic structures (e.g., wood shed, ice house, summer house, pump house, well house, spring house, windmill, cistern); and
- miscellaneous (e.g., stores, mills, camps or cabins). Historic stone chambers, root cellars or other stone structures also have been encountered on historic farmsteads. Such sites typically exhibit subterranean or semi-subterranean stone construction and may be interpreted as features of the domestic and agricultural environment. These resources may be expected to occur in association with historic homesteads or zones of historic agriculture. The remains of water management systems may also be present, such as drainage trenches, culverts, levees, artesian wells, wells, water plants, pumping stations, and water mains.

The number and variety of these outbuildings correlates with the financial viability of the proprietor and period of development of the farmstead, i.e., a large variety of structures would not be associated with a newly established or short-lived farmstead.

The second quarter of the nineteenth century brought another series of economic changes that had an impact on Groton's agricultural economy. This included the opening of western lands for settlement. These lands added new acreage for crop growth and expansion. The period also saw a dramatic growth in the industrial manufacturing complexes of Massachusetts, with the number of factories increasing from the hundreds to the thousands (Useem 1942). By the late nineteenth century and through most of the twentieth century, farming supported the large metropolitan and suburban populations, particularly in Boston. Rail systems were used as "milk sheds" to transport milk and farm products to the Boston market. Small and large farms contributed to this regional supply network (Wilson 1967).

By the twentieth century, numerous issues threatened Groton's historical agricultural properties in a variety of ways. The ever changing forces of weather and soil depletion, the diminishing number of farms due to the changing economy and decreases in federal incentives and price supports, the consolidation of active farms, the loss of open land from increasing forest cover, and the expansion of developed areas resulting in the demolition and replacement of historic agricultural sites and structures were all contributors. In addition, a severe drought in 1910 resulted in the total loss of forests of giant chestnut trees, especially after 17,000 had been planted in Groton and most of the elm trees similarly disappeared along Main Street and throughout the town because of a disease imported to Long Island, New York from Holland (Ruckstuhl 2001:vi). Nevertheless, remnants of the agricultural communities of the eighteenth and nineteenth centuries are visible and evidence of Groton's agricultural heritage is preserved either in a few remaining standing structures or as archaeological features.

Economy and Industry

Industrial sites are typically positioned where there is access to raw materials, transportation routes for movement of goods, and/or water sources for power. The economy of Groton was initially strongly rooted in agriculture, but various industrial pursuits were also undertaken,



strengthening and contributing to the Groton economy. In addition, as Groton’s population grew so did the variety and number of industries. In general, however, Groton had few locations for water power sites except for West Groton on the Squannacook River, and thus limited industrial potential (MHC 1980a:1). While the central town residential and commercial settlement remained focused on the village of Groton, West Groton developed by the mid nineteenth century into a railroad mill village. In addition, several other industrial sites were established in Groton with “scattered nodes” of settlement (Groton Community Preservation Committee 2009:13). The locations of these industrial sites and communities are depicted on historic maps. Some of the locations, like West Groton, retain original mill owners homes and factory buildings.

Groton’s early industry depended on water power, and on many of these privileges, abutments to old dams, mill foundations and cellar holes remain, providing evidence of the many small industries that manufactured products for the early settlers and later met the demands of rapidly-growing cities.

It was the establishment of local water powered mills in the seventeenth century that allowed for Groton’s community development. Later industries included a soapstone quarry, a large hop-growing industry, a brick factory, a saw mill, a grist mill, and a pewter mill which produced tea pots, plates, cups, and buttons. Some soapstone quarrying and brickmaking occurred along Nashua valley railroad axis, but town center maintained restricted residential scale and increasing importance as historic village.”

In the nineteenth century, the economy became more diversified and reliant on other industries. By 1839, Hayward’s New England Gazetteer indicated products manufactured in Groton included: paper, axle-trees, cabinet ware, chairs, clothing, leather boots and shoes, mathematical instruments, palm leaf hats, and soap-stone pumps (Hayward 1839; Ruckstuhl 2001:75). Groton’s manufacturing activities peaked in the mid-nineteenth to mid twentieth centuries.

Table 4-3 summarizes the numbers and types of historic industries of Groton in the nineteenth century. The following discussion provides details on mill contexts and several of the different industries active in Groton over time. The table provides a list of some of Groton’s industries and associated proprietors over time.

Table 4-3 Groton’s Industries and Associated Proprietors Over Time
(Murray et al. 2005)

Date Established	Function/Name	Location	Detail
1662-1707	Saw and Grist Mills, Wool Carding Mill, Dye House – Owners included Jon. Morse, Samuel Woods, Thomas Tarbell, Sr.	West Groton, south side of Route 225, although actually encompassed both sides of Squannacook River including in Shirley by 1798.	Extant red brick buildings and dam listed on National Register of Historic Places in 2002, considered representative of Late Industrial Period New England Mill Village. Historic photographs and stereograph views are available. Buildings renovated into assisted living housing complex for seniors, Rivercourt.
Prior to 1744	Tarbell’s Mills		
1875	Strawboard Mill		
1899-1970s	Groton Leatherboard Company		



Date Established	Function/Name	Location	Detail
Prior to 1832 Prior to 1846 1852-1881 1881	Starch Factory Jephthah R. Hartwell Paper Mill Hollingsworth Paper Mill Hollingsworth & Vose	West Groton, Townsend Street along the Squannacook River	In 1843, Hollingsworth brothers (John, Mark, & Lyman) were granted US patent for manufacture of paper from manila fiber (boltropes cut from old sails). In 1846, mill burned and rebuilt by Hartwell. After purchase by Lyman Hollingsworth in 1852 and until 1881, factory manufactured paper from jute and manila fiber. In 1881, Lyman's nephew Zachary T. Hollingsworth formed partnership with Charles Vose and purchased mill from Lyman, continuing to make paper. By 1955, West Groton division of Hollingsworth & Vose manufactured approximately 25 tons per day of specialized industrial paper, including filters (for autos, diesel, gas, liquids); electrical and cable insulation; and artificial leather for wallets and other objects. Mill has remained in continuous operation since 1852.
1896 1919-1966 c.1966-1969 1970	Thompson Mill A.H. Thompson & Sons Rocky DeRico Woodworking Carver's Guild (Carl/Carol Canner)	West Groton, On north side of Route 225 along Mill Pond	Thompson purchased property in 1896 and built steam-powered mill to manufacture wooden reels, cores, and frames. In 1919, Thompson brought his sons Clarence L. and David B. into the company and incorporated. Clarence continued operation after his father's death in 1926. Mill was enlarged during 1940s and ran three shifts during WWII. By 1955, factory consumed over 2,000,000 ft lumber and produced more than 31,000 reels yearly. Thompson operations closed 1966. Extant nineteenth century buildings.
1815-1885 1885	John Scales & Son Saw & Stave Mill Thompson & Shepley Mill Thompson Box & Reel Factory	West Groton, (northwest corner- Thompsonville); on Squannacook River, north (upriver) of Hollingsworth & Vose	Scales family operated mill for almost 70 years. In 1885, Asa H. Thompson and his uncle Granville T. Shepley bought mill. Thompson later bought out Shepley and started Box & Reel factory. By 1891, complex included 5 houses, barn, and mills. The 56-acre parcel is now state-owned Squannacook Wilderness Management Reservoir. Complex is abandoned water powered Mill Site
1899	Groton Leatherboard Factory	West Groton, Squannacook River	The old redbrick Groton Leatherboard factory still stands as an example of the late industrial period of a New England mill village
n.d.	Unnamed Mill	West Groton, Sq where new bridge takes Rt 225 across River to Shirley; south side of road	Abandoned Mill Site with dam and mill pond; red brick
1794 1828 1847 1856-`1920s	Unnamed corn mill and sawmill Emery's grist mill and saw mill J.P. Whitcomb & Co. paper mill Hollingsworth paper mill	Nashua River at Nod – Route 119 bridge	Standing ruins of Hollingsworth Paper mill at this location. Ruins include foundations of mill and chimney, hydrant (Virginia May in Murray et al., 2005)
Pre-1717	Chamberlain Saw and Grist Mill	Martins Pond Brook	Earthen and stone dam exist in sand and gravel quarry on brook near power line (MHC site form GRO-HA-14 – Office of Public Archaeology Boston University



Date Established	Function/Name	Location	Detail
19 th c.	William T. Lawrence, Pewter Mill and brickyard	Nashua River opposite stony fordway at Nod	Produced pewter in pewter mill, and millions of bricks from brickyard. Many buildings in Groton built of Lawrence bricks (Virginia May in Murray et al., 2005).
1828-1855 1855-1861 1861-1864 1864ff	John Fitch Soapstone Quarry Samuel Adams McCaine Brothers Groton Soapstone Co. then Union Stone Company	Common Street on Shepley Hill	In 1828, John Fitch cut soapstone on his farm off Common Street on Shepley Hill (owned since 1990 by the Groton Conservation Trust). Fitch worked the quarry and sawed “the stone by hand at a shop by the roadside near his house” (Virginia May in Murray et al. 2005:68). Subsequently, Fitch erected a steam saw mill 40 to 50 rods from the quarry. In 1855, the Fitch heirs sold the operation to Samuel Adams of Townsend and Daniel McCaine, and the quarry operation continued c. 1857. In 1861 following Adams’ death, the Adams heirs sold their interests to Daniel McCaine and his two brothers David and William, enlarged the shop, improved the machines, and worked “the quarry on a grand scale” (Murray et al. 2005:68). After the property was sold to the Groton Soapstone Company, with a capital of \$100,000, a new mill with an attached engine house was constructed. The property and the patent for artificial stone were sold to the Union Stone Company, however, and the success of the Groton operation diminished and the operation was abandoned and dismantled.

Mills. Mills were a very important element of early historic period industry in Groton and continued to operate into the twentieth century. Saw and grist mills were the first mills established in Groton.

Forests in New England initially provided lumber for production of household and commercial goods on small scale and shipbuilding on a larger scale. Initially, White Pine was cut for ships masts and shipped to England until the local shipbuilding industry expanded. Lumber mills processed and prepared the timber resources into products, as shingles, planks, boxboards, and barrels. In addition, culled logs and waste wood were made into charcoal, which was used in the reduction of bog iron in the local furnaces. Several small saw and grist mills operated throughout Groton in the eighteenth and early nineteenth centuries. Timber saw mills include the John Scales mill (1815ff) in West Groton, Emery’s Grist Mill at Nod (1830s), Tarbell’s mill (1744) in West Groton, and the Chamberlain mill (pre 1717) on Martins Pond Brook.

Small water powered industrial works developed along the streams and rivers to take advantage of and process the natural and agricultural resources of the region. Small-scale industry developed hand-in-hand with land clearing and farming. The early histories of many villages are closely tied to mills built to cut lumber and grind grain to support the economy. Mills provided townspeople with important products, such as flour, meal, wooden boards, shingles, and beams.



The presence of sufficient waterpower encouraged development of one or multiple mills along a privilege. Some mill complexes evolved from suppliers of a few commodities into larger production centers. Subsidiary industries such as blacksmith shops, carpentry shops, cooper shops, tanneries, textile mills, and iron manufacturing companies formed around this economy and stimulated the establishment of other community elements as post offices, civic buildings, taverns, and stores. In effect, the mill became the nucleus around which the village and settlement cluster developed. In many locations, 2 to 3 generations worked in turn at the family industry and owners sometimes provided workers with housing, usually deducted from their employee's pay.

The design and many elements of grist and saw mills were similar; structures and day-to-day activities radiated around the mill and mill yard. Grist and sawmills were power-driven by nearly identical technology and components including the dam, headrace, penstock, wheel pit, and tailrace. While the earliest mill sites utilized natural waterfalls to obtain the necessary elevation drop for power, dams were man-made engineering works. The dams' primary function was to impound water and regulate the volume and height of the water in the reservoir or millpond. Until the mid nineteenth century, dams were primarily built of earth or rock or timber fill. This limited the size of most dams and made them susceptible to failure. A survey of mill sites in Middlefield, Massachusetts indicated the average height of milldams was about 8 to 10 feet and rarely exceeded 15 feet (McArdle 1980: 24). The dam wings varied in length extending in some cases between 150 to 225 feet. Cribbing, comprised of logs, packed earth, and fieldstone, may remain as evidence of milldams. When the mill was operating, the gate valve in the dam was opened and water rushed through the wooden flume, channel or pipelines to power the waterwheels or turbines. Subsequently the power was transferred to turn the vanes of the turbines or wheels that drove shafts, gears, belts and pulleys, which generated and transmitted the power for the remaining machinery.

The millpond was one of the most important features of the mill. With regard to sawmills, the millpond also was used to store significant amounts of wooden board feet to preserve the logs from cracking, staining, and to prevent bark beetle and other boring insects. The water also washed dirt and soil off the logs, reducing wear on the saw blades. Water from the millpond was directed through the headrace to the penstock, which regulated the flow of the wheel or turbine. Subsequently the water passed through the tailrace back into the stream.

In contrast to short-term sawmills temporarily established in the forested uplands, permanent mills were typically rectangular in plan. While there are differences in size, some documented ranges of typical mill buildings are 30 to 50 feet in width and 30 to 90 feet in length (Lacy and Charles 2000). The buildings are generally comprised of wood, fieldstone, split stone, and/or bricks. Water powered mill foundations border streams, ponds, or other water sources and sections of walls may be partially submerged. A typical large mill was a complex of 2 or 3 story buildings where different aspects of the process took place and different machinery was located. The lower level of the mill usually contained the power plant and the turbine-housing pit.

The power for water-powered mills ranged from crude tub mills to more efficient wheels. Before 1845, the four types of water wheels used in New England included: the overshot wheel, breast wheel, undershot wheel, and tub wheel. The choice of wheel was determined by the site, mill type, head, or fall of water, and stream flow. As undershot wheels were small and could be constructed cheaply, they were the most common in gristmills and sawmills in New England before 1850. The rectangular wheel pit required ample space for the wheel and associated



machinery, such that a 4' wheel was set in a 9.5' wide pit.

Turbines were introduced into the United States in 1845 and quickly replaced other wheel types. They operated primarily by impulse and had numerous advantages over other power mechanisms, including their occupation of smaller space than wheels resulting in lower construction costs, their high-speed operation eliminating inefficient multiple gearing, their adaptation to wide variations in flow, head size, and even submerged environments, their lesser susceptibility to ice damage than exposed water wheels. Although in the 1870s and 1880s, power was commonly generated through use of waterwheels and electric generators, steam powered turbines became dominant by the 1890s and many mills were refitted (Lacy and Charles 2000). Wood or charcoal was commonly used as fuel. Other technological innovations also affected the industry in the late nineteenth century including the introduction of the band saw, which enabled safer and more efficient milling operations.

Over time, improvements were made in the system of transferring waterpower to run the equipment to produce the end-product. In the mid eighteenth century, the famous millwright Oliver Evans introduced a conveyor system that largely automated the process. Grain and wood could be moved in the mill with belts, pulleys, and gears through the various stages that ultimately transformed the grain into flour or meal and wood into boards, shingles, or other objects. The main mill building often stood on one end of the dam. Its lower floor or basement contained the wheels, or later turbines, and shafting for generating and transmitting power. On the main floor, sawmill equipment as planers, jointers, band saws, gang saws, shingle saw, barrel stave saws, circular saws, would be located; or in the case of grist mills, hoppers, chutes, grindstones, or rollers would be situated.

Mills located on the Nashua and Squannacook Rivers in Groton, however could not compete with the production output of mill sites located on large rivers and falls, such as in Lowell, Massachusetts and Nashua, New Hampshire. In addition, the expansion of the railroad stimulated the centralization of large-scale manufacturing. When rail lines were absent or required expensive overland transportation connections, industries found it difficult to compete with those that did have railroad access. If they did endure, they generally remained as local suppliers. By the late 1800s, small water-powered mills were gradually replaced by larger mills powered by steam and later electricity.

Archaeological remains of mill sites may contain foundation features reflecting sequences of construction, use, expansion, repair, rebuilding after a fire; associated work yards, log yards, sawdust piles, sheds, outbuildings; dumps; and related industrial features as water management features including canals, tail races, penstocks, dams or wheel pits. Associated landscape elements may also include stone walls, roadways, bridges, and nearby structures including residences for mill owners and employees. Artifacts may include architectural debris, industrial elements and machinery (e.g., grinding wheels or rollers, turbines, governors, clutches, flywheels, shafts, hoppers, grain elevators, hullers, blowers, gears, drive and pulley belts), tools, and refuse. Mills can provide significant data pertaining to the structural features of site, evolution of the technology of their operation, types of equipment and issues of procurement, products and distribution, scale of operation, seasonality of work, proprietors and workers, and social and economic changes.

With changes in technology in the nineteenth century and depletion of the local timber, many local industrial works expanded or adapted their activities to other industries, such as textile mills, iron works, boot and shoe making. Railroad links to Boston, and New Hampshire further



invested Groton with successful manufacturing industries. There were four railroad lines in Groton, running south to north. The lines included the Peterborough and Shirley Railroad (later the Boston and Maine) in the west of town, the Worcester and Nashua Railroad in the center of town, the Ayer Junction Railroad in the 1840s (later became the Stony Brook Railroad) in the southeast corner of town, and the Nashua and Acton Railroad in the northeast part of town. Factories, warehouses, railroad stations, and service buildings were built along the route. The increased number of factories in the nineteenth century required a larger labor pool. In response, the population of Groton increased, as did the number of foreign-born residents, including skilled workers. With the loss of the mills, the population declined, although the village continued as a small residential community.

Today, surviving industrial buildings, ruins, foundations and subsurface archaeological deposits remain as evidence of these important town industries, which made important contributions to the physical development, economic wealth and social infrastructure of Groton.

Textile Industries. With the War of 1812 temporarily limiting shipbuilding and other maritime activities, and the Embargo Acts prohibiting the importation of foreign goods, the development of the American textile industry expanded. Money, once invested in shipbuilding and foreign trade, was used to establish local cotton and textile mills. There were no textile mills in Groton.

Potash Manufacture. An event attributed to the “insurgents” of Shay’s Rebellion in 1786 was the burning of Aaron Brown’s potash works on Broadmeadow Road. Brown was one of two constables who served warrants against Shattuck and his men (Murray et al. 2005:2).

Iron Industry. Iron working began early in Groton’s history, due to the abundant iron ore mined from the town’s bogs. The extraction of bog or swamp ore (limonite) began early in the settlement period. While some ores were found under water (lake or pond ores), others were dug on dry land. Town records refer to several iron ore sources that became extraction locations: (1) Massapoag Pond, where in 1689, two men from Dunstable “*did help both to dige for and to sett up some part of an Iron Works,*” (2) “a meadow lying northeast of Reedy Meadow in the north part of town near the Dunstable line called The Sledges, which means strips of meadows or parcels of low lands abounding in iron ore,” and (3) various meadows “principally in the eastern part of the town” (Murray et al. 2005:69). Forges and furnaces were established in the late eighteenth and early nineteenth century in locations that are now part of other towns, as Harvard and North Chelmsford. Nevertheless, Groton farmers continued to dig up the iron ore in their meadows and sell the resources to these nearby processing centers.

By the seventeenth century, competent blacksmiths could take iron ore and produce small quantities of iron in his forge, although the limitations of the hearth size and problems of handling and hammering hot metal in a single bloomery resulted in a small output that was for the most part used locally (Mulholland 1981:69). Blast furnaces replaced bloom hammering (direct) methods and required charges of compressed charcoal and limestone as well as iron ore.

As such, iron working also stimulated the expansion of timbering, charcoal production, and extraction of limestone. After slag was let out, the iron was cast into “pig” bars (later to be hammered to remove carbon and create wrought iron) or poured into molds. The industry in Groton resulted in the manufacture of farm implements, wagon wheels, horseshoes, pots, kettles,



stove plates, fire backs, salt pans, and other objects (Murray et al. 2005:69). In addition, the trade in ores and charcoal supplemented the economy of landowners, many of whom were primarily farmers.

The earliest regional and most well known iron works in Massachusetts included the short-lived Braintree Iron Works established in 1644; Saugus Iron Works, operating between 1646 and 1668, the first integrated iron works in America; and Middleton Iron Works established in 1708. Each location smelted locally mined bog ore and gabbro. Over 400 bushels of charcoal and 3 tons of ore were needed to produce one ton of iron, and at Saugus, the iron making activities produced about 7 tons of cast iron per week, but profits were low and expenses high (Wall et al. 2004:15). Over time, industry-wide consolidation and competitive pricing forced smaller factories and those in out of the way locations like Groton out of the business.

Abandoned iron related industries can be important archaeological sites. Extensive archaeological excavations at the Saugus Iron Works, undertaken by Roland Wells Robbins between 1848 and 1953 exposed a variety of cultural features reflecting the site's iron working activities, including engineering, factory design, methodology, technology, and operations. Evidence included stone foundations of the blast furnace, stone lining fragments of the furnaces, remnants of wood frames that supported wood and leather bellows, mill machinery parts, crucibles, weights, tools as hammers, rollers, slitters, discarded iron bars, castings representing the variety of products, slag, and charcoal representing the fuel source. Evidence preserved in the ground may reveal the nature of iron working site, its complex patterning reflecting site function and denoting specific activity areas or specialized structures. Further research of Groton's iron working sites can provide information on the critical role of iron making in the seventeenth and eighteenth centuries and its legacy in the early history of Groton.

Brick Manufacturing. Several other natural resources of the region were extracted and worked, and some of the resulting products remain in Groton. Brick manufacture were undertaken by William T. Lawrence. These industrial activities took place on his farm on Mount Lebanon Road on the west side of the Nashua River opposite Stony Fordway (Stony Wading Place). Although within the original Groton land grant, this area became part of Pepperell in 1753 (Murray et al., 2005:69-70).

The basis for the brick industry was clay, which was abundant in the rivers in Groton. Because brickyards were positioned where clay was available, sites are often found along the edges of rivers or streams. Remains may be exposed by erosion or found slumped into the channel. As clay is usually still present in soils at former brickyard sites, these sites are often wet and poorly drained, with ponds and abandoned man-made clay pits filled with water. As clay-rich soils make agriculture and construction difficult, large portions of brickyards may remain intact. Features present at such sites include spoil piles, ranging from knee-high above the ground surface to veritable hills, as well as pits extending 30 or more feet below the natural ground surface, from which clay was extracted. Evidence preserved in the ground may provide clues as to the nature of brickyard patterning, reflecting site function and denoting specific activity areas or specialized structures. Brick-making activities include clay extraction from pits or varves, mixing raw clay in open areas of the work yard, brick drying in sheds, firing in kilns, and disposal of rejected brick in dumps.

Brick manufacturing activities required a supply of clay, in addition to firewood for firing, sand for tempering the brick, and water for cleaning and processing the clay. Work yards where



brick was manufactured are comprised of multiple activity areas: extraction zones for quarrying clay; locations for mixing and seasoning clay, forming brick, drying brick and firing brick; storage and sorting areas; and dumps. Brick manufacture also required a seasonal labor force (brick was not made in the winter), as well as a market at which to sell the finished product, and a means to transport finished brick to market.

Brickyards of Groton, such as the one belonging to William T. Lawrence situated along the Nashua Valley railroad (near stoney fordway at the Nashua River at Nod/Paper Mill Village – Route 119) produced millions of bricks for the building industry. Due to the proximity of the brickyard, several buildings in Groton were constructed of Lawrence's brick, including the 1830 Bywater's Blacksmith Shop on Main Street, the 1835 Brick Store, the 1848 #5 District School on Common Street, and the 1869 Chaplin School (Murray et al. 2005:69-70).

Archaeological examinations at nineteenth century brickyards in New Hampshire have shown that features reflecting the various attributes of brick making can be preserved in subsurface contexts. For example, two Merrimack River brickyards were investigated during a survey for a gas pipeline project, including the Head Brickyard in Hooksett, and the Simpson Brickyard in Pembroke, and a third brickyard, the Leddy Brickyard, was studied in association with NH Route 101/51 in Epping, NH. At these sites, investigations documented the presence of such features as work yards, rail grades, access roads, clay pits, dumps, and brick floors associated with kiln bases (Bunker and Potter 1988, 1989; Dwyer et al. 1992).

Archaeological investigations at a number of New Hampshire brickyard sites indicate potential historic archaeological brickyard components. Sites may be small or large scale, encompassing many acres in size, and include numerous features and components in complex arrangement. The most likely indicator of the presence of a brickyard site is the occurrence of abundant brick, appearing as intact brick, culled brick, or broken brick. Site are further recognizable by clay-rich soils and the occurrence of brilliant reddening and discoloration of the subsurface soil column, resulting from years of being heated by high temperature kilns and the admixture of brick fragments and brick dust. Brickyard sites may reflect changes in the pattern of site components due to such things as technological advances, financial successes, or demand declines over time. The surface conditions of brickyard sites may resemble a moonscape, with level work areas alternating with clay pits and craters, heaps of unused clay and brick discard piles. Strata of clay, sand, burned soil, charcoal and brick may extend several meters below grade.

Components which may be present include: footprints of sheds represented by post holes; soil compaction or soil color changes; floors and pavements of kilns seen as packed and burned earth with brick flooring; work yards seen as mixed and compressed earth comprised of clay, sand and fill; structural material representing buildings and outbuildings such as offices. Yards and floor may intersect and overlap, as work areas were alternately used and abandoned. Artifacts may include architectural debris; industrial equipment or tools (e.g., shovels, hammers, mallets, axes); horse furniture as horseshoes and harnesses associated with the use of horses for transportation; personal refuse and industrial waste, especially discarded bricks represented by jumbled heaps of deformed culled bricks recognizable by their warped shapes, melted surfaces and fused conditions) that were not marketable. Transportation elements as roadbeds or railroad grades, in conjunction with fill, railroad ties, and posts, often link to the site, providing the means of conveying finished brick to market. Foundations are not expected at brickyards because buildings were considered temporary. Permanent residences for workers and owners were



generally located nearby, but off-site of the main industrial complex. Where brickyards have remained intact, any of the associated features and artifacts may be encountered. In areas of extensive modification and reuse, these features may be truncated, intruded upon, or modified. Elizabeth Muzzey (2003) affirms that little physical fabric remains to document this industry. More information is needed and any potential archaeological evidence is of significant value.

While Lawrence's brick manufacturing are well known, there may have been other early, small manufacturers extracting the resources and manufacturing products for their own and the community's needs. Often, these activities are not recorded in town histories or censuses, as their financial obligations and profits are minimal (less than \$500). Nevertheless, investigations may provide evidence of undocumented extraction and industrial activities. Pewter is one such industry which Lawrence produced in addition to brick, evidence of brick manufacture is prolific.

Soapstone Quarrying. In addition to the Native American quarrying of soapstone in the Late Archaic Period, soapstone (also known as steatite) was a popular historic natural resource, mined for use as fireplace hearths, pumps, sinks, wash basins, counter-tops, stoves, bed warmers, inkwells, and soap dishes.

In 1828, John Fitch accidentally discovered outcrops of soapstone on his farm off Common Street on Shepley Hill (owned since 1990 by the Groton Conservation Trust) (Murray et al. 2005:68). His discovery derived from his recognition "that part of a stone adhered to his axe, as he stuck it inadvertently, while cutting wood" (Murray et al. 2005:67). The discovery in the nineteenth century led to a profitable manufacturing business situated along the Nashua Valley railroad axis. In addition to Groton, several other Massachusetts towns contained soapstone quarries in the nineteenth century, including Andover, Cummington, Granville, Shutesbury, Sutton, and Windsor.

For several years Fitch worked the quarry and sawed "the stone by hand at a shop by the roadside near his house" (Virginia May in Murray et al. 2005:68). Subsequently, Fitch erected a steam saw mill 40 to 50 rods from the quarry. In 1855, the Fitch heirs sold the operation to Samuel Adams of Townsend and Daniel McCaine, and the quarry operation continued c. 1857 under Samuel Adams' direction. In the spring of 1859, the building burned down, and it was replaced by another larger structure. In 1861, following Adams' death, the Adams heirs sold their interests to Daniel McCaine and his two brothers David and William, who took charge of the business, enlarged the shop, improved the machines, and worked "the quarry on a grand scale" (Murray et al. 2005:68). The McCaine brothers also "invented and patented a process for making artificial stone" (Murray et al. 2005:68). However, the soapstone mill again burned down in 1864.

After the property was sold to the Groton Soapstone Company with a capital of \$100,000, a new mill with an attached engine house was constructed. The new soapstone factory, operating with "the latest improvements in machinery," was considered the best-equipped and largest factory of its kind in the country (Murray et al. 2005:67). The property and the patent for artificial stone were sold to the Union Stone Company, however, and the success of the Groton operation diminished and the operation was abandoned and dismantled.

Evidence of the soapstone quarrying operation in Groton remains in several forms. Archival documentation includes an 1862 pen and ink drawing of the soapstone quarry and factory building by William H. Hard (widely published in *Frank Leslie's Illustrated Newspaper*), and a



historic photograph of the post-1864 soapstone factory (Murray et al. 2005:67). The drawing and photograph document elements of the buildings and the layout of the industrial complex. Two grottos where soapstone was mined remain on the former site.

Limited geo-archaeological surveys and investigations at historic soapstone quarry sites have documented the presence of a variety of potential components. Sites may be small or large scale, encompassing many acres in size and including numerous features in complex arrangement. The most obvious indicator of the presence of a soapstone quarry site is the occurrence of soapstone ledge or glacial erratic soapstone boulders. Because soapstone operations were positioned near where the soapstone was available, activity areas lie in proximity to the source. Abandoned man-made pits, ranging in depth from knee high to veritable deep holes, are often wet, poorly drained and/or filled with water. Geo-archaeological investigations in Essex County, Massachusetts (Wall et al. 2004) identified a variety of quarrying features providing visible evidence of soapstone extraction at the c.1830s-1840s Jenkins Quarry (aka Skug River I and II sites in Andover, MA). Utilized ledge, blocks and boulders may display tool markings, such as hammer and pick marks, scored lines made with chisels, feather and wedge fracturing, as well as evidence of sawing, grinding, spalling holes and cavities cut with drills, and other grooves, notches, flaking and dust resulting from manmade activities.

Evidence preserved in the ground may reflect the nature of soapstone factory complex patterning, reflecting site function and denoting specific activity areas or specialized structures. A soapstone quarry may document changes in the pattern of site components due to such things as technological advances, financial successes, decline in demand, fires, and subsequent rebuilding. Components which may be present in such sites include structural material representing buildings and outbuildings such as work space and offices; footprints of sheds, represented by post holes; floors and pavements; soil compaction and soil color changes; and work yards seen as mixed and compressed earth. Yards and floors may intersect and overlap, as work areas were alternately used and abandoned. Artifacts may include architectural debris; industrial equipment or tools (e.g., hammers, mallets, chisels); horse furniture, such as horseshoes and harnesses; personal refuse; and industrial waste, especially fragmented and unusable soapstone that were not marketable. Transportation elements, such as roadbeds or railroad grades, in conjunction with fill and railroad ties may be encountered as these provided the means of conveying finished soapstone products to market. Substantive, below grade foundations are not expected because the factory buildings were situated outside of the village, were utilitarian in nature, and were focused on a nonrenewable resource. More permanent structures, such as residences for workers and owners, were generally located off-site of the main industrial complex. Where soapstone quarries have remained intact, any of the associated features and artifacts may be encountered.

Civic Life and Public Buildings

Economic success stimulated the establishment of community institutions and infrastructure. The civic life context includes information on the construction of schools, post offices, libraries, town hall, and other municipal and public structures, as well as service related structures in the form of taverns, inns, hotels, and resorts.



Schools. Groton has “a rich scholastic history with its two major schools and myriad of other schools ranging from the little red schoolhouses to small private specialty schools” (Ruckstuhl 2001:v).

“Approximately 9-10 school districts active by c.1810, the majority of school houses were built of brick, one-story high” (MHC 1980a:5). Groton Academy (now Lawrence Academy) was founded 1792, and the existing schoolhouse was used for the academy. By 1839, Groton had a female seminary (Ruckstuhl 2001:75). Charlotte Sibley attended the school (Murray et al. 2005:95). “Establishment of boarding school created complex of high-style institutional buildings around town center by early twentieth century, including Neo-Gothic chapel and English style brick dormitories” (MHC 1980a:1). The Lawrence Academy (GRO.178; GRO-HA-28) is located on Powder House Road. Today, this is a renowned college preparatory school that was founded as Groton Academy in 1793 by Samuel Lawrence. The name was changed to Lawrence Academy in 1845.

Table 4-4 Groton’s Schools
(Murray et al. 2005:84)

Date	Name	Location	Detail
1915	No. 1 and 13 Chaplin School	Town Center	
1793	Lawrence Academy at Groton		Renown prep school. Brazer House became the headmaster’s residence after 1902.
1871	Butler High School		
1884	Groton School		Renown prep school
1915	Boutwell School	Town Center, Hollis Street	
	Tarbell School (Old)	West Groton, West Main St.	
1914-1991	Tarbell Elementary School (New)	West Groton, Pepperell Road	In 1994, structure became Groton-Dunstable School District office
1951	Groton Elementary School/ Florence Roche Elementary School		
	No. 1 Butler School		pre-1806
	No. 2 Moors	Moors Road	pre-1806
1877	No. 3 Lawrence	Long Hill Road and Farmers Row	Still standing Pre-1806
	No. 4 Dana	Kemp Street and Pepperell Road	Pre-1806
1873	No.5 Not named		Pre-1806
	No. 6 Hobart School		Pre-1806
-1900	No. 7 Chicopee School	Chicopee Row	Pre-1806, Still standing. Closed 1900
	No. 8 Trowbridge School	Old Dunstable Road	Pre-1806, Ruins visible in woods
-1896	No. 9 Willard School	Schoolhouse Road and Lowell Road	Pre-1806, Closed 1896
	No.10 Prescott School	Boston Road and Gay Road	Pre-1806, Still standing



Date	Name	Location	Detail
1869-1906	No.11 Sandy Pond School	Sandy Pond Road	Pre-1806, Still standing in Ayer
1869	No.12	Groton Junction	Pre-1806, Absorbed by Ayer
	No. 14 Winthrop	Main Street (Route 111)	Destroyed by fire
1901	Lowthorpe School of Landscape Architecture		Active from 1901 until 1945

The **Groton School** (GRO_HA-55) is located on Farmers Row in the south part of town. This is a highly respected Episcopal college preparatory school that was established in 1884 by the Reverend Endicott Peabody. The land for the school was donated by James and Prescott Lawrence (Ashborn 1944; Hoyt 1968). This 305 acre campus houses some 350 students. The campus of the school was designed by Frederick Law Olmsted.

Post Offices. The office was established at the beginning of the nineteenth century, and Judge Samuel Dana was the first postmaster (Green 1890 IX:12) and ran the office out of his own law office. This building stood on the location of the Governor Boutwell House (Green 1890 IX:12). In 1785, when Abraham Moore became postmaster, the office was moved to his office in the Gerrish Block, and then another move when Eliphalet Wheeler became postmaster. Historian Samuel Green speculates that a post-rider would have delivered mail prior to that time. For a time, Groton's Postmaster and Attorney Caleb Butler who continued to run the post office in Charles Gerrish's store located between the Groton Inn and Route 40 (Ruckstuhl 2001:15-17). In this manner the post office location changed several times. In 1867, the post office was moved to the Town House. In 1850, a post office was established in West Groton to service the growing mill community that surrounded the leatherboard mill (Green 1890:IX: 16).

Libraries. As early as 1834, Groton's Postmaster and Attorney Caleb Butler charged about 2 cents per week for reading privileges associated with a stack of books on shelves at the Post Office in Charles Gerrish's store, located between the Groton Inn and Route 40 (Ruckstuhl 2001:15-17). In 1854, former Groton resident, Abbott Lawrence gave \$500 to Groton on the condition it was to be matched to establish a Groton Public Library. The first location was in Margaret Blake's store at the corner of Main Street and Station Avenue. The library moved into the Town Hall in 1859, and later to the Library Hall Building, that had been relocated in 1847 from Hollis Street at the north side of Willowdale to the corner of Court and Main Streets. While this building burnt down on March 31, 1878, the library had in 1876 already moved back to the Town Hall, which also housed the post office.

Over time, donations were made for a new library. In 1888, Mrs. Charlotte A.L. Sibley gave the town a building site and funds and noted Boston architect Arthur Rotch donated his services to design the structure. Prior to its c.1893 construction, two old houses were moved from the site to Broadmeadow Road: (1) the Old Nutting House "is the second house on the north side of the street as you leave Main Street", and (2) "the oldest house in Groton, built in 1694 by Eleazer Greene" (Ruckstuhl 2001:17). This house was cut up and moved to the north side of Broadmeadow. A "picture" of the house on its original location hangs in the Groton Library. In 1898, a branch library opened in West Groton.



Other Civic Institutions. Civic structures, which were built in response to increased population and community development, include the town hall and other municipal and public structures. In addition to government meetings, the Town Hall was used for other community gatherings, including anti-slavery and temperance assemblies. In the west part of town a poorhouse or town farm were located

Military Activities. As a seventeenth century frontier town, Groton townspeople erected five garrison houses shortly after the 1662 land division. During the 1660's, this region of Massachusetts was largely unsettled by the English, and confrontations with local Native tribes were not uncommon. Political relations between the New England tribes and English settlers decayed rapidly during the 1670s, promoted in large part by the rapid spread of English farms into increasingly remote portions of the colony. By 1673, relations were unsettled enough that Groton formed a military company of its own to patrol the town (Murray et al. 2005: 7). King Philip's War (Metacom's Rebellion) broke out between the English and many New England tribes in 1675. Pokanoket Sachem Metacom (known to the English as Philip), became Grand Sachem of the Wampanoag Confederacy after his brother Wamsutta's suspicious death in 1662. Between 1675 and 1676 a number of English frontier settlements were largely destroyed, including Groton, which suffered repeated attacks. The first of these was limited to the pillaging of eight or nine houses and the theft of some cattle, but the second, on March 9, resulted in the death of a town member and capture of another (Murray et al. 2005: 8). The final attack occurred just four days later when as many as four hundred of Metacom's men killed another man, captured and destroyed one of the garrison houses, and burned forty houses and the meeting house. The citizens of Groton, numbering about 300, fled the town for two years until the conflict was well under control.

Additional Native raids occurred during the period of "Indian Wars" between through the mid eighteenth century. The town was attacked again in 1694 during King William's War. In July of that year, a number of homes were attacked, and family members killed or taken captive. These families included the Shepleys and Longleys, whose only surviving members were sons, returned after four or more years of captivity in Canada (Murray et al. 2005: 9). Similarly, during Queen Anne's War of 1702, two men were killed and three children carried off as captives. At this time, eighteen garrisons protected the town's fifty-eight families (Murray et al. 2005: 11). This was the last of the frontier wars to affect Groton directly. Though during the French and Indian War Groton militia took part in action in Nova Scotia (Murray et al. 2005: 16).

In 1775, the common in front of the First Parish Church was an assembly area for Minutemen, who fought in the Battle of Lexington and Concord. Groton supplied two companies of enlisted men who took part in the Battle of Bunker Hill, and the town housed four six-pounders, ammunition, and gunpowder, some in a heavily guarded stone powder house once located on Powder House Road (Murray et al. 2005: 18). The powder house was dismantled in 1829, its stone used to line a well supplying the meeting house and Hoar's Tavern (Green 1885, in Green 1887; Groton Historical Series No. V, 1885: 15).

The Groton Artillery, organized under captain William Swan in 1778, was among the oldest in the Commonwealth. Known later as Co. B, Sixth Massachusetts Militia Regiment of Infantry, it took an active role in the Civil War (Green 1886, in Green 1887, Groton Historical Series No. IX, 1886: 21). The historic organization was designated Co. F, Tenth Regiment in 1876, but was



officially disbanded just two years later (Green 1886, in Green 1887, Groton Historical Series No. IX, 1886: 22).

Town Utilities and Services. The development of town utilities and services included: the construction of fire reservoirs (4,000 gallon capacity) after a May 6, 1872 vote. The reservoirs were established to offer protection “to the greatest number of houses in the village,” the reservoirs were established near the three meeting houses, the Town House, and the High School (Green 1890:559). A few years later, another reservoir was added in Court Street. Water from the roofs of these buildings drained into the reservoirs, which subsequently provided water for pumper trucks perhaps via pumps and then hydrants.

Other utilities included:

- a telegraph office, established March 20, 1880 in the railway station (Green 1890: 551),
- the first telephone system installed April 29, 1881 in a town building in the Torrey Block on the south corner of Station Avenue and Main Street (razed); later telephone central moved to the grain store building that also housed the American Express office (Buckingham’s house). John H. Trayne’s house, located on Elm Street, was the first private home to have a telephone (Ruckstuhl 2001:81),
- the establishment of Groton’s water supply system in 1897 (Ruckstuhl 2001:9). The water supply included Baddacook Pond at which there was a pumping station

Throughout Groton, evidence of various historic and existing town utilities are also expected, including water and sewer lines, drainage features, gas and electric lines. These elements may be recognized as in-ground trenches, fill episodes, altered landscaped zones, or remnant utility lines.

Religious Activities and Structures. While early worship services and town meetings took place in private homes and ministers’ house, the first meetinghouse in Groton was built in 1666 at Hollis Street and Martins Pond Road (MHC 1980a:3; Murray et al., 2005:xiv).

On March 13, 1676, during King Philip’s War, as many as 400 Native Americans burned the first meetinghouse of Groton along with about 40 dwelling houses (Green 1890:509). Settlers returned by 1678 and rebuilt the town. In 1680, the second meetinghouse was built at Hollis and School Streets on what is now Legion Common. The old meetinghouse was later converted into Groton’s first school, 1917 (MHC 1980a:3).

The third meeting house, was built in 1715 at Lowell and Main Streets, causing a shift in the town center (MHC 1980a:3). This building was later attached to Keep’s Tavern (now the Groton Inn) after having served for a time as a barn. The fourth meetinghouse was built in 1754, also at Lowell and Main Streets (MHC 1980:3; Ruckstuhl 2001:7-8).

As the population diversified in the nineteenth century, different denominations formed and a number of churches were built. The Union Congregational Society was established in 1825 and the Union Congregational Church was built 1827 (appearance unknown) (MHC 1980a:4-5).

Other new religious groups included a Baptist Society (1832) that built its Greek Revival



style church in 1841, and remodeled it to an Italianate style in 1875. A Millerite congregation built a church in the early 1840s, and possibly a Presbyterian Society, although references to this society are vague (MHC 1980a:6).

An Episcopal Church was built at Groton School c.1884. A Methodist Society/Christian Union (Methodist) Chapel was built in West Groton in 1885. A Catholic Church was built out of the former Episcopal Chapel at West Groton in c.1905 (MHC 1980a:7-8). A new Catholic Church built at West Groton in 1929. In 1907, Groton, formerly a mission of the Parish of Ayer, established its own Catholic Parish (Ruckstuhl 2001:126).

In the 1800s, religious groups were breaking away from established churches and forming sects, where they could speak openly and share their opinions and philosophical doctrines.

One of these sects – the Millerites --was preoccupied with Christ's return as the "focal point of attention" was lead by William Miller (in 1728). Miller was from Pittsfield, Massachusetts. The sect was a part of the Second Adventist movement. In the 1840s, Groton "was becoming a center for the growing Second Adventist movement that had begun earlier in the century." The Second Coming of Christ was its religious passion

A building was originally erected on Hollis Street as meeting house for Second Adventists (Millerites) (Green 1890:547) The structure was relocated in November 1844 to the corner of Main and Court Streets and "fitted up in a commodious manner, with shops in the basement and a special hall in the second story" (Green 1890:547). Later, in July 1845, the structure was occupied by tenants but burned to the ground on March 31, 1878.

On October 21, 1844, Groton residents witnessed the "Magnificent Disappointment." According to the story, three dozen devout Millerites gave up their earthly duties, abandoned their residences and animals, and sat "all day on a crowded staged roof, blankets around them, looking skyward, patiently waiting as close to heaven as they could get—waiting to be plucked skyward into heaven before dawn" (Ruckstuhl 2001:36) for the second coming. Local lore has it that the townspeople, sympathetic to the Millerites' plight, cared for their animals until they returned to more mundane occupations.

Taverns, Inns, and Hotel Sites. The first taverns in Groton were small, family-run establishments in pre-Revolutionary days. While the "sites of the earliest taverns of Groton cannot easily be identified," the names of landlords and records of licenses inn-holders provide significant detail for identifying the likely locations, in addition to extant structures.

Some of the earliest tavern clients were cattlemen, "running as many as 500 head of cattle up northward of Groton to feeding grounds" in Groton Gore, now parts of Mason, Greenville, Brookline, Wilton and Milton, New Hampshire" that were lost to Groton when the New Hampshire-Massachusetts border was established (Ruckstuhl 2001:2-3). Over time, Groton became a major stagecoach center supporting taverns, inns, and hotels that provided changes of horses as well as feed, water, and libations for the riders. In addition, taverns provided a convenient location to conduct business. That they provided libations, except for a short period of temperance, was tolerated and accepted behavior.

Taverns "reached their acme shortly before the Civil War when the stagecoach trade on which they depended heavily, peaked" (Ruckstuhl 2001:1). By the mid nineteenth century, Groton supported 14 taverns, including 4 stagecoach stops: Richardson Tavern, Emerson Hotel Ridge Hill Tavern, and Jonathan Keep's Inn (Groton Inn) (Ruckstuhl 2001:3). The distinguishing functions between sites used as taverns (where beverages were sold and drunk) and inns and



hotels (where food and beverages were imbibed and bedrooms were provided) often changed over time, Table 4-5 lists 15 of Groton's historic taverns, inns and hotels and their associated proprietors over time. As Ruckstuhl (2001:3) affirms, there were many smaller taverns, as well as inns and hotels, "whose details have escaped us."

Several taverns were located in Groton, most notably The Old Groton Inn, Grill and Tavern Circa 1678. The inn boasts "We are one of America's Oldest Operating Inns formerly the Groton Inn and recently the Stagecoach Inn. We recently revived the historical name..." "The Old Groton Inn." Built originally in 1678 and formerly known as the Groton Inn, The Stagecoach Inn and Tavern was accepted on August 3, 1976 for inclusion in the National Register of Historic Places (Murray et al. 2005)

Several other inns and taverns were located in Groton. Table 4-5 lists a sample.

Table 4-5 Groton's Historic Taverns, Inns and Hotels and Associated Proprietors
(Ruckstuhl 2001:1-13)

Date	Name of Establishment	Proprietors (listed alphabetically)	Location	Detail
1752	Samuel Bowers, Jr. Tavern Trowbridge's Tavern (1752) Champney House (1755)	Samuel Bowers, Jr. Caleb Trowbridge, Jr.	Corner of Hollis and Champney Streets; Building remains extant	Building built c. 1730; In 1752, Caleb Trowbridge Jr. (son of Reverend Trowbridge) obtained a license to sell wine and spirits on the premises; Oldest Tavern in town
1763	Child's Tavern Richardson Tavern/Inn Hobart House Spalter Tavern/Inn (c.1809-1815)	Moses Child Dearborn Emerson Lemuel Lakin Jephthah Richardson Daniel Shattuck Francis Shattuck John Spalter Timothy Spaulding Samuel C. Tenney	Faced down Main Street, on site of c.1841 Baptist Church/ Matisse home c.2001; (Ruckstuhl 2001:3, 5).	Building built c.1670s, occupied by Reverend Hobart by 1678. Moses Child sold spirits by 1761 and obtained (renewed) a liquor license from the Collector of Duties of Excise (Watertown) in 1763. Second oldest Tavern. In 1780s, Converse Richardson's son Jephthah (d.1806) and wife Sarah renovated and expanded the building. In 1794, Queen Victoria's father, the Duke of Kent, was a guest. While in business as Spalter Inn c.1812, Lt. Chase headquartered his recruiting staff at the Inn. During Shattucks tenure c.1815-1830, Rufus Porter did the ballroom wall paintings. They were rediscovered in 1970s, after having been moved c.1840 to Keep's Tavern (Groton Inn), when Richardson's Tavern was torn down (Ruckstuhl 2001:6).
1765	George Pierce Tavern/Inn	George Pierce and wife Deborah	S. Groton, now part of Ayer on Great County Road and School No. 4 (Ruckstuhl 2001:7,12)	Short-lived enterprise. In 1773, Pierce's Tavern was advertised as "Very convenient as a tavern, including a grist mill and a saw mill" (Ruckstuhl 2001:7)
1780	Richardson's Inn	Converse Richardson	Site on Elm Street at corner of Pleasant Street	Short-lived enterprise, operated by Jephthah Richardson's father. Building moved off site to unknown location (Ruckstuhl 2001:7).



Date	Name of Establishment	Proprietors (listed alphabetically)	Location	Detail
1781	Jonathan Keep's Inn Keep's Tavern/Inn Hall's Tavern (c.1798) Hall & Childs Inn (c.1805) Central Hotel (c.1825) Central House (c.1864) Groton Inn (c.1896) (under Moses Gill also known as upper tavern)	Isaac Childs James Minot Colburn Moses Gill Fletcher Hall Isaiah Hall Joe Hall Joseph Hoar Joseph Nelson Hoar 3 Hoar daughters: Lilla Marie, Charlotte Elizabeth, and Jane Evangeline David Hunt Capt. Jonathan Keep Thomas Treadwell	Extant, site of Groton Inn	Building erected c.1761 for Reverend Samuel Dana, an unpopular Tory. In 1780, Capt. Jonathan Keep of Westford bought 40 acres and buildings Tavern sold 1794 and remodeled by son-in-law, Isaiah Hall. Third meeting house, built c.1714, was attached after having served as a barn. When Treadwell made the Central Hotel a Temperance Inn, business declined c.1840-3. Pillars from First Parish church added. Old Richardson House ballroom was cut up and attached to Inn. Three barns for stage horses no longer needed. Under Hunt, Inn became headquarters for Railroad Board and Probate Court meetings. J. Nelson Hoar bought the hotel in 1855 and it was subsequently managed c. 1885-1901 by Hoars three daughters. Bought by Scott (Emulsion) (Ruckstuhl 2001:6-9, 13, 149).
1785	Amos Adams Tavern/Inn	Amos Adams	Located "near Squanacook in Jane Kemp's house (Ruckstuhl 2001:9)	Short-lived enterprise. Jas. & Sarah Kemp house.
1798	Levi Tuft's Place Stephen Farrar's Tavern/Inn Also known as Elmwood Farm/ Hinchman House	Tilly Buttrick Steven Farrar	Great Road by brook; "On right of Route 119 beyond power lines as you go toward Boston" where row of tall pine trees stand (Ruckstuhl 2001:9)	Initially c. 1740 home of Levi Tufts, located a mile toward Groton from The Ridges. Stephen Farrar and wife Sarah operated the establishment c.1798. Tilly Buttrick after 1800 ran the "bar room with limited accommodations for carrier drivers" (Ruckstuhl 2001:9).
1800	Charles Prescott House/Prescott's Tavern/Inn	Charles Prescott	Located south of Indian Hill.	Short-lived enterprise.
1801	Stone's Tavern	Moses Day		Short-lived enterprise. An 1808 sales advertisement for farm and buildings noted it had been a tavern for the past 7 years. Burned 1836 (Ruckstuhl 2001:9)
1805	Ridge Hill Tavern/Inn Hotel K. Farr	Kimball Farr J. Fuzzard (Englishman) Moses Gill Newell Jewett Mr. Langdon Henry Lewis Lawrence Jefferson Loring John Hancock Loring Levi Parker Steven Perkins John Stevens	Extant, Great Road at Ridges, on Route 119 at the "Four Corners" by the little package store and restaurant (Ruckstuhl 2001:3, 9, 13)	The brick building was built 1805 and operated as inn and public bar for 79 years until 1884. Levi Parker was the first landlord, and following several other proprietors, Moses Gill took over in 1837. Now the building serves as professional offices.
1812	Page's Tavern/Inn	Mr. Page	Located near Unitarian Church	Building built 1803 for Martin Jennison, operated 6 years until 1818 (Ruckstuhl 2001:10).
1815	Emerson Hotel Emerson Tavern	Amos Alexander Artemis Brown Horace Brown	On site of Groton market package store (Ruckstuhl 2001:3)	Dearborn Emerson , a former stagecoach driver who ran the Spalter Inn c.1812, established the Emerson Hotel in 1815. With



Date	Name of Establishment	Proprietors (listed alphabetically)	Location	Detail
	(under Moses Gill also known as upper tavern)	William Childs Dearborn Emerson Isaac Fox Moses Gill John M.Gilson(McGilson) Joseph N. Hoar John McGilson Abijah Wright		his brother-in-law Daniel Brooks who owned the stagecoach company that ran north through Groton and Jonas “Tecumseh” Parker, they took over much of the stagecoach business and “outclassed the Richardson facilities.” Following his financial overextension and collapse in 1818, Joseph Hoar bought the establishment (and a year later bought the Keep’s /Groton Inn) prior to its acquisition by Moses Gill c.1840s. The hotel closed c. 1854-6. It burned 1855 after a year as a shoe factory (Ruckstuhl 2001:10-12).
1820	Aaron Lewis’ Tavern/Inn	Aaron Lewis A.M. Veazie	Extant, On Route 119 “on right, as you look west, before the bridge over the Nashua River.” At Hollingsworth Mill (Ruckstuhl 2001:11,12).	Original house of John Cappell and daughter Sarah (Cappell) Gilson (b.1793). Aaron Lewis’ tavern established 1820 lasted 15 years. A.M. Veazie took over in 1845.
1828	Sawtelle House/Homestead	Elnathan Sawtelle S. Farnham	4 mi. on Dunstable Road	Built by Patch 1772, “Tavern of modest means” (Ruckstuhl 2001:13)
1856	Globe Hotel	Moses Gill Stephen Woods	Located on Pleasant Street, on left next to former Congregational Parsonage (Ruckstuhl 2001:11).	Moses Gill, after involvements with Keep’s Tavern, Richardson’s Tavern and Emerson’s Hotel, established Globe Hotel. Stephen Woods took over c. 1858 until “the place went belly-up” in 1859 and can be considered “one of the shortest lived major establishments in Groton.” Part of building moved 1873 to south side of Court street and served as residence of Bob and Virginia May (Ruckstuhl 2001:11-12)
	Trowbridge’s Tavern Samuel Bowers, Jr. Tavern Champney House (1755)	Samuel Bowers Caleb Trowbridge, Jr.	Corner of Hollis and Champney Streets; Building remains extant	Building built c. 1730; In 1752, Caleb Trowbridge Jr. (son of Reverend Trowbridge) obtained a license to sell wine and spirits on the premises Oldest Tavern in town

The first known landlord and retailer of spirits recorded in Court records was Joseph Cady in 1699 (Green 1890: 551).

While several other names appear in the court records over the next few decades as retailers (Green 1890:551), the Samuel Bowers, Jr. Tavern, at the corner of Hollis and Champney Streets, is recognized as the oldest tavern in town. In 1752, Caleb Trowbridge Jr. (son of Reverend Trowbridge) obtained an Innholder’s license to sell wine and spirits on the premises, situated “upon a publick Road leading from *Dunstable* to *Harvard*,” in addition to the retail sales he had already been granted license for. By 1755, Bowers (1711-1768) was also licensed (Green 1890:551-2).

During this era, the popularity of the summer resort business also strengthened Groton’s economy. Popular summer resort destinations were in the Lost Lake area and Lake Massapoag.

The first projected pictures were displayed to a riveted crowd of spectators at the Town Hall



on Saturday, October 22, 1910, courtesy of the Groton Branch Alliance of the Unitarian Church (Ruckstuhl 2001:128).

Archaeological investigations of taverns, inns, hotels, and other recreational sites are an important element of communities, for both their social and economic role in the community. Archaeological investigations of these sites uncover evidence of the daily lives of the proprietors, their families, and their clients, as well as occupational specialization, public and private foodways, expenditure patterns, and consumer behavior.

Overland Transportation. Groton has been among the busiest centers for traffic, transportation and accommodation for a town its size (Ruckstuhl 2001:v). Early transportation in Groton on water and overland developed as a complex network. While waterways were among the first primary means of early transportation for both Native Americans and European Americans, many of the earliest overland routes originated from the elaborate foot trails and canoe portage routes established by Native Americans in the region. These Native trails were improved and became regional highways that connected Groton to other interior towns and coastal communities. These routes, along with modes of transportation, improved and expanded over time.

“The village of Groton is situated principally on one long street, known as Main Street, a section of the Great Road, which was formerly one of the principal thoroughfares between Eastern Massachusetts and parts of New Hampshire and Vermont” (Green 1890:501). By the mid nineteenth century, Groton experienced heavy traffic in the form of horse drawn stagecoach arrivals and departures, and rumbling trade wagons.

Groton’s Main Street remained a dirt road until July 2, 1910, when coal tar was laid on parts of the dusty surface as an experiment and subsequently treated to another coat on May 13, 1911 (Ruckstuhl 2001:128).

Overland transportation routes also included river crossings and bridges. River crossings included: Stony Fordway (Stony Wading Place), a significant Nashua River crossing and part of the most direct route from Common Street to Mount Lebanon Road until the bridges were built (Murray et al. 2005:69),

After the Revolutionary War, road improvements were made to many of the routes. Over time, secondary routes were established to the interior regions that were not as easily accessed. Roads were also constructed to neighboring settlements, mill villages, and other industrial complexes. Historic maps detail the location of major roadways and the development of Groton along with dispersed residential growth along roadways radiating out from the village centers. Historic maps also provide evidence of road name changes in some cases. Primary roadways include what is now Route 111 and extends south to north from Ayer to Pepperell, east to west from Westford to Shirley (today’s Route 225), and southeast to northwest from Littleton to Pepperell (today’s Route 119). Through time, roads expand throughout the town inter-connecting with the main thoroughfares. The exception is in the west part of town in the Nashua and Squannacook valley where few roads extended (with the exception of West Groton). The road pattern, and associated bridge construction, reflects land and shore use through historic periods. Many early roads were privately run enterprises and tolls were collected to fund their operation. Although built by entrepreneurs, the operations were regulated. The turnpike system and the stagecoach routes brought great changes and facilitated transportation (Garvin and Garvin 1988). Travelers were no longer dependent on the weather conditions or the character of navigable



waters. In conjunction with bridges, these roads and later railroads opened the way for industrial production of the late-nineteenth century.

The first stagecoach came through Groton in 1793 and by 1820 transportation was available from Boston to New Hampshire and Vermont, and into Canada. By 1820, there were daily excursions from Groton in several directions and it was not unusual in a single day “to see 40 or more four-to-six horse drawn vehicles pass through town,” in addition to produce transports, called *carrier wagons*, that provided additional revenue for the small, taverns of the day (Ruckstuhl 2001:2, 3). Mail stages were another type of transportation option.

Railroads. Substantive changes in Groton followed the 1848 introduction of the railroad with its steel wheel and rail. Railroads networks were constructed in the nineteenth century and the introduction of the railroad favored village growth in Groton, linking goods and passengers with a wider trade and transportation network. It also heralded the end of the stagecoach era, although the advent of the railroad bringing travelers to Groton counteracted the loss of carriage trade (Ruckstuhl 2001:8).

While a railroad line extended from Boston to South Groton (Groton Junction, later downtown Ayer) in 1844, by 1848, there was train service between Boston and Groton. This line passed across Broad Meadow, paralleling an old cart road to the end of Elm Street, and curved through the center of town, crossing Main Street as it traveled north along the Nashua River (Murray et al. 2005:55). Groton’s first railroad station was built in 1848 on what became known as Station Avenue. In 1890, the Worcester, Nashua, and Rochester Railroad passed through the village of Groton, traversing “the township at nearly its greatest length, running six miles or more within its limits (Green 1890:501). The second station was replaced in 1911 by the third, and last, station that burned down in 1932 and passenger service ended in Groton center in 1934 (Murray et al. 2005:57). In addition to the advantages of the railroad making freight hauling easier and more cost effective, it brought visitors to Groton’s inns and boarding houses, and drew business to the station area, including to the local livery stables. John M. Gilson, and later Henry Johnson c.1875, operated a livery stable at the south corner of Main and Court Streets. Johnson subsequently relocated his livery and boarding station to Station Avenue across from Town Hall (Murray et al. 2005:57). He also supplied horses to pull the fire engines (Murray et al. 2005).

The former train station in West Groton was located on the north side of Route 225. Today, the site contains a small park along the mill pond, dedicated to Carol G. Wheeler (d. 1952) of West Groton who died in the Korean War (Murray et al. 2005).

Street Railways. Near the end of the nineteenth century, street railways began to provide another means of improved transportation over horse-drawn carriages. These trolleys are also associated with the first wave of commuters who traveled quickly to their job locations and recreational resorts. The first street railway opened in 1912-1924. With the new street railways commuting to Boston became more practical and common place. This new possibility led to an increase in the population of Groton as many individuals lived in town and commuted to Boston. However the Groton street railway, similar to so many others, was replaced by improved local and regional automobile roads, and the trolley line was abandoned in 1929.

Automobiles. The next transportation innovation, the private automobile industry of the 1900s, also stimulated and guided city growth. Mark Blood owned the first gasoline driven car in



Groton, a 1903 Buffum racer (Ruckstuhl 2001:89). Throughout the twentieth century, development in Groton paralleled the transportation corridors and included industries, farms, residences, hospitality establishments, and commercial operations.

Airplanes. The era of aeronautical aviation was brought to Groton on Saturday October 29, 1910 when a noisy dirigible with two propellers passed overhead and on September 9, 1911 when the first flight of an airplane, piloted by Lieutenant Milling, roared over the houses and fields (Ruckstuhl 2001:127-8). While these events did not leave a footprint in Groton, a small single runway airport was built in the extreme northwest part of town. The airport no longer exists. A larger three-runway airport is located to the south in Ayer.

We may expect some sections of Groton to have higher potential for early and past historic overland transportation activity than others. Conversely, sections of Groton that have been subjected to dense commercial growth and subsurface impact will have limited probability for past historic evidence. Archaeological correlates for sites associated with historic overland transportation corridors, including early roads, trails, bridges, and railroad lines (with their worker's camps, stations, signals and switches) are expected to include sites, artifacts, and features along the margins of the travel corridors. These may be residential and transportation related, including homes that were built along roadways or depots along the railroad. Sites may include a diverse array of artifacts, reflecting the activities of the people who resided along the roads or traveled on them. Stone walls, posts, gates, monarch trees, and domestic plantings may also be found lining roadways; culverts, drains and remnants of former roadbeds may underlie road grades.

Burial Traditions

Cemeteries are significant features of the historic environment (Table 4-6). Groton contains major cemeteries including the Old Burying Ground (1704) on Hollis Street, the large Groton Cemetery off Chicopee Row. The Old Burying Ground, on a lot of land purchased from Gershom Hobart for the meetinghouse and burial ground, contains many of Groton's first settlers, their descendants, as well as veterans of the Revolutionary War, Civil War, and the War of 1812. Several smaller cemeteries also exist in the town.

Groton Cemetery, which is still active and well maintained, also contains many old gravestones. Undocumented historic period burials, which are not depicted on historic maps, may also be encountered within Groton. Small family plots were popular in the eighteenth and early nineteenth centuries. The location of first settlement period burials in Groton is merely conjectural and, as such, vigilance is needed for the possibility of encountering the last resting places of these founders of Groton.

**Table 4-6 Groton Cemeteries**

Name	Location	Date	Detail	Burials
Old Burying Ground	Hollis Street, beside Legion Common and Legion Hall, formerly Chaplin School site	c.1678	Groton's first town cemetery established near the site of the Second Meeting House (c.1680); Land purchased from Reverend Gershom Hobart. However although burial ground was put to use, due to delayed payment Hobart threatened and began to plow a few furrows on the property. When fees were paid, Hobart halted, but <i>"For many years ridges were noticeable at the edge of the burying ground, said to be the remains of Hobart's furrows. All traces of the furrows were obliterated once the burying ground was fenced in"</i> (Murray et al. 2005:10-11). Most headstones of slate, probably from Harvard quarry.	Oldest recognizable headstone attributed to James Prescott (d. 1704). Others buried include many of Groton's first settlers, their descendants, and veterans of the Revolutionary War, Civil War, and War of 1812; including three of the original proprietors, Joshua Whitney (d.1719), James Robinson (d.1720), Simon Stone (d. 1741), as well as Benj.Prescott (1696-1738), Maj-Gen. Oliver Prescott (1731-1804), Rev. Caleb Trowbridge (1691-1760), Rev. Samuel Dana (1767-1835) and Aaron Corey (1784-1857).
Groton Cemetery	Hollis Street, jct of Longley Road, off Chicopee Row	1847	Originally, a 21-acre cemetery, greatly increased by a 35 acre gift in 1939 in memory of Samuel H. Williams. Approximately 1400 lots of various sizes (Murray et al. 2005:42-43).	Prominent individuals buried include: Geo. S. Boutwell, Caleb Butler, Abbott Lawrence, William Bancroft, Samuel Green, and Endicott Peabody.

As the location of the first settlement period, burials outside of the town cemetery are likely as well as other undocumented historic period burials, vigilance is needed for the possibility of encountering the burials of these founders of Groton in unmarked locations. Cemeteries represent subsurface deposits in the form of graves and may be accompanied by constructed elements in the form of markers, stone boundary walls, or other elements.

Unrecorded burial sites represent a powerful secular burial tradition. Cemeteries can provide important information on culture, history, family kinship, religion, and trends in the treatment of the deceased. In addition, grave inscriptions contain valuable anthropological data on genealogy, marriage, health and disease, and systems of belief. According to early custom, burials were established on private property, associated with the families who homesteaded the property and occupied the nearby residences. Later, neighborhood, town, and churchyard cemeteries were established. Thomas C. Hubka (1984:156) affirms, "A cemetery is perhaps a more fitting symbol for true neighborhood cohesion than a school district, because burial in neighborhood plots usually indicated a degree of cooperation or shared principles on the part of the neighbors who chose to be buried together." Occasionally, graves are discovered outside cemetery walls, which may reflect distinctions in economic class, race, social status, or church membership. For example, often slaves and paupers were not buried in the hallowed cemetery grounds, and were buried outside of the town or family burial grounds, or alternatively they were buried elsewhere.

Mortuary and burial practices of the late eighteenth and early to mid nineteenth century in America generally followed well-established patterns that came with the early Europeans. During the eighteenth century, family members, friends, hired third parties, or a church representative as the sexton (if the burial was in the churchyard) dug the graves. Costs for grave excavation in Caledonia County, Vermont averaged \$1.00 and ranged from .50 to \$2.50 (Kenny et al. 2003:81). Grave shafts often conform tightly to the coffin. Early on no tactics were taken (e.g., as vaulting and crypt construction with fieldstones or bricks) to prevent the early collapse



of the coffin. Grave shafts were generally dug using a two-stage technique (Kenny et al. 2003:81). First, a large rectangular shaft is dug to a depth of 5 to 6 feet (152 to 182 cm). Then a smaller excavation is made along the floor to extend the shaft and more or less match the size of the coffin. When interred individuals are encountered at shallower depths, natural causes, mechanical stripping, or landscaping may have altered the original ground surfaces. Although exceptions occur, grave orientation predominately conforms to the traditional Christian east-west orientation, with the head to the west facing east (Kenny et al. 2003:82). Gravestones, in the form of a wood board, or stone marker memorialize the deceased and represent one of the final elements in the mortuary process.

Data contained on gravestones and remains in subsurface contexts within the cemeteries in Groton have the potential to contribute to an understanding of local families who once lived here and the historic burial practices of the era. Several of these cemeteries are also significant as preserved historic elements in the area due to the loss of historic period farms and structures and late twentieth century construction. Moreover, these cemeteries are significant as they retain integrity of location and design, materials and workmanship. There are several state laws that prohibit excavation in cemeteries. Archaeological excavations are a rare occurrence in cemeteries and are only conducted in situations in which burials are to be disturbed by development, erosion, etc. Archaeological excavation of burials require a special permit from the State Archaeologist. When excavation occurs, historic and archaeological research has the potential to provide evidence of funerary objects and unmarked graves through evidence on the ground surface and recovered in an archaeological context. If construction is planned, of particular concern is the potential occurrence of any unmarked graves positioned outside the formal boundary walls of the known cemeteries. With the possibility of changes in the cemetery borders through time, there is potential to encounter unmarked burials outside cemetery walls that may reflect distinctions in economic class, race, social status, church membership, or other practices (e.g., slaves, paupers, convicts, disease victims, animals). As such, areas within 25 feet of these cemeteries are considered sensitive.

Interpretation Recommendations Based on Native American and Historic Sites

Few Native American sites are known in Groton, but archaeology has recovered some important information about the pre-Contact heritage of the area. With a plethora of historical documentation and a predominance of historic sites in Groton, interpretation of the Euro-American experience These findings can be used to develop a variety of tools for the town to protect indigenous sites and to promote knowledge about this aspect of the town.

Signage. The town of Groton should develop signage, which relates information about the local Native American population as well as that of the Euro-Americans, available to the public.

Sample locations are suggested below but many other suitable site locations in Groton exist for which educational signage would be appropriate. In cases of Native American sites, the signs should provide general information instead of site specific or locational information to avoid the chance of looting.

Several locations have been established along the Nashua River where large Native American settlements might have existed. Therefore, a suitable location for a sign would be a



roadside view with a vista of the Nashua River or other scenic area to provide a sense of landscape. Signage content should be developed from information in the report regarding sites, ages, and artifacts. The content should also describe the Nipmuc homeland over the 12,000 years of occupation including that they were mobile people who moved with the seasons and made heavy use of the river for transportation, water, and food.

The remains of the Groton Steatite Quarry (Figure 4-5) east of Common Street are located on public land. There is a walking/riding trail through the quarries making this area suitable. Signage which discusses the steatite operation, with its mill and saw mill, and separate quarry pits is appropriate. The combination of archaeological information about the site and the spectacular scenery of the quarries and associated ponds and foundations are ideal.

The Canoe launch in Nod where Route 111 crosses the Nashua River is a historic industrial site in a park-like setting (Figure 4-6). This is the location of the Scales Saw and Stave Mill and later the Hollingsworth/Nashua River Paper Corporation. The mills thrived in the nineteenth century and into the twentieth. Groton resident Harvey Sargeson was instrumental in having this area converted into a park, and added a mill wheel from another mill, and had a typical brick pump building constructed. Several portions of mill foundations are visible, but there is no other indication as to their importance to the industry of the town. Signage could provide historic maps showing the early footprint of the paper mills, while identifying some of the features of the site (foundations, hydrants, chimney foundation, etc.)

The area surrounding Fitch's Bridge is another appropriate location for educational signage. Fitch's Bridge was one of the few Nashua River crossings in Groton. At this location, Fitch's Bridge Road crossed the river and connected with Pepperell Road, passing beneath the Milford Branch of the Peterborough and Shirley Railroad (Figure 4-7). In the nineteenth century, a small community grew around this crossroads. The Warren Truss bridge, an iron bridge built in 1898, (Johnson 2006 Vol 2) and a stone abutment still stand making this a scenic location. Signage depicting area historic maps with description of residences that were once located around the crossroads as well as the transportation system which contributed to its growth could be placed here. Fitch's Bridge has been a topic of preservation discussions in Groton. Portions or all of the property south of the Groton School, south of Shirley Road and west of Farmers Row is also a potential spot for signage (Route 111) (Figure 4-8). This area is a part of the 360-acre Surrenden Farm, a natural and cultural management area now managed by the Trust for Public Land and the Town of Groton. The area affords a beautiful view of the Nashua and Squannacook River Valley where there are numerous Native American sites. By referencing the valley as important for Nipmuc and other Native Americans, the public could gain a deeper understanding of Native settlement and farming patterns. This area was also used for early modern agriculture. A nineteenth-century religious sect, the Millerites, also occupied this general area. The signage could reference all of these activities.

Additional signage explaining early Euro-American farming in Groton could be placed west of Farmers Row, where an abandoned farmstead is located. This site is on property southwest of the intersection with Broadmeadow Road. The property includes a large dairy barn foundation (Figure 4-9), complete with entry steps and iron handrails. The foundation is filled with stone. The site also consists of a footprint of a dairy barn and hay fields extend to the west and south.



Figure 4-5. Sample area recommended for informational signage. Fitch steatite quarries off Common Road. This picturesque industrial site is an excellent location for archaeological/historical site signage.

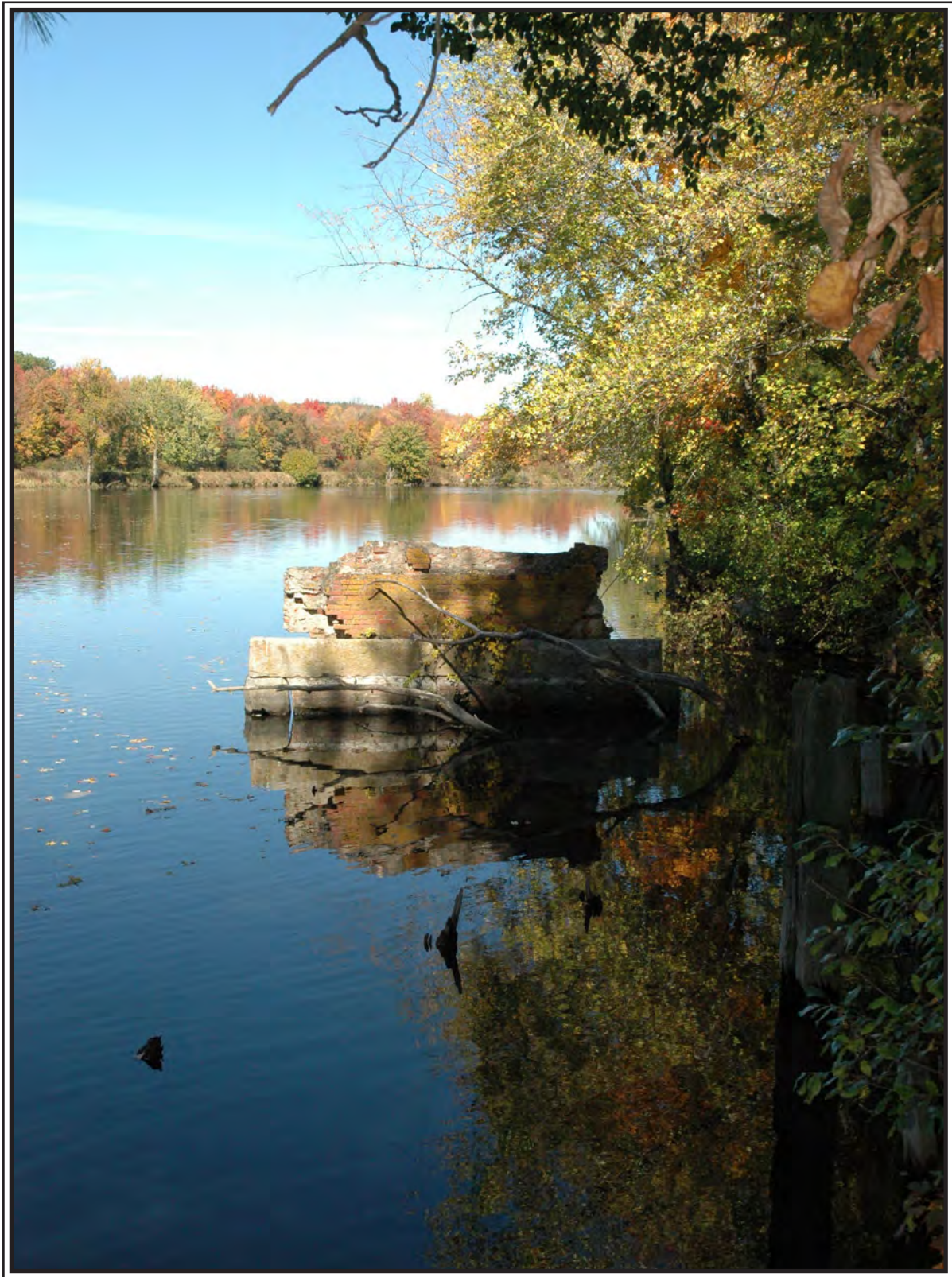


Figure 4-6. Sample area recommended for informational signage. Scales and Son Saw and Stave Mill/Hollingsworth Paper Mill at Route 225 crossing of Nashua River. This area has the remains of the paper mill and is an excellent location for archaeological/historical signage. This area is on public land.



Figure 4-7. Sample area recommended for informational signage. Fitch's Bridge area was once an important "crossroads" where the road crossed the railroad. Much of this area is private.

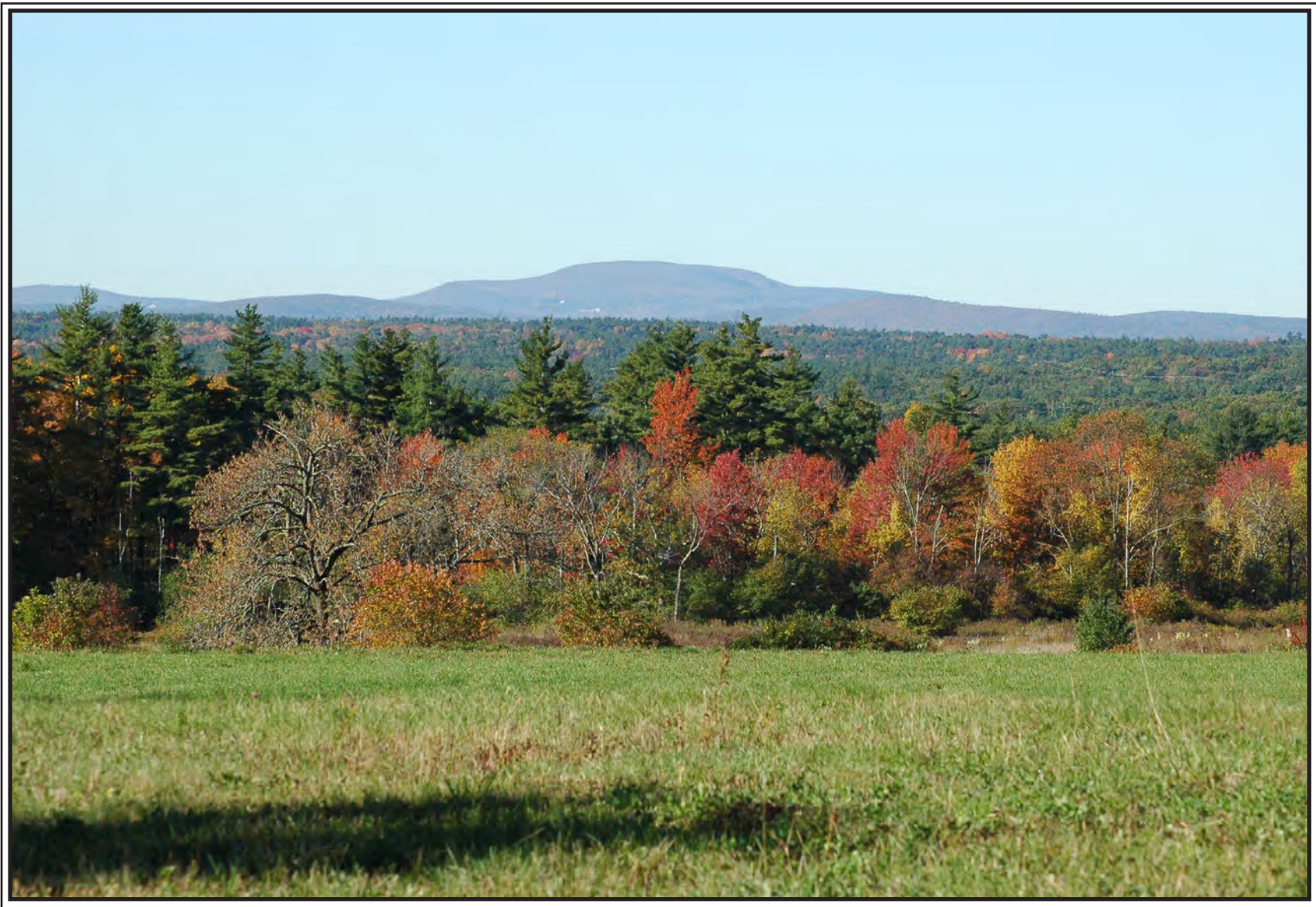


Figure 4-8. Sample area recommended for informational signage. Area south of Groton School. In distance is the Squannacook and Nashua Valley home to Native Americans. The area was used for early agriculture and the vicinity was also home to the Millerites, a religious sect.



Figure 4-9. Sample area recommended for informational signage. Area is west of Farmers Row and is the site of a razed dairy barn. The foundation is in excellent condition and the foundation has been filled with stones. The site is not on private property, and there is area to park. The signage could discuss the agriculture and dairy farming and its importance to Groton.



Educational Programs. Contextual information for Native American culture history can be used to develop school programs researching the local indigenous people. Some information on sites in Groton can be used to provide the students with a sense of local connection to the landscape. Much of the information will be more general to the Native people of the region, focusing on the lifeways of Algonquians: what foods they used; what their houses were like; aspects of their seasonal round; words from Eastern Algonquian languages; and examples of artifacts from the region. A combination of regional information connected with local sites and artifacts would probably be the most effective and memorable program.

Similar programs could be developed for the History Room at the Groton Public Library and in the visitors' galleries at the Groton Historical Society. Linking these separate locations might serve as a way of highlighting different aspects of Native American culture.

Website. Regular contributions to the town's web site would be a simple but effective way to educate the citizens of Groton about the town's heritage. Themes from the Archaeological Reconnaissance Survey report could be used to guide the development of these presentations. In addition, a copy of the survey report should be published with a link from the town's web site. Prior to publication the report should be modified with sensitive locational information removed.

Promoting Tourism. Information about the Native American past can be included in a broader push toward raising the profile of history within the town, which, in turn could be used to promote tourism. Aspects of this could include walking or driving tours, which could incorporate signage locations; displays in the town library and historical society; and local historic houses. Given the number of interesting historic events and personages in the town's history, a historic tourism initiative is a very viable option for Groton.

**Table 4-2. Historical Archaeological Sites**

Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-01	John Fitch Soapstone Quarry	Pepperell	19th century	Northwest of Common Street	Fitch Soapstone Quarry started ca. 1828, several later owners, operated until well after 1864	Yes
GRO-HA-02	Aaron Brown Potash Works	Ayer	16002-1786	Broadmeadow Road at Town Field	Burned by insurgents of Shay's Rebellion. Marked by bronze marker	Possible; requires survey
GRO-HA-03	Town Pump site	Ayer	19th century	Intersection of Hollis and Main Street	Lithograph of 1886 shows town pump and town scales	Possible; requires survey
GRO-HA-04	Benjamin Prescott House	Ayer	17th-18th century	North of Old Ayer Road	Site also contains dwelling of Col. William Prescott. Benjamin born 1725-6. Old well in yard	Possible; requires survey
GRO-HA-05	Jonas Prescott House and Blacksmithy	Ayer	17th-18th century	North of Old Ayer Road	Cellar hole discovered during construction to east of side porch of new house. Blacksmith shop believed to be at James Brook.	Possible; requires survey
GRO-HA-06	Nutting's Garrison	Ayer	17th century	North of James Brook, southwest of Main Street/Hollis intersection, west side of Main Street	Possibly partly beneath Main Street, associated with 1676 Indian attack. House used by Indians after attack	Possible; requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-07	Parker's Garrison	Ayer	17th century	South of James Brook, southwest of Main Street/Hollis intersection, west side of Main Street	Associated with 1676 Indian attack.	Possible; requires survey
GRO-HA-08	Willard's Garrison	Ayer	17th century	South of James Brook, south of Main Street/Hollis intersection on west side of Main Street	Associated with 1676 Indian attack.	Possible; requires survey
GRO-HA-09	Smith I	Pepperell	18th-19th century	800 ft southeast of intersection of Kemp and North Roads	Farmstead, Shown 1830 map of Groton (Butler), found in archaeological survey 2001 (Mair 2001)	No
GRO-HA-10	Smith II	Pepperell	19th-20th century	500 ft southeast of intersection of Kemp and North Roads, on Kemp Road	Farmstead, Shown 1830 map of Groton (Butler), found in archaeological survey 2001 (Mair 2001)	No
GRO-HA-11	Smith Saw Mill	Pepperell	20th century	Off Chicopee Row on Groton-Dunstable school property	Electricity powered saw mill (Mair 2001)	No
GRO-HA-12	East Groton Charcoalling Area	Ayer	18th-19th century	Northwest of intersection of Routes 119 and 225	Cellar hole, charcoal mound, Several charcoal kilns and associated features.	More info req.
GRO-HA-13	Blood Farm	Pepperell	18th-19th century to 1869	Off Woods Road	Farmstead, Shown 1830 map of Groton (Butler), found in archaeological survey 2001	Possible; requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
					(OPA 1986)	
GRO-HA-14	Chamberlain Mill	Ayer	18th century		Mill foundation and dam remains (OPA 1986), Unknown date - sawmill on Martins Pond Brook, in 1856 called Brown Loaf Brook. Possible operated by J.F. Blood, shown on Ames Estate map 1858	Possible; requires survey
GRO-HA-15	Gay Road site	Ayer	19th-20th century	Between Prescott Road and Gay Road	Farmstead, Shown 1830 map of Groton (Butler), found in archaeological survey 2001. (OPA 1986)	Possible; requires survey
GRO-HA-16	Academy Hill Historic Site 1	Townsend	18th-19th century	15 m west and 6.5 m south of intersection of old road between Pepperell and Groton and Rines Road	Cellar hole, stone lined well, stone wall south of cellar hole (Donohue and Dudek 2006)	Possible; requires site examination survey
GRO-HA-17	Bowers-Trowbridge Tavern		18th century	Champney Street	Built 1730. Caleb Trowbridge Jr. licensed 1752, 1752 name changed to Champney House (Murray et al., 2005)	Possible; requires survey
GRO-HA-18	Rev. Dudley Bradstreet Parsonage		18th century	Hollis Street	Built 1706 as parsonage. Thought to be oldest standing house in	Possible; requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
					Groton (Murray et al., 2005)	
GRO-HA-19	Chaplin School (District School #14)		1869ff	Hollis Street	Built 1869 , in 1919 became American Legion Hall (Murray et al., 2005). Grounds are intact.	Possible; requires survey
GRO-HA-20	Child's Tavern		17th-19th century	Main Street	Built 1670, occupied by Rev. Hobart by 1678. Moses Child sold spirits by 1761 (Murray et al., 2005). Second oldest tavern in town	Possible; requires survey
GRO-HA-21	District #7 School		-1900	Chicopee Row	closed 1900 (Murray et al., 2005)	Possible; requires survey
GRO-HA-22	Emerson Hotel		19th century	Main Street	Established by Dearborn Emerson in 1815 and run until 1818, several subsequent operators	Possible; requires survey
GRO-HA-23	Gov. George S. Boutwell House		19th century	Main Street	Built 1851, occupied by Governor Boutwell, Now Groton Historical Society museum	Listed
GRO-HA-24	Globe Hotel		19th century	Court Street	Moses Gill first operator, taken over by Steven Woods in 1858. Part of building moved to south side of Court Street.	Possible; requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-25	Jonathan Keep's Tavern/Groton Inn		18th-20th century	Main Street	Portions standing; Built 1761 for Rev. Samuel Dana. Capt. Jonathan Keep bought 40 acres and tavern in 1794. Third meeting house was moved to location and attached. Several innkeepers followed	Possible; requires survey
GRO-HA-26	Groton Leatherboard Company		1889-1879s	West Main Street	Same general location as GRO-HA-31. From 1899 to the 1970s, the mill was named the Groton Leatherboard Company. The product, leatherboard was an imitation leather. The yard and immediate surroundings of this mill may contain significant archaeological resources.	Possible; requires survey
GRO-HA-27	Jonathan Hartwell PaperMill/ Hollingsworth and Vose Mills		19th-20th century	Townsend Street	Pre-1832 known as Starch Factory, then Jephthah R. Hartwell Paper Mill. 1852 purchased by Lyman Hollingsworth. In 1881 Hollinsworth and Vose partnership.	Possible; requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
					Still operating. Areas of earlier mill activities on property. Presently in use as an assisted living center.	
GRO-HA-28	Lawrence Academy at Groton		18th-20th century	Powder House Road	Today, this is a renowned college preparatory school that was founded as Groton Academy in 1793 by Samuel Lawrence. The name was changed to Lawrence Academy in 1845.	Possible; requires survey
GRO-HA-29	Martin Jennison Hotel		19th century	Court Street	Built 1823 for Martin Jennison, operated until 1818.	Possible; requires survey
GRO-HA-30	Stone's Tavern		pre-1808-1836	Location is unclear	In operation for 7 years. Burned 1836	Possible; requires survey
GRO-HA-31	Morse, Woods, Tarbell Saw and Grist Mills		17th-20th century	West Main Street	In operation from 1662 to 1970s. Saw and grist mill, wool carding mill and dye house (1662-1707), Tarbell's Mill in 1744. 1875 was Strawboard Mill and 1899-1970s was Groton Leatherboard Company	Listed



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-32	Richardson's Inn		18th century	MACRIS says Hollis Street	Short lived operation, building moved to another location. Converse Richardson proprietor;; associated with GRO.152	Possible, requires survey
GRO-HA-33	Ridge Hill Tavern/Inn		19th-20th century	Forge Village Road	Main brick building built 1805, inn for 79 years until 1884. Levi Parker first landlord. Building now an apartment building, grounds have archaeological potential; associated with GRO.78	Possible, requires survey
GRO-HA-34	Sawtelle House/Homestead		18th-19th century	Old Dunstable Road	Built 1772. Proprietors included Elnathan Sawtelle and S. Farnham.	Possible, requires survey
GRO-HA-35	Scales & Son Saw and Stave Mill		19th century	north of Townsend Street	1815-1885 John Scales & Son Saw and Stave Mill. 1885 Asa Thompson and Granville Shepley bought mill, later became a box and reel company. In 1891 complex included 5 houses, barn and mills. Complex is abandoned site.	Possible, requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-36	Thompson Mill		19th-20th century	Cannery Row	Built 1896, steam powered, manufactured wooden reels, cores and frames. 1991 names A.H. Thompson & Sons. Closed 1966. Then Derico woodworking and Carver's Guild.; Older buildings probably on grounds	Possible; requires survey
GRO-HA-37	Tuft's Place/ Farrar's Tavern/Inn		18th-19th century	Boston Road	Initially 1740 home of Levi Tufts. Stephen Farrar and wife Sarah operated tavern ca. 1798. Also known as Elmwood Farm and Hinchman House.	Possible; requires survey
GRO-HA-38	Unnamed Mill		Unknown	near Cannery Row	Abandoned mill site with dam and mill pond	Possible; requires survey
GRO-HA-39	Bennett-Shattuck House		1812	Martins Pond Road	Standing structure is on grounds. NR listed	Listed
GRO-HA-40	Boutwell School		1914-ff	Hollis Street	Building standing on part of property	Possible; requires survey
GRO-HA-41	E.Dix Tannery		ca. 1831	James Brook	On 1831 map (Butler), in 1856 (Walling) is E. Dix Tannery	Possible; requires survey
GRO-HA-42	Tannery		ca. 1831	Main Street	On 1831 map (Butler)	Possible; requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-43	Powder House		1772-1774, removed 1829	Hillside just south of meeting house	Built for Revolutionary War. Was a stone building along what is today Powder House Road, was removed 1829 (Murray 2005:16-17)	Possible; requires survey
GRO-HA-44	Saw and Grist Mill/ Nashua River Paper Co. Mill		pre-1850	East of Main Street near Nod Road on Nashua River	Hollingsworth Paper Company in 1850s, later 1930 is Nashua River Paper Company (Groton Historical Society 1930)/	Possible; requires survey
GRO-HA-45	Unnamed Mill		ca. 1831ff	On pond off Baddacook Brook, South of Route 40 (Lowell Road)	Shown on 1831 map (Butler)	Possible; requires survey
GRO-HA-46	Nutting Saw Mill		ca 1856ff	North of Nate Nutting Road	Shown on Walling 1856 and Beers 1875	Possible; requires survey
GRO-HA-47	Cow Pond Sawmill		a. 1856ff-pre-1875	North of Cow Pond, south of Whitney Pond	Shown on Walling 1856 but not on Beers 1875	Possible; requires survey
GRO-HA-48	Yeast Manufactory		ca. 1856ff	Shirley Road	Shown on Walling 1856 in Nonanicus Village	Possible; requires survey
GRO-HA-49	Town Asylum/Poor Farm		ca. 1865ff-1875ff	Town Forest Road	Shown on Walling 1856 and Beers 1875, expanded in 1822, closed ca. 1925	Possible; requires survey
GRO-HA-50	Steam Saw Mill		ca. 1840s	Northeast of Soapstone Quarry in woods	Shown on Walling 1856, part of Fitch Soapstone Quarry	Possible; requires survey



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-51	Charles Prescott House/Prescott's Tavern/Inn		19th c.	South of Indian Hill	Charles Prescott Proprietor	Possible; requires survey
GRO-HA-52	Massapoag House			West of Massapoag Pond	Shown on 1847 map , possibly destroyed by construction of the Nashua and Acton Railroad	Possible; requires survey
GRO-HA-53	Unnamed Mill on Squannacook			South of gaging station off old road from Townsend Road	Foundation near Squannacook River, road to mill crossed P&S RR track, a bridge crossed the river at this location; Anonymous map, no date	Possible; requires survey
GRO-HA-54	Ice House		ca. 1875	West Groton in northwest end of town, west of Townsend Road and immediately east of Peterborough and Shirley RR tracks.	Shown on Beers 1875	Possible; requires survey
GRO-HA-55	Groton School			Farmers Row	Episcopal college preparatory school established 1884 by Rev. Endicott Peabody on land that was donated by James and Prescott Lawrence (Ashborn 1944; Hoyt 1968). Campus designed by Frederick Law Olmsted	Yes



Site No.	Site Name	USGS quad	Date Range	Location	Description	NR Elig.
GRO-HA-56	Groton Water Works/ Pumping Station		1897ff	Baddacook Pond	Groton Water Company formed 1897. 18 miles of pipeline by 1982 (Murray et al., 2005)	Possible; requires survey
GRO-HA-57	Trowbridge School		pre-1874-1922	West of Old Dunstable Road	Foundations, stone wall and entry way west of Old Dunstable Road	Possible; requires survey



CHAPTER 5: PREDICTIVE MODEL FOR ARCHAEOLOGICAL SITE LOCATION

A wide range of variables, both natural and cultural, has affected the systems of settlement and land use that have been devised by the human inhabitants of the region. The study of these variables has enabled the development of a predictive model that is used to assess the likelihood for different types of archaeological sites to exist in specific geographic areas, such as watersheds, town centers, or proposed construction zones. In the community-wide reconnaissance of Groton, a predictive model was used to create archaeological potential maps for Native American and historical archaeological resources that await identification in the town. The rationale behind the model is the subject of this chapter.

It has been shown that Native Americans first inhabited eastern Massachusetts more than 12,000 years ago. Over the millennia, Native people devised a wide variety of adaptive strategies to survive in changing environmental conditions. Consequently, they visited and/or occupied a wide variety of environmental zones in the region. Over the last four centuries, settlement and varied forms of land use employed by European Americans and other immigrants also occurred in a wide variety of topographical and environmental settings. Many of these past human activities resulted in archaeological evidence that survives today on or beneath the ground surface. In eastern Massachusetts, Native American and historical archaeological sites are usually invisible (or mostly so) because they are buried or obscured by vegetation. However, decades of archaeological research have shown that patterns exist in the geographical distribution of ancient and historical sites. These patterns can be used to predict the archaeological potential of any given area within the region, and are summarized in predictive models for Native American and historical archaeological potential.

Criteria Used to Determine Archaeological Potential. Multiple environmental attributes were considered to predict which areas in Groton possess high potential to contain archaeological sites. The following is a list of the major criteria used during the community-wide reconnaissance to assess the archaeological potential of different sections of Groton:

- The presence of previously recorded pre-Contact Native American or historical sites.
- Proximity to a previously recorded National Register property or site.
- Proximity to a supply of fresh water.
- Proximity to seasonal or perennial subsistence resources, such as wild plant foods, that were used by Native Americans.
- Topographic factors such as slope, aspect, elevation, and protection from prevailing winds.



- Favorable soil characteristics (such as well-drained sandy soils that were suitable habitation or for cultivation).
- Proximity to sources of useful raw materials (e.g., lithic and clay sources, quarries, and certain plant materials).
- Proximity to topographic features that were conducive to historical industrial development, such as hydrologic locations.
- Proximity to areas that contained early historical settlement clusters, or may have witnessed early settlement.
- Proximity to established transportation routes (e.g. ancient Native American trails along rivers, early colonial thoroughfares).
- Proximity to industrial, commercial, and agricultural markets.

By referring to these predictive factors, the various sections of Groton were ranked tentatively for archaeological potential prior to the field survey in order to identify areas unlikely to contain sites, and to delineate areas possessing high potential to contain sites. Areas of obvious disturbance from residential development or highway construction were eliminated from the field survey.

Assessment of Native American Archaeological Potential. Because the presence of Native American sites can only rarely be determined from historical documents, the likelihood for Native American sites to be present is usually predicted on the basis of an environmental model which uses geological, soil, and climatic data; previously recorded site locations in the southern New England region; and expected Native American site locational patterns.

Generally, studies of foraging peoples in many parts of the world have shown that, populations tend to adopt a least-effort strategy in the procurement of resources. The assumption is that they tend to choose the most energy-efficient means of procuring the maximum resource yield, without sacrificing group well-being (Jochim 1976). One of many ways to reduce energy expenditure is to minimize the distance between the place where a given resource is available and the locale where it is to be consumed. Consequently, one may predict that sites located with resource proximity in mind would be situated in those areas that are within the range of acceptability for human comfort and are close to the resource being exploited.

The most important microclimatic factors adversely affecting human physical comfort in New England are excessive moisture and cold temperature. Dry, well-drained, and level areas with the warmest available exposure therefore would meet the major criteria in the Native American settlement site selection process. One can predict that level areas with well-drained soils and level to slightly sloping areas with a southern exposure would contain the highest Native American site density. Well-drained, workable soils were also important site selection factors for both pre-Contact Native American and historical horticulturalists. Perhaps the most critical resource to be considered, regardless of site function, is water. In inland situations, sites are likely to be located near some source of fresh water, such as a spring, a lake, or a stream.



Lakes, streams, and wetlands also provide fish, waterfowl, and other game.

In Groton, the majority of known Native American sites are located near freshwater sources such as rivers, streams, and ponds. The better-drained, elevated margins of wetlands offered access to plentiful floral and floral subsistence resources. As a result, upland areas adjacent to wetlands were frequently visited and occupied by Native people and it is in such areas that the greatest density of pre-Contact Native American sites is expected. Native Americans used wetlands for food, reeds, and other raw materials.

To stratify the town effectively (thereby eliminating areas of low site potential from consideration), topographic maps created by the U.S. Geological Survey (USGS) and soil data compiled by the Soil Conservation Service (USDA) were used to delineate areas with well-drained soils and minimal slope. Level, well-drained soils in close proximity to water sources were identified as areas of high site potential. Those located farther from a water source were considered to have low potential. Digital mapping data for the town of Groton were collected from various online sources including MassGIS, and the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) Soil Data Mart. Environmental and topographic variables found within these data sets were used to create a map sensitive to criteria that are common to known archaeological Native American and historic period site locations. Proximity to fresh water, ground slope, and soil types are commonly considered when ranking archaeological site potential:

- *High Potential for Native American Sites.* Undisturbed areas located less than 300 m (1,000 ft) from a fresh water source, and on level, dry, well-drained soils, are generally considered areas of high archaeological potential. Also, undisturbed areas located within 75 m (250 ft) of seacoasts on level, well-drained soils are considered high potential. The zone within 75 m (250 ft) of modern or ancient watercourses has the highest potential.
- *Low Potential for Native American Sites.* Areas that are poorly drained or stony, located on slope of 15 percent or greater, or that exhibit evidence of major previous ground disturbance are generally considered to have low archaeological potential.

Using the computer program ArcGIS, the individual criteria were digitally drawn and then combined, to produce a final map detailing areas of overlap (Figure 5-1). The first layer represented 300 m (1,000 ft) interval for site distance and fresh water. Initially, Merrimack and Nashua 1:25,000 scale hydrography data were downloaded from the MassGIS website. The line files, created by the Massachusetts Department of Environmental Protection (Mass DEP), depict water related features found on paper USGS topographic quadrangles. The Merrimack and Nashua files were merged and an ArcGIS data analysis tool was then employed to create 300 m (1,000 ft) buffers around each line.

The second GIS layer represented percent slope within the town of Groton. The Middlesex County soils data layer was downloaded from the USDA-NRCS Soil Data Mart website. This data is a digital translation of the images, soil descriptions, and soil properties found in corresponding USDA Soil Survey manuals. Using the Soil Data Viewer (a plug-in created by the USDA for use with ArcGIS) a map of percent slope values within Middlesex County was generated. To correspond to known archaeological criteria, this layer was modified to include



only those slope values of less than 15 percent.

The final GIS layer depicted soil drainage characteristics. Again using the Middlesex County soils data layer and the Soil Data Viewer, soil types were sorted based on their recorded drainage class. The USDA lists seven classes of natural soil drainage: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. The attribute is directly related to soil type, which is identified by soil scientists who examine aerial photos, assess regional vegetation, and perform on-site assessments. Soil drainage was sorted to include only the four types known to drain easily (excessively drained, somewhat excessively drained, well drained, and moderately well drained).

The three GIS layers (1,000 ft hydrography buffers, areas of less than 15 percent slope, and soil types that drain well) were overlaid in succession atop one another. An ArcGIS spatial analysis tool was then employed to identify the areas of overlap between the three layers. The resulting map depicts areas of high Native American archaeological site potential in the town of Groton. The final GIS layer was added onto a USGS topographic raster image background and exported for use as a graphic in the Groton Community-Wide Reconnaissance Survey Report. The map layer is a visual representation of a Native American site predictive model based on three topographic and environmental criteria.

Additional maps were used to further refine the assessed site potential in Groton. Maps of bedrock geology and historical documents were useful in locating old fall lines that have been eroded by stream action and are no longer active. In addition, prior to the walkover inspection, USGS topographic maps were consulted to locate prominent local landforms (such as knolls or terraces) and to identify points of high land in proximity to important resources. Topographic maps were also used to determine which slopes have the warmest exposure.

On the basis of the background research, the town was divided into survey units consisting of discrete geographical and cultural entities (Figure 1-3). Prior to developing the potential maps, known pre-Contact Native American and historical sites were plotted, and draft maps indicating the possibility of unrecorded pre-Contact Native American and historical sites were produced for planning purposes.

During the field survey, evidence of recent historical disturbance of the landscape was used to eliminate areas from further attention wherever possible. The reconnaissance further attempted to verify the assessment of areas that previously had been assigned low potential on the basis of the documentary research. The resulting map provides an assessment of archaeological potential with regard to Native American sites (Figure 5-1, 5-5).

Assessment of Historical Archaeological Potential. The field stratification for historical site location was guided by documentary background research. An environmental model was not used in stratifying the town for its potential to contain historical sites, because considerable documentation exists concerning historical land use. Identification of important periods in the history of Groton and recognition of places and people who were significant at the local, regional, or national scales was useful for identifying the kinds of archaeological resources expected in the town.

Census records indicated patterns of population change, reflecting periods of economic growth, decline, or stability. These patterns identify the periods during which significant events are likely to have occurred and to have left archaeological evidence.

Map research was central to the historical component of the project. Maps produced since the



eighteenth century provided the locations of public buildings, mills, houses, millponds, raw material sources, and in some cases lot lines. Since mapmaking methods have improved continuously over time and the level of detail on maps increased rapidly, this information must be used cautiously. Structures and land use before 1850 are seldom recorded clearly. Mapped structures often are not shown in their precise location, and shapes of ponds, roads, and streams often are in schematic or general form. The increasing numbers of maps published after this date also tends to lead to an undue concentration on the later historical period. Maps are nonetheless indicative of the place of the town in a transportation network and its relationship to places of active trade, manufacturing, or habitation.

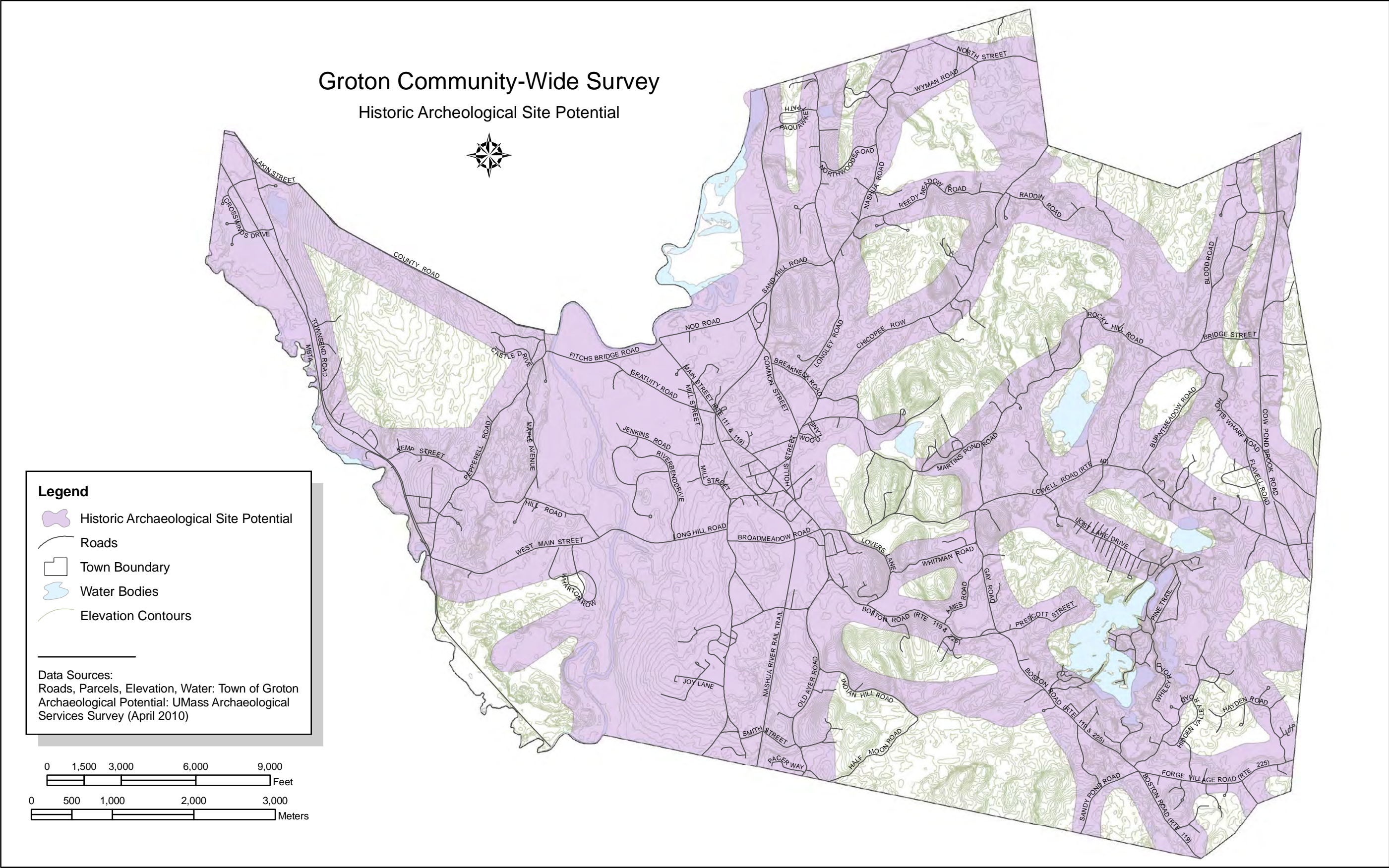
The predictive model for the historical period integrates the background material regarding the study area found in written history, historical maps, site repositories, and interviews with local residents. An assessment of the archaeological resources likely to be found in Groton was made using this information. The historical period model is based much more heavily on local documentary resources than is the pre-Contact Native American model. It is more specific than the pre-Contact Native American model because it is based on a larger set of shared assumptions about the timing and significance of events in the past.

The factors considered in the assessment of historical archaeological potential included the position of Groton in historical transportation networks; the proximity of Groton to commercial, manufacturing, or resource production sites; and periods of economic growth, stability, or decline measured primarily from the census; and unique or important historical events that occurred in Groton. The historic potential map is shown in Figures 5-2, 5-4.

Summary of Significant Archaeological Sites. Based on the assessed categories of Native American and historic period site potential, portions of the town of Groton were subjected to field survey. The predictive model allows for archaeologists in the field to focus on the areas of highest likelihood to contain archaeological sites. Similarly, the model as refined during this process, serves as a tool for town planners to predict the most likely locations for significant archaeological resources in the future (Figure 5-3).

The question of significance is one that must be defined carefully, as it includes only some of the archaeological resources that may exist in the town. Sites within the town that are currently listed on the National or State Registers of Historic Places (NRHP and SRHP) or are eligible for listing are significant. Eligible archaeological sites are those that have been assessed by the SHPO office, and determined eligible previously for the NRHP or SRHP but have not yet been nominated for listing. Listed National Historic Landmarks (NHLs) in the town are significant, which are designated by the Secretary of the Interior. National and State Register sites and Landmark sites are usually 50 years in age or older, and may have been designated from a variety of sources, including town histories, archives, or field surveys.

Areas of high archaeological potential in the town are of most concern for containing significant sites. This includes areas that exhibit distinctive combinations of resources, or topographic and environmental conditions that are conducive to early human habitation, or resource use or industry, as described above.



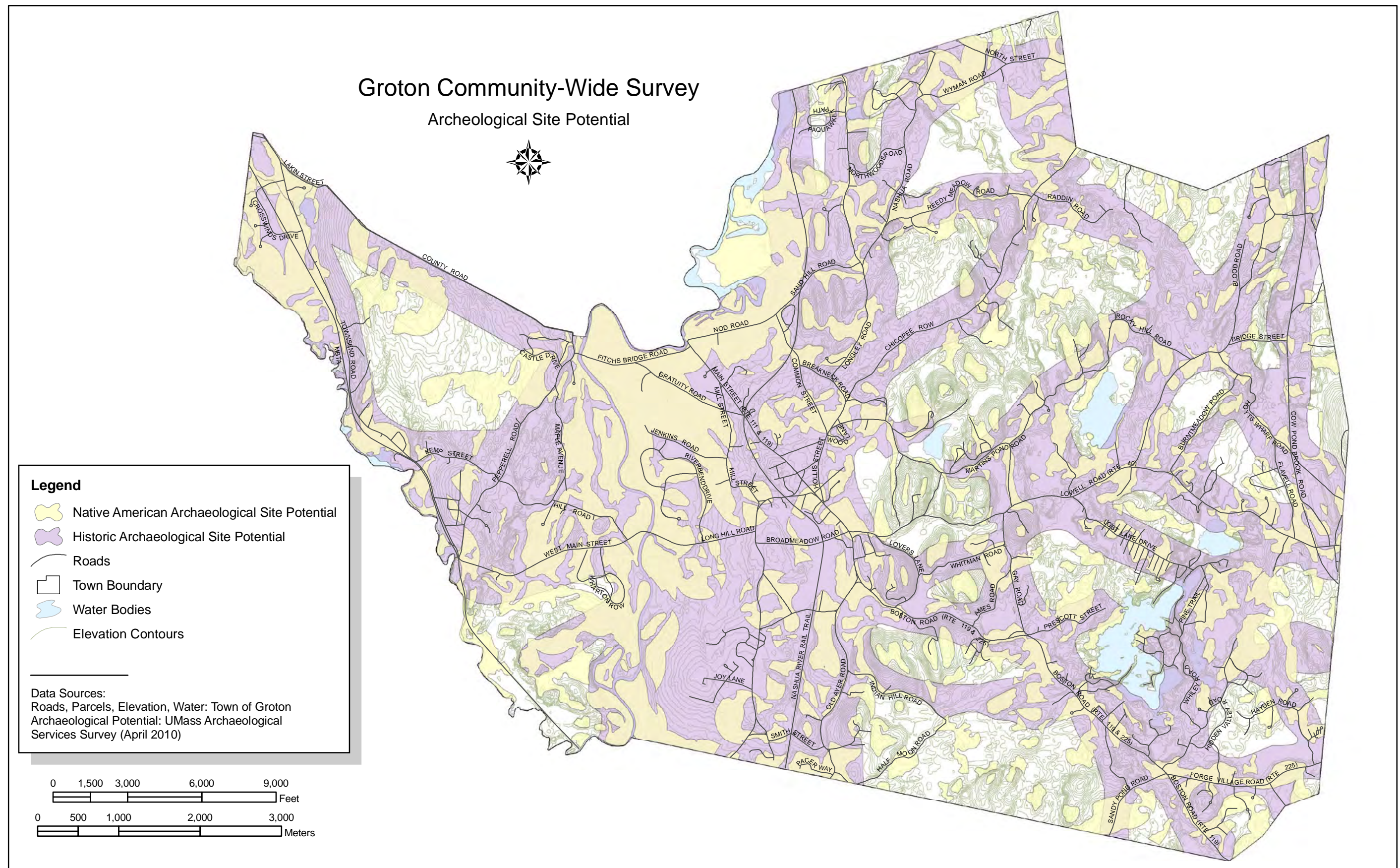


Figure 5-2. Map of archaeological potential for Native American and historic period sites in Groton.

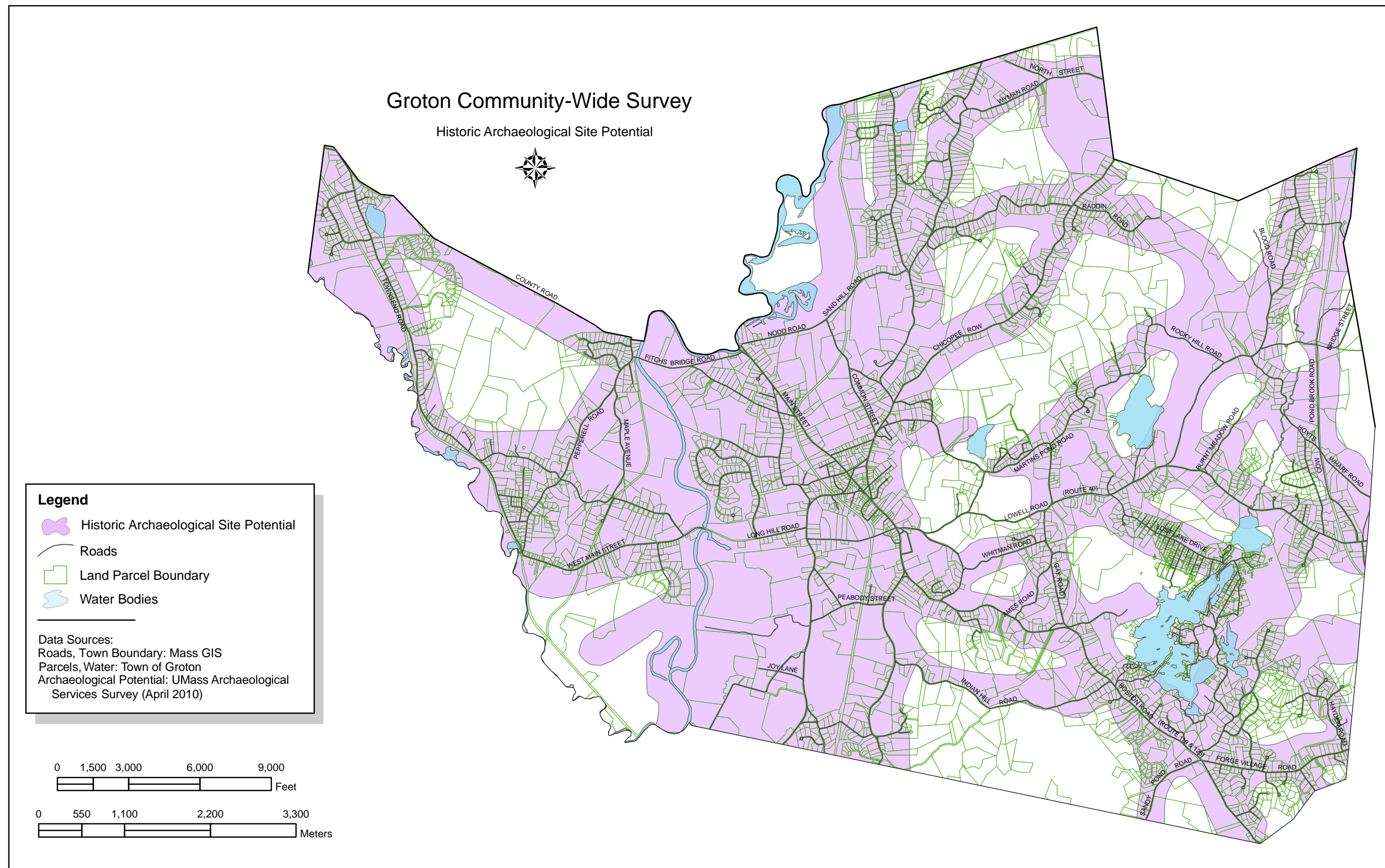


Figure 5-3. Archaeological potential for Historic sites on the Groton Town Assessor's map.

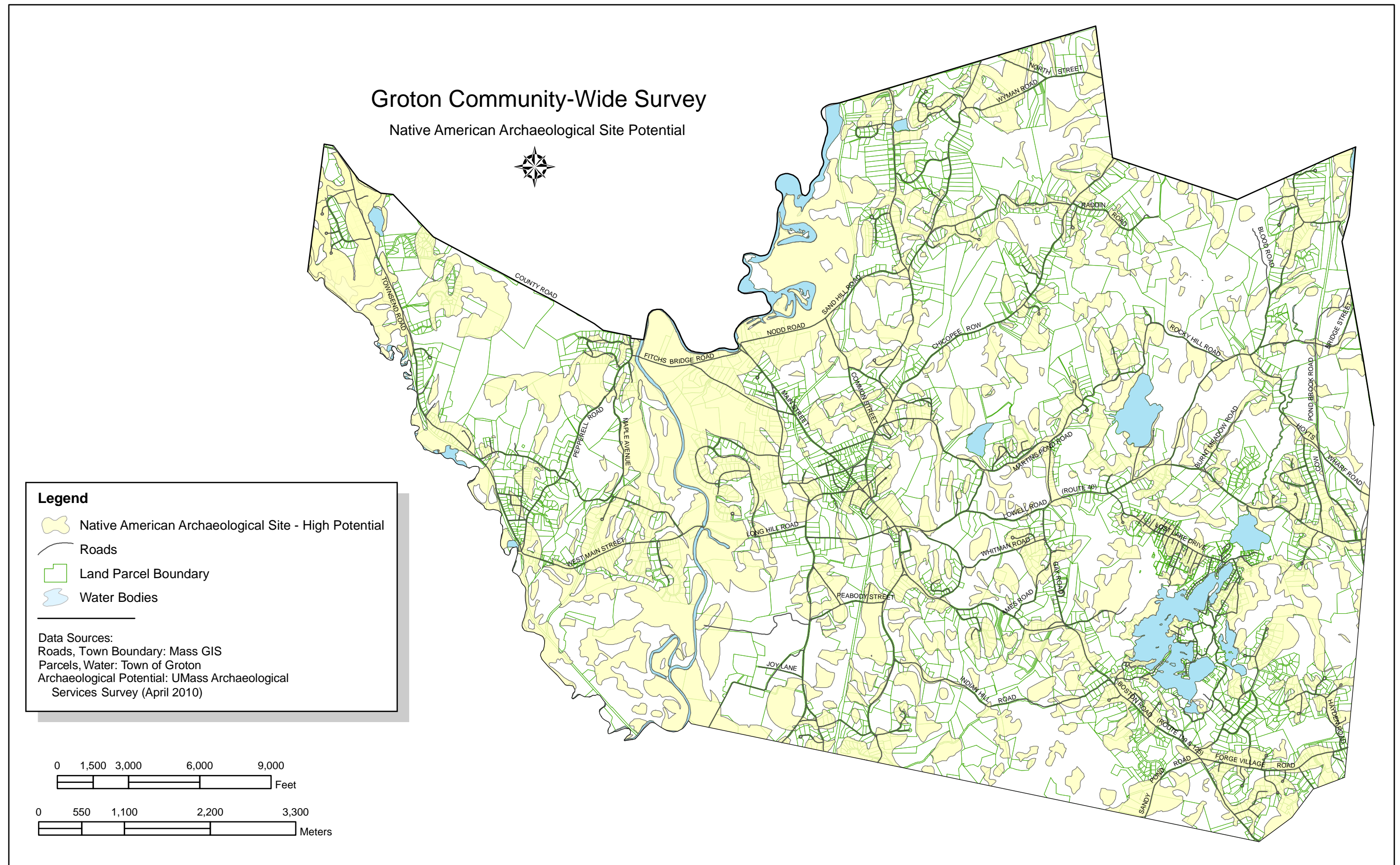


Figure 5-4. Areas with high potential for Native American archaeological sites on the Groton Town Assessor's map.



For Native American archaeological sites, areas of high archaeological potential typically include old shore lines and beach ridges of early post-glacial lakes; river terraces; alluvial-colluvial fans; low rises on floodplains or in the vicinity of water sources; glacial kames and kame terraces; river and stream fords; areas adjacent to wetlands and ponds; rapids, rifts and falls along waterways; confluences of streams, mouths of streams and estuaries; rockshelters, cliffs, boulders, bedrock outcrops, rock overhangs, and scarps with likelihood for rockshelters, ridge tops and narrow, level upland benches; and areas of concentration of rhyolite, quartz, quartzite, siltstone, steatite and other lithic resources. High potential areas for deeply buried sites are alluvial floodplains near the confluence of tributaries with large streams and rivers, other sites judged to have been affected by low-intensity flooding or deposition, and toe slopes of ridges adjacent to ancient stream beds. Native American stone tool manufacture in Groton included the use of locally available lithic materials, such as quartz and quartzite, that occur in glacial till deposits, as well as volcanic materials, such as rhyolite, that were transported to the area from sources in the Boston Basin and elsewhere.

For historical archaeological sites, areas of high archaeological potential typically include designated historic districts; areas near historical structures; locations near intersections of historical transportation routes; areas near watercourses that were conducive to construction of early water-powered industries; and areas where settlement and land use is indicated by historical maps.

Areas of low cultural resource potential in the town are assessed as not likely to contain sites of significance. This category includes areas of possible habitation, resource use, and industry that are located away from high potential areas, but that may have been occupied.

For Native American archaeological sites, areas of low potential usually include well-drained areas on broad, flat surfaces, upland and away from waterways or coasts; small terraces on sloping terrain; and small islands within wetlands. Floodplains subject to frequent and high-intensity flooding are considered to have high potential for deeply buried sites. Locations that contain steep slopes, that are very stony, or disturbed soils, that are previously developed, or that contain poorly drained or inundated soils, generally possess the lowest likelihood to contain sites.

For historical archaeological sites, areas of low potential usually are in locations outside areas that possess high potential. Farms, roads, residential sites, industrial sites (such as early charcoal and potash kilns), and sites associated with fishing and the timber industry may be found, but the possibility of such sites is not strongly indicated by documentary evidence, topographic resources, or environmental features.



CHAPTER 6: RECONNAISSANCE SURVEY SUMMARY

Results of Background Research

A wide variety of information sources were investigated as part of the background research for the community-wide reconnaissance survey. These sources are detailed below, in order to provide data on those people and organizations consulted. As is the case with any ongoing research project, additional work can still be completed to further enhance the information provided herein.

Town Histories, Records, and Historical Maps. Several histories of Groton offer chronological overviews of the history of the town. Records of interest to the current study included the colonial, state, and federal census records that began in the year 1765. Archaeological research that is directed at a specific historical property benefits from the examination of probate records and deeds, but these Groton records were not investigated for this study due to the general nature of the survey.

A series of historical maps of Groton was reviewed for information concerning historical settlement patterns, land use and historical sites. The maps included those produced in the years 1794 (Figure 2-1), 1829 (Figure 2-2), 1830 (Figure 2-3), 1847 (Figure 2-4), 1849 (Figure 2-5), 1856 (Figures 2-6, 2-7), 1858 (Figure 2-8), 1875 (Figures 2-9, 2-10); 1889 (Figures 2-11, 2-12); 1893 (Figure 2-13); 1930 (Figure 2-14); 1939 (Figure 2-15).

Local Historical Organizations and Libraries. The organizations in Groton that are primarily interested in the documentary, architectural, and archaeological heritage of the town are the Groton Historical Commission, Groton Historical Society, Groton Historic Districts Commission, and the Groton Public Library. Members of the Groton Historical Commission were at an initial meeting with Archaeological Services staff, in order to relay information they personally possessed, as well as to point UMass researchers towards other individuals in the town that might have additional information. The collections of the Groton Historical Commission were searched for any items they had in relation to Native Americans within the town. This led to a number of artifacts and other items, which were pulled from the collection, and many were photographed. Some could be tied to specific locations or already known sites, and are included in the table of Native American sites (Table 4-1). Other artifacts could not be provenienced to specific locations in the town, and remember therefore of only general interest. The Groton library staff was polled for research materials related to Native American and historic period archaeological sites, and the town histories were researched for information on sites. Access to the local history collection was kindly provided by the library staff.

Public Planning Documents and Historical Resource Reports. The environmental conditions that prevailed in Groton during the historical and ancient past were an important variable in determining patterns of human settlement and land use. As a result, previous studies detailing the current Middlesex County environment, including topography, geology, soils,



drainage, and infrastructure, were useful for the archaeological reconnaissance study. This included the USDA soil service report on Middlesex County, as well as USGS topographic maps, and the Geological Surveys of relevant quadrangles in Middlesex County.

Archaeological Resource Management Studies. As of 2009, ten archaeological surveys had been conducted that relate to Groton. Copies of these reports are on file at the Massachusetts Historical Commission in Boston. The previous surveys have provided only minimal information about archaeological resources in Groton. However, the findings of the previous surveys contributed some information to the Native American and historical research contexts that were developed for the present survey.

The first CRM project in Groton consisted of an archaeological reconnaissance and subsurface testing for eight locations related to sewer facilities, including one in West Groton, three in Groton Center, and four in the Lost Lake area (Bower and Loparto 1984). No significant cultural resources were identified.

Three projects were conducted related to the Hydro-Quebec transmission line, which runs in a generally north-south direction through the east-central part of the town. The first survey was conducted in 1985 and consisted of background research and some subsurface testing (Elia et al 1986). The first Native American archaeological site (19-MD-572) was recorded in Groton, consisting of some quartz and quartzite tool fragments. Three historic sites were also recorded (GRO-HA-13, GRO-HA-14, GRO-HA-15), related to eighteenth through early twentieth centuries farming. One year later, additional testing was conducted for the relocation of some transmission towers along the electrical lines (Elia et al 1987). No sites were identified in Groton during this survey. The third Hydro-Quebec survey was related to access roads, temporary work areas, additional structure relocations, and timber clearing (Strauss and McDermott 1990). No archaeological sites were identified in Groton during this survey.

A similar project was conducted in 1987 for a gas pipeline, but consisting only of background research (O'Steen 1988). Because there was so little known about the archaeological resources of Groton, no sites were identified in Groton during this survey.

Two surveys were conducted related to the construction of the East Groton Village, a commercial development at Routes 119/225 and Sandy Pond Road. The first survey was conducted in 1989, and consisted of background research and a Phase 1 subsurface testing project (Edens et al 1990). No Native American archaeological sites were identified. The survey did locate 37 charcoal features that were interpreted as nineteenth century and early twentieth century charcoal producing kilns, likely related to the local iron industry (GRO-HA-12). A Phase 2 Site Examination survey was recommended before this development could proceed. The Phase 2 survey was conducted several years later, during which two small areas of Native American lithic working were identified (19-MD-1026, -1027) (Donohue 2004). Additional information was collected regarding the charcoaling industry.

A survey was conducted for the new Groton-Dunstable Regional High School, located in the northeastern part of the town (Heitert et al 2001). No Native American archaeological sites were found, but three historic sites related to eighteenth through early twentieth century farming were identified. These include house foundations and a well (GRO-HA-9), a farmhouse and outbuildings (GRO-HA-10), and a saw mill (GRO-HA-11).

A proposed housing development in the northern portion of the town was the subject of a reconnaissance survey in 2002 (Dalton and Donohue 2003). The research identified a probably



moonshine production location, used during the early twentieth century (GRO-HA-16).

The last project completed in Groton was related to a proposed housing subdivision in West Groton, along the Pepperell border (Donohue and Dudek 2006). No Native American cultural materials were found. A house foundation and associated well were identified in Groton (GRO-HA-16), dating from the latter half of the eighteenth to the first half of the nineteenth century.

Of these ten surveys, three found no archaeological resources at all. Native American archaeological sites were identified in two of the surveys, while historic period archaeological sites were found in seven of the ten surveys.

Collections Research and Local Informant Interviews. As part of the public presentation for this survey, members of the public were invited to bring in any artifacts they had found for identification. Presentations were organized and conducted in March, April, and October, 2010. Where possible, the source locations of these artifacts were recorded and were added to the list of Native American sites.

Identification and Documentation of Sites through Background Research. The background research resulted in lists of Native American and historical archaeological sites that have been recorded previously in Groton. It also resulted in the identification of artifacts and artifact collections obtained from locations in Groton where no sites had previously been documented. These locations were added to the list of known archaeological sites. The series of historical maps dating to the eighteenth and nineteenth centuries showed numerous resources (meetinghouses, residences, mills, etc.) whose locations were plotted on the modern topographic maps (Figures 1-2, 1-3). These locations were designated as archaeological sites, and many of them were visited during the field reconnaissance. The recording of these sites will increase the likelihood of protection in the future, and will enable future researchers to investigate more fully the documentary records concerning the historical owners and occupants of the sites.

Results of the Field Survey

Summary of Field Activities. Members of the research team traveled throughout Groton to record existing conditions in the four survey units that were used for the present project (Figure 1-3), to check the locations of possible archaeological resources indicated by the historical maps, and to record any visible historical features that were encountered. Multiple trips were taken along the historical roads throughout the town. Many of the Native American and historical archaeological site locations were visited.

Documentation of Archaeological Sites Through Field Survey. In certain instances, the presence of historical archaeological resources in specific locations was expected as a result of the historical background research and the historical maps. This presence was confirmed during the field survey. Historical resources were designated as archaeological sites, for inclusion in the state site files.



CHAPTER 7: SURVEY UNITS, SITES AND ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

To simplify survey and reporting in the community-wide archaeological reconnaissance survey, the Town of Groton was divided into four geographical survey units (Figure 1-3). The boundaries of these units were determined on the basis of natural topography and landscape features (such as hills and rivers) in combination with historical localities that have shaped the geography of Groton since the colonial period. In this chapter, the locations and existing conditions of each survey unit are described, and a summary of known Native American and historical sites is presented. For each survey unit, archaeological potential (i.e., the possibility of additional, unrecorded sites) is evaluated, and possible site types are indicated.

Please note: Groton contains a high number of historical houses and buildings, many of which date to the colonial period. It can be assumed that various archaeological deposits (e.g. refuse deposits, sheet middens) and related features (e.g. outbuilding foundations, wells, privies, stone fences) are likely to be associated with these houses. In effect, unless there has been substantial ground disturbance, the property surrounding each historical house may contain significant archaeological features and deposits. However, MHC site numbers usually are not assigned to such resources until archaeological testing has been conducted.

East Groton Survey Unit

The East Groton survey unit comprises the southeastern portion of the town (Figure 7-1). The boundaries are the town border with Westford on the east, and the town boundary with Ayer on the south. It is separated from the Groton Center survey unit by a north-south line that begins just west of Long Pond, runs north to the west of Smoke Hill, west of the intersection of Route 119/225 and Gay Road, east of Prospect Hill, and west of Brown Loaf. From a point along Martins Pond Brook west of Schoolhouse Road, the border with the North Groton survey unit runs east, just south of Baddacook Pond, but north of Lowell Road. It terminates at the Westford border a little north of where Hoyts Wharf Road enters Westford.

The East Groton survey includes all of the area around Lost Lake, Knops Pond, Duck Pond and Whitney Pond, as well as Routes 119 and 225 east of Indian Hills. It also includes both sides of Route 40 east of Gibbet Hill.

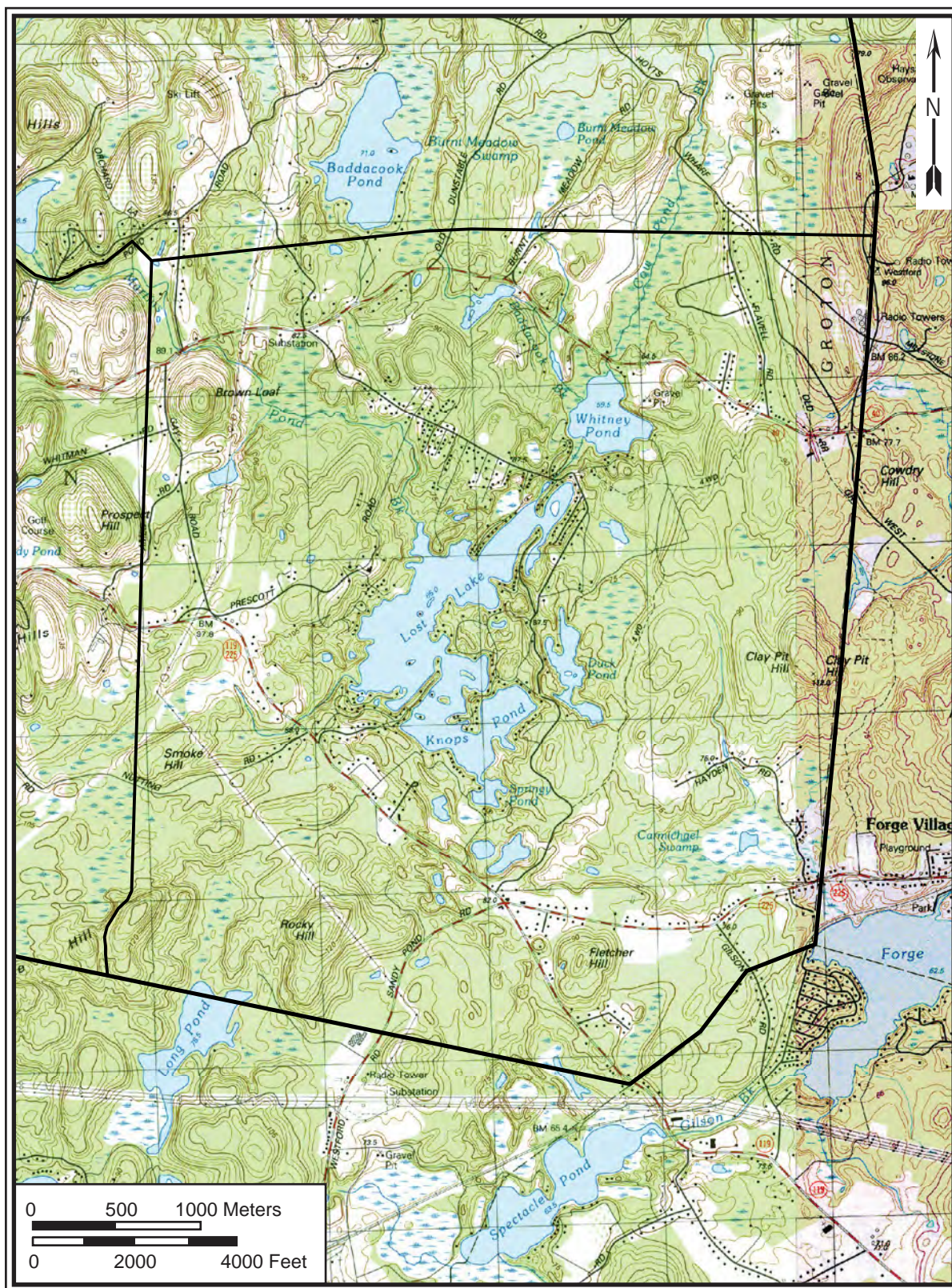


Figure 7-1. Map of East Groton survey unit (based on USGS Quadrangle maps).



Recorded Native American Sites. The state site files contain records of three Native American sites within Groton. All three of these are situated in the East Groton survey unit. The first site is located in the east central part of town. The other two are located in the southeastern portion of the town. These were found during one archaeological survey. The sites are as follows:

The **Martins Pond Brook site (19-MD-572)**. This site was recorded in 1986 as part of a compliance survey for an electrical line (Elia et al. 1986). One test pit produced two quartz flakes. A verification test pit adjacent to the initial find produced another quartz flake, along with a quartzite flake. To determine the site's significance, additional archaeological survey would be required to locate and evaluate the site.

The **East Groton #1 site (19-MD-1026)**. This site is now occupied by a Shaws supermarket plaza. This site was identified in 2005 during a compliance survey for the proposed East Groton Village development (Edens et al 1990). Two waste flakes of quartz were found at this site, which was dominated by historic artifacts associated with charcoaling. No further survey is recommended.

The **East Groton #2 site (19-MD-1027)**. This site is now occupied by a Shaws supermarket plaza. This site was identified in 2005 during a compliance survey for the proposed East Groton Village development (Edens et al 1990). The site consists of one chert flake recovered from a trench, which was excavated in an area associated with historic period charcoaling. No further survey is recommended.

Additional Native American Archaeological Sites. No new Native American archaeological sites were recorded during this project for the East Groton survey unit.

Potential for Native American Sites. The East Groton survey unit encompasses the upper portions of the Martins Pond Brook drainage, as well as the upper portion of the Cow Pond Brook drainage, which includes Whitney Pond, Lost Lake, and Knops Pond. There are numerous small areas of high archaeological potential scattered across the survey unit. Most of these are small level terraces adjacent to wetlands. Substantial portions of these high potential areas have been built upon.

Known and Recorded Historical Sites. Three Historic period sites are on record at the Massachusetts Historical Commission.

The **East Groton Charcoaling area (GRO-HA-12)**. Several charcoal kilns and related archaeological features (including a collier's residence) were found at the site. The site was discovered in a 2003 archaeological survey conducted by Timelines, Inc. of Littleton (Edens et al 1990). The site may have been associated with the iron industry in Groton and other towns. The MHC issued an opinion that the site is eligible for inclusion in the National Register, and requested additional information, recommending a site examination archaeological survey.



The **Chamberlain Sawmill** (GRO-HA-14) is located on what, in 1858, was known as Brown Loaf Brook (Lothrop 1858). The site consists of a mill foundation and 15-foot high dam remains. The mill operated from 1717 to 1794 (Green 1887:7; (Elia et al 1986). The area is presently in use as a sand and gravel quarry. Some iron machinery is visible in the brook. Additional archaeological survey would be required to determine the significance of the site, and it's eligibility for listing in the National Register.

The **Gay Road site** (GRO-HA-15) is a farmstead site. The site was found in the Hydro-Quebec archaeological survey conducted by the Office of Public Archaeology (Boston University) in 1986 (Elia et al 1986). The site dates to the nineteenth and twentieth centuries. No statements of eligibility are provided. Additional archaeological survey would be necessary to determine if the site is eligible for inclusion in the National Register.

Additional Historic Archaeological Sites. During the field reconnaissance portion of the community-wide survey, members of the research team identified five historic period sites not previously recorded in the state site inventory. They are as follows:

Ridge Hill Tavern/Inn (GRO.57; GRO-HA-33). This brick building was built in 1805 and was operated as an inn and public bar for 79 years until 1884. Levi Parker was the first landlord, followed by several other proprietors. Moses Gill took over the business in 1837. The building was also known as Hotel K. Farr for proprietor Kimball Farr. Other proprietors included J. Fuzzard (an Englishman), Newell Jewett, Mr. Langdon, Henry Lewis, Jefferson Loring, John Hancock Loring, Steven Perkins and John Stevens. The building now serves as an apartment building. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

Stone's Tavern. This tavern (GRO-HA-30) was a short-lived enterprise. An 1808 sales advertisement for farm and buildings noted it had been a tavern for the "past 7 years." The building burned in 1836 (Ruckstuhl 2001:9). Moses Day was the proprietor for the establishment. At present, the location of the tavern is unknown. Because of the lack of provenience, a site form has not been produced. Additional research is necessary to determine the location and significance of this site.

Tuft's Place/Farrar's Tavern/Inn (GRO-HA-37). Initially this was the c. 1740 home of Levi Tufts, located a mile toward Groton from The Ridges. Stephen Farrar and wife Sarah operated Farrar's Tavern/Inn c. 1798. After 1800, Tilly Buttrick ran the "bar room with limited accommodations for carrier drivers" (Ruckstuhl 2001:9). The site was also known as Elmwood Farm and Hinchman House. Proprietors include Stephen Farrar and Tilly Buttrick. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for



inclusion in the National Register of Historic Places would require an archaeological survey.

An **Unnamed Mill** (GRO-HA-45) is shown in 1830 (Figure 2-3) on a pond off Baddacook Brook. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

A **Sawmill** is shown in 1856 (Figure 2-6) (GRO-HA-47). The mill was north of Lost Lake Road. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

Potential for Historic Period Sites. This survey unit includes two taverns along the road to Boston, three mills along drainages running to the north, a homestead, and a charcoaling area. These resources are primarily nineteenth century, but some are likely to include eighteenth century components. Additional mill sites may exist along the Cow Pond Brook drainage, as well as other smaller streams. While the lake system in this area is much altered by development in the early twentieth century for the Lost Lake community, evidence of its earlier mill, ice, and other industries may survive. There is very likely additional buried evidence of homesteads that were abandoned as the economic fortunes changed. Evidence of outbuildings associated with homesteads and mills may also be present, particularly when considering structures of the eighteenth and early nineteenth centuries.

North Groton Survey Unit

The North Groton survey unit comprises the northern portion of the town (Figure 7-2). The boundaries are the town border with Tyngsborough on the east, and the town boundary with Dunstable and Pepperell on the north. It is separated from the East Groton survey unit by a line running from a point along Martins Pond Brook west of Schoolhouse Road, running eastwardly, just south of Baddacook Pond, but north of Lowell Road. It terminates at the Westford border a little north of where Hoyts Wharf Road enters Westford. The border with the Groton Center survey unit runs between Gibbet Hill and Martins Pond, then northerly past the west side of the Chestnut Hills, across Chicopee Row, and curving west across Longley Road, just north of its intersection with Nashua Road and Sand Hill Road. From this point the border runs west to the Nashua River, in the J. Harry Rich State Forest.

The North Groton survey unit includes the entire northeastern portion of the town. This includes most of the lower Cow Pond Brook drainage to Massapoag Pond, Baddacook Pond, Reedy Meadow, and the east side of the Nashua River along a portion of the Pepperell border.

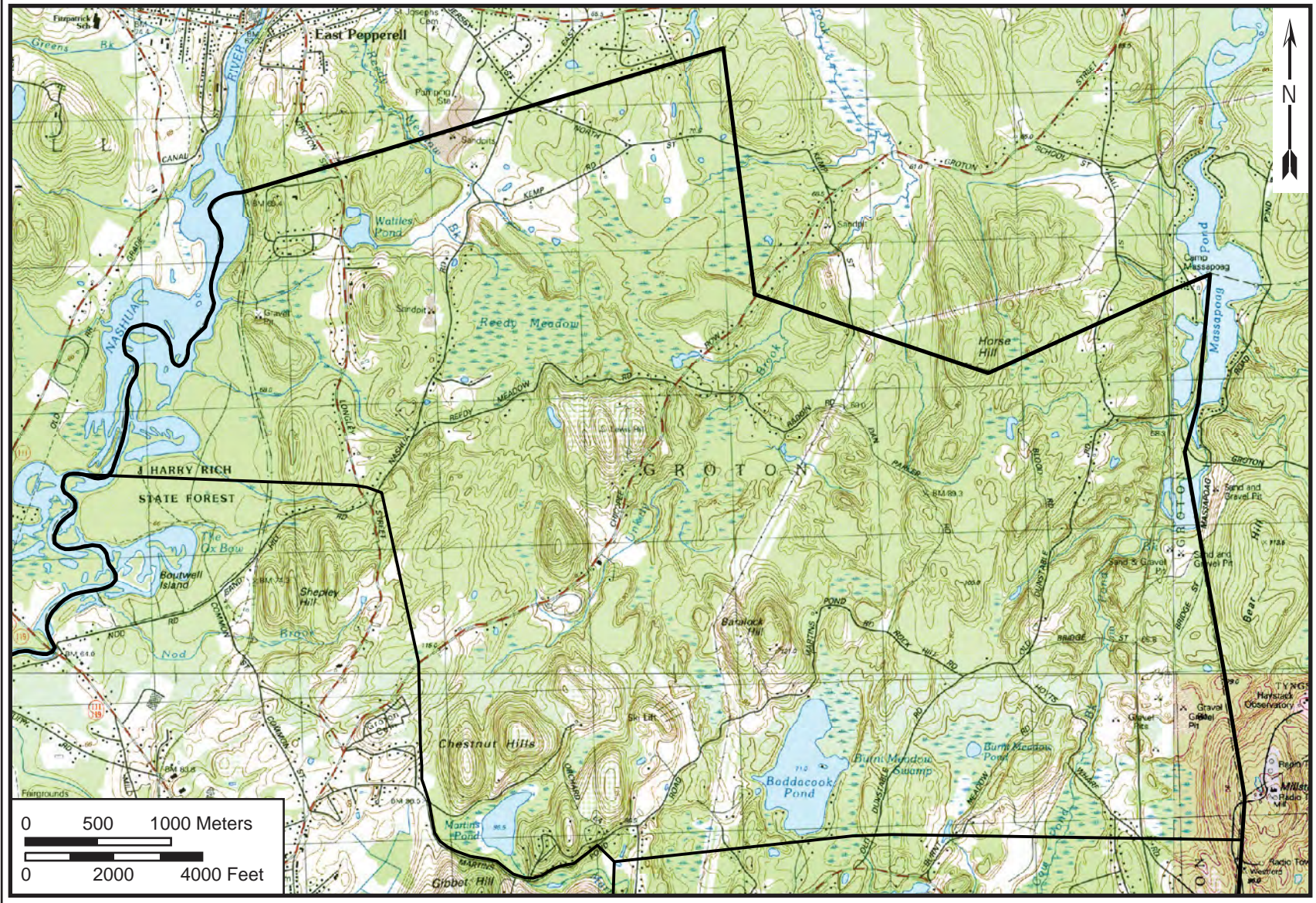


Figure 7-2. Map of North Groton survey unit (based on USGS Quadrangle maps).



Recorded Native American Sites. The state site files did not contain records of any Native American sites within the North Groton survey unit.

Additional Native American Archaeological Sites. During the field reconnaissance portion of the community-wide survey, members of the research team identified two Native American archaeological sites within the North Groton Survey Unit. These are:

The **Eastern Chestnut Hill site (19-UM-2)**. The site was found based on records of the Groton Historical Society, which list a ground stone pestle (accession number O 74), with the following information: “Found several years ago upon the most easterly of the three Chestnut Hills, then and now owned by my father, George S. Boutwell. It was found by Alvin Sawyer then the foreman of my father’s farm but since deceased.” Signed Francis M. Boutwell, Groton, Massachusetts., July 28, 1889. The area is as of yet undeveloped. To determine the site’s significance, additional archaeological survey would be required to locate and evaluate the site.

The **Wyatt site (19-UM-8)**. Local resident Al Wyatt informed Archaeological Services archaeologists about a Native American site in this location. He reports having a collection of artifacts from the site, which were not seen at the time of this recording. Wyatt showed Mulholland two artifacts during a project presentation. One artifact was a Stark point dating to approximately 7,500 years. The area is as of yet undeveloped. To determine the site’s significance, additional archaeological survey would be required to locate and evaluate the site.

Potential for Native American Sites. The North Groton survey unit encompasses the lower portions of the Cow Pond Brook drainage, including the eastern side of Massapoag Pond, along with Unkety Brook, and the lower portion of the Nashua River within the town. Similar to the East Groton survey unit, high potential areas are scattered across the survey unit. The largest areas are along the Nashua River, around Baddacook Pond, and along roadways, such as Martins Pond Road, Reedy Meadow Road, and Longley Street.

Known and Recorded Historical Sites. Four historic period sites are on record at the Massachusetts Historical Commission.

The **Smith I site (GRO-HA-09)** is an eighteenth century agrarian site. The site was discovered during an archaeological survey by the Public Archaeology Laboratory of Pawtucket, RI for the then proposed Groton-Dunstable Regional High School (Heitert et al., 2001). The site consists of house and barn foundations, and a stone-lined well. The integrity of the site was suggested to be good. Additional research is necessary to determine the condition of this site. A determination of eligibility for inclusion in the National Register of Historic Places may be recommended and would require a site examination archaeological survey.

The **Smith II site (GRO-HA-10)** is a nineteenth century agrarian site. The site



was discovered during an archaeological survey by the Public Archaeology Laboratory of Pawtucket, RI for the then proposed Groton-Dunstable Regional High School (Heitert et al., 2001). The site consists of extensively altered standing structures including a house, horse barn and three outbuildings. The integrity of the site was suggested to be poor. No further survey is recommended.

The possible **Smith Saw Mill site** (GRO-HA-11). May have been in operation in the early twentieth century. The mill was powered by electricity. The site was discovered during an archaeological survey by the Public Archaeology Laboratory of Pawtucket, RI for the then proposed Groton-Dunstable Regional High School (Heitert et al., 2001). The site consists of disturbed ground with a limited number of artifacts. No archaeological integrity was suggested. The site is not eligible for inclusion in the National Register.

The **Blood Farm** (GRO-HA-13). Dates to ca. 1869. The site was discovered in an archaeological survey conducted by the Office of Public Archaeology (Boston University 1986) in 1986 (REF 25-687 Hydro Quebec electrical transmission line project). No statements of eligibility are provided. Additional archaeological survey would be necessary to determine if the site is eligible for inclusion in the National Register.

Additional Historic Archaeological Sites. During the field reconnaissance portion of the community-wide survey, members of the research team identified six historic period sites not previously recorded in the state site inventory. They are as follows:

The **District 7 School** (GRO-190; GRO-HA-21). The grounds of the school have archaeological potential.

The **Sawtell House/Tavern/Homestead** (GRO.78; GRO-HA-34). This building was constructed in 1772 and has been termed a “tavern of modest means” (Ruckstuhl 2001:13) (Figure 7-2). Proprietors included Elnathan Sawtell and S. Farnham. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

The **Bennett-Shattuck House** (GRO.120; GRO-HA-39). This is a standing structure and is listed on the National Register of Historic Places. Additional research is necessary to determine the significance of this site.

The **Massapoag House** (GRO-HA-52). This building is shown on the historic map of 1847 (Figure 2-4) and may have been an early tourist hotel. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.



The **Groton Water Works Pumping Station** (GRO-HA-56). This is a part of the nineteenth century Groton public water system. Additional research is necessary to determine the exact location and significance of this site.

The **Trowbridge School** (GRO-HA-57). The foundation is approximately 40 m (120 ft) north of Old Dunstable road. The site consists of a stone foundation. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

Potential for Historic Period Sites. This survey unit includes six homesteads or farmsteads, at least two of which may have functioned as taverns of modest means, in addition to an agrarian work site, a nineteenth century school, and a pump station. These resources are primarily nineteenth century, but some are likely to include eighteenth century components. Mill sites may exist along the Cow Pond Brook drainage, as well as other smaller streams. There is very likely additional buried evidence of homesteads and farming operations that were abandoned over the past two centuries. Evidence of outbuildings associated with homesteads and mills may also be present, particularly when considering structures of the eighteenth and early nineteenth centuries.

Groton Center Survey Unit

The Groton Center survey unit comprises the central portion of the town east of the Nashua River (Figure 7-3). The northern boundary is the border with Pepperell, while the southern boundary is the border with Ayer. To the east, the survey unit is separated from the East Groton survey unit by a north-south line that begins just west of Long Pond, runs north to the west of Smoke Hill, west of the intersection of Route 119/225 and Gay Road, east of Prospect Hill, and west of Brown Loaf. The border with the North Groton survey unit runs between Gibbet Hill and Martins Pond, then northerly past the west side of the Chestnut Hills, across Chicopee Row, and curving west across Longley Road, just north of its intersection with Nashua Road and Sand Hill Road. From this point the border runs west to the Nashua River, in the J. Harry Rich State Forest. The western border of the survey unit, separating it from the West Groton survey unit, is formed by the Nashua River.

The Groton Center survey unit includes the historic and commercial town center area along Main Street (Route 111/119), as well Route 111 south to Ayer. All of the flood plain east of the Nashua River is included in this survey unit as well.

Recorded Native American Sites. The state site files did not contain records of any Native American sites within the Groton Center survey unit.

Additional Native American Archaeological Sites. During the field reconnaissance portion of the community-wide survey, members of the research team identified four Native American archaeological sites within the Groton Center Survey Unit. These are:

The **Balcum Farm site (19-UM-3)** Records of the Groton Historical Society list six “arrowheads” (GHS Accession number O 2415), with the following information:



“Arrowheads. Picked up in Groton near the Nashua River on road. Indian village was once in this location, east of river...6 arrowheads.” The six points are shown in Figure 4-3. The rightmost is clearly triangular, probably a Levanna (1,000 to 400 years old), although triangles range throughout the sequence from Paleo- to Late Woodland (12,000 years to 400 years ago). Second from the right appears to be a Susquehanna type. The two middle points are probably Lamoka (4,000-3,000 years old), as used by Boudreau (2008). The leftmost point is clearly Small Stemmed, Squibnocket type (approximately 4,000 to 2,000 years old), as used by Boudreau. The second from the left appears to be unfinished, possible a triangular preform. The area is presently undeveloped. To determine the site’s significance, an archaeological survey would be required to locate and evaluate the site.

The **Stoddart site (19-UM-6)**. Local resident Marion Stoddart informed UMass archaeologists about a Native American site in this location. Ms. Stoddart related the following: “I do know of an archaeological site in Groton near the Nashua River that is located not far from where we live on New England Forestry Foundation property known as Groton Place. The site was pointed out to me by Betty Dumaine (now deceased) whose family previously owned the property. Miss Dumaine told me that there had been an Indian circle there but that sadly someone working for her family had removed the stones to build a foundation on their property located at the top of the hill on Farmers Row. There is one stone left at the site she showed me that may have been a part of the circle. My husband found an artifact somewhere close to the archaeological site described above. He does not recall exactly where he found it. It appears to be the head of a hammer. It is in our possession. The area is presently undeveloped. To determine the site’s significance, an archaeological survey would be required to locate and evaluate the site.”

The Stoddart Grooved Axe Findspot (19-UM-9). A member of the family found a large grooved axe when the area was used as a farm field. The location is general. Should development be proposed in this general area, an archaeological survey would be recommended.

The **Conley site (19-UM-7)** Local resident Troy Conley informed UMass archaeologists about a Native American site in this location. He showed archaeologist Mitchell Mulholland a gray quartzite projectile point that is of the Stark type (approximately 7,500 years old). The area is presently undeveloped. To determine the site’s significance, an archaeological survey would be required to locate and evaluate the site.

Potential for Native American Sites. The Groton Center survey unit encompasses the eastern plain along the Nashua River, as well as the Nod Brook drainage, as well as the James Brook drainage. High potential areas in this survey unit are most concentrated along the plans adjacent to the Nashua River, particularly along the border with Pepperell. There are also scattered areas along portions of James Brook and the surrounding hills, and in the center of town up to and around Nod Brook.

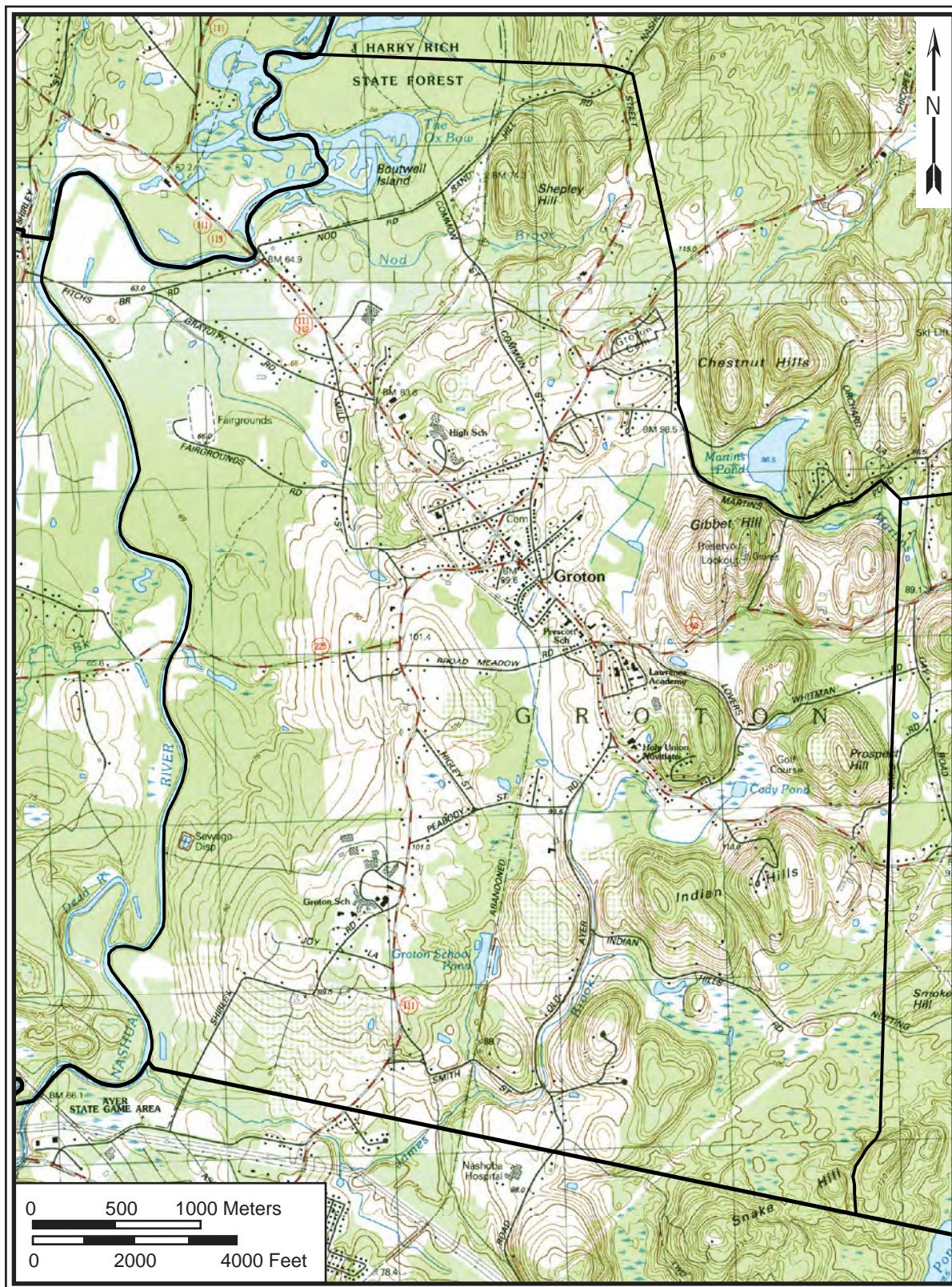


Figure 7-3. Map of Groton Center survey unit (based on USGS Quadrangle maps).



Known and Recorded Historic Sites. Eight historic period sites are on record at the Massachusetts Historical Commission.

The **John Fitch Soapstone Quarry** (GRO-HA-01). Fitch established the mill in 1828 and manufactured fireplace hearths, sinks, stoves, bed-warmers, inkwells, and soap dishes (Murray et al., 2005:68). To increase efficiency, Fitch built a steam sawmill north of the mill. In 1855, Samuel Adams and Daniel McCaine purchased the mill, and later under the management of the McCaine family grew the business substantially. The company was bought by a stock firm called Groton Soapstone Company, and was expanded to reportedly become the largest soapstone company in the country. After acquiring a patent for manufacturing artificial stone, the company became known as the Union Stone Company. The property is now owned by the Shepley Hill Conservation Land Trust. This site is eligible for inclusion in the National Register of Historic Places.

The **Aaron Brown Potash Works** (GRO-HA-02). This early industrial site was burned by insurgents of Shays' Rebellion on November 30, 1786 (MHC site form). Brown was the Groton Constable who served a warrant for Job Shattuck's arrest. Shattuck was the leader of the local uprising (Murray 2005:19). Further research is recommended.

The **Town Pump site** (GRO-HA-03). Town scales were added to this site. The pump may have been built in 1867 (MHC Form A Area Form HD 2). Further research is recommended.

The **Benjamin Prescott House site** (GRO-HA-04) is the birthplace of Col. William Prescott (February 20, 1726). Modern residences are located at the dwelling site. A old well exists in the yard (MHC Form A Area Form Area D). This site is probably not eligible for inclusion in the National Register.

The **Jonas Prescott House and Blacksmith Shop** (GRO-HA-05). A modern residence is located on the site of the original house. This site is probably not eligible for inclusion in the National Register.

Nutting's Garrison (GRO-HA-06). The location indicated on the MHC site form suggests that the house is below the intersection of Court and Main Street. If this location is correct, the site is not eligible for inclusion in the National Register.

Parker's Garrison (GRO-HA-07) was the residence of Captain James Parker, the commander of town forces in King Phillip's War in 1676. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

Willard's Garrison (GRO-HA-08) was used for safety during King Phillip's



War in 1676 (Figure 7-3). The house is on the west side of Main Street in front of an existing house. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

Additional Historic Archaeological Sites. During the field reconnaissance portion of the community-wide survey, members of the research team identified 21 historic period archaeological sites within the Groton Center Survey Unit. These are:

The oldest tavern in Groton, the **Bowers-Trowbridge Tavern** site (MHC Structure GRO.100; GRO-HA-17). The building was built in 1730 and was known as the Samuel Bowles, Jr. Tavern. In 1752 Caleb Trowbridge Jr., (the son of Reverend Trowbridge) obtained a license to sell wine and spirits on the premises, and became known as Trowbridge's Tavern. In 1755, the building was known as Champney House. This structure is standing and is used as a residence. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

The **Reverend Dudley Bradstreet Parsonage** (MHC Structure GRO.29; GRO-HA-18). The house was built for Bradstreet in 1706 to be used as a parsonage. It is believed to be the oldest standing structure in Groton. The house is presently used as a residence. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

The **Chaplin #14 School** (MHC Structure GRO.137; GRO-HA-19) was once the home of Reverend Daniel Chaplin (Walker 1889; Figures 2-11, 2-12) (GHC 2006 S1V2 Area Form Y). The building was constructed in 1869. Today this building is the Lawrence W. Gay American Legion Post. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

Moses Child's Tavern (GRO-HA-20) once faced down Main Street. The structure was built in ca. 1670's, and was occupied by Reverend Hobart by 1678 (Figure 7-3). Moses Child sold spirits at the tavern by 1761, and obtained and renewed a liquor license from the Collector of Duties of Excise (at Watertown) in 1763. This is believed to be the second oldest tavern in town. In the 1780s, Converse Richardson's son Jephthah (d.1806), and his wife Sarah renovated and expanded the building. In 1794, Queen Victoria's father, the Duke of Kent, was a guest here. While in business as the Spalter Inn (c.1812), Lt. Chase headquartered his recruiting staff at the Inn. During Daniel and Francis Shattuck's tenure c.1815-1830, Rufus Porter did the ballroom wall paintings. They were rediscovered in the 1970s, after having been moved c.1840 to Keep's Tavern (Groton Inn), when Richardson's Tavern was torn down (Ruckstuhl 2001:6). Moses Child, Dearborn Emerson, Lemuel Lakin, Jephthah



Richardson, Daniel Shattuck, Francis Shattuck, John Spalter, Timothy Spaulding, Samuel C. Tenney were proprietors of the property. Further archaeological research is recommended to conclusively locate the site.

The **Emerson Hotel** (GRO-HA-22) was located on the site of today's Groton Market Package Store (235 Main Street). Dearborn Emerson, a former stagecoach driver who ran the Spalter Inn in c.1812, established the Emerson Hotel in 1815. With his brother-in-law Daniel Brooks who owned the stagecoach company that ran north through Groton and Jonas "Tecumseh" Parker, they took over much of the stagecoach business and "outclassed the Richardson facilities." Following his financial overextension and collapse in 1818, Joseph Hoar bought the establishment (and a year later bought the Keep's /Groton Inn) prior to its acquisition by Moses Gill in the c.1840s. The hotel closed c. 1854-6 and burned in 1855, after serving a year as a shoe factory (Ruckstuhl 2001:10-12). Proprietors of the establishment include Amos Alexander, Artemis Brown, Horace Brown, William Childs, Dearborn Emerson, Isaac Fox, Moses Gill, John McGilson, Joseph N. Hoar, and Abijah Wright. Because a modern structure has been built at this location, the site is not eligible for inclusion in the National Register.

The **Governor George Boutwell House** (MHC Structure GRO.4; GRO-HA-23). The building is listed on the National Register. The house was built in 1851, when George S. Boutwell became governor of Massachusetts. The structure is now used as the museum and headquarters of the Groton Historical Society. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

A portion of the **Globe Hotel** (MHC Structure GRO.318; GRO-HA-24) is presently used as a residence. Entrepreneur Moses Gill, after business involvements with Keep's Tavern, Richardson's Tavern and Emerson's Tavern, established the Globe Hotel on Pleasant Street. Stephen Woods took over the business in c. 1858 until it went out of business. Ruckstuhl states that the hotel can be considered "one of the shortest lived major establishments in Groton." Part of the building was moved in 1873 to south side of Court Street and now serves as a residence. Because of the move, and the short-lived nature of the establishment, the site is probably not eligible for inclusion in the National Register.

Jonathan Keep's Tavern/Inn (GRO-HA-25). The building was erected in c.1761 for the Reverend Samuel Dana, an unpopular Tory. In 1780, Capt. Jonathan Keep of Westford bought 40 acres and the buildings thereon. The tavern was later sold in 1794 and remodeled by Keep's son-in-law, Isaiah Hall. The town's Third meeting house (built in c.1714), was attached after having served as a barn. In 1798, the building was known as Hall's Tavern, and in c. 1805, became known as Hall & Childs Inn. The Central Hotel opened in c. 1825. When Thomas Treadwell made the Central Hotel a Temperance Inn, business declined in c. 1840-3. Pillars from First



Parish church were added to the building. Later, the old Richardson House ballroom was cut up and attached to Inn. Under David Hunt, the Inn became the headquarters for Railroad Board and Probate Court meetings. J. Nelson Hoar bought the hotel in 1855, and it was subsequently managed c. 1885-1901 by Hoar's three daughters. Purchased by Scott (Emulsion) (Ruckstuhl 2001:6-9, 13, 149). Proprietors of the property included Isaac Childs, James Minot Colburn, Moses Gill, Fletcher Hall, Isaiah Hall, Joe Hall, Joseph Hoar, Joseph Nelson Hoar, Lilla Marie Hoar, Charlotte Elizabeth Hoar, Jane Evangeline Hoar, David Hunt, Capt. Jonathan Keep, and Thomas Treadwell. Recent business advertising claims "The Old Groton Inn, Grill and Tavern" c. 1678 to be one of America's oldest operating inns formerly the Groton Inn and recently the Stagecoach Inn. Built originally in 1678 the site was accepted on August 3, 1976 for inclusion in the National Register of Historic Places. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

The **Lawrence Academy at Groton** (GRO.178; GRO-HA-28). This is a renowned college preparatory school that was founded as Groton Academy in 1793 by Samuel Lawrence. The name was changed to Lawrence Academy in 1845. The grounds cover approximately 100 acres south of Groton Center. Fires destroyed many of the buildings in 1868 and again in 1956. Brazer House became the headmaster's residence after 1902. The school grounds and immediate surroundings of historic buildings may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

Page's Tavern/Inn/Martin Jennison Hotel (GRO.14, GRO-HA-29). The building was constructed in 1803 for Martin Jennison, and was operated for six years until 1818 (Ruckstuhl 2001:10). Mr. Page was the proprietor of the establishment. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

Prescott's Tavern/Inn (GRO-HA-51) was located in an area known in the 1870s at Prescott Hill. This was a short-lived establishment. It was known as the Charles Prescott House and Prescott's Tavern/Inn. Charles Prescott was the proprietor of the establishment. The modern location of this inn is unknown.

Richardson's Inn (GRO.152; GRO-HA-32). This was a short-lived enterprise that was operated by Jephthah Richardson's father Converse. The building was moved off site to unknown location (Ruckstuhl 2001:7). Another structure is at this location, occupied by the McDonald family in the late nineteenth century. No further survey is recommended.

The **Boutwell School** (GRO 341; GRO-HA-40) was built in 1914. The yard and



immediate surroundings of this school may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

The **E. Dix Tannery** (GRO-HA-41) is shown on the 1829 map (Figure 2-2) on James Brook in the south part of town. The mill site is shown in 1856 (Figure 2-6) as the E. Dix Tannery. The mill was no longer operating by 1875 (Figure 2-9). To determine eligibility, an archaeological site examination is recommended.

An **Unnamed Tannery** (GRO-HA-42) is shown in the south part of Groton Center on the 1829 map (Figure 2-2). The tannery was located on the west side of Main Street. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

A **Saw and Grist Mill** is shown in 1794 (GRO-HA-44) (Figure 2-1) east of Main Street near Nod Road at the crossing of the Nashua River. This location is also known as the Petapawag Canoe Launch. Managed by the Groton Conservation Commission. In 1856 (Figure 2-6), a mill at this location is shown as the Hollingsworth Paper Company. In 1930 (Figure 2-14) shows this as the Nashua Paper Company and the surrounding area is Paper Mill Village. This appears to be the only mill site on the Nashua River in Groton. To determine the site's significance, an archaeological survey would be required to evaluate the site. The 56-acre parcel is now state-owned Squannacook Wilderness Management Reservoir. This site is eligible for inclusion in the National Register. The complex is now an abandoned water powered mill site parts of which are in use as a park (Figure 4-7). The park has excellent potential for interpretive purposes. Portions of the foundations, chimney stack support and other structures are visible at the site. Interpretive signage would add to the visitor's experience.

A **Sawmill** (GRO-HA-46), probably operated by N. Nutting is shown on Beers Atlas (Figure 2-9) (Figure 7-3). The mill is shown north of Nate Nutting Road. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

A **Yeast Manufactory** (GRO-HA-48) is shown on Shirley Road in 1856 in the village of Nonanicus, southwest of Groton Center, near the Groton School. Several shops are also shown in this small village. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

A **Steam Sawmill** (GRO-HA-50) is shown north of Groton Center just north of the Soapstone Quarry (GRO-HA-1). John Fitch, operator of the soapstone quarry built the sawmill to cut stone (Murray et al., 2005). To determine the site's



significance, an archaeological survey would be required to locate and evaluate the site.

The **Groton School** (GRO-HA-55) is located in the south part of town. This Episcopal college preparatory school was established in 1884 by the Reverend Endicott Peabody on land that was donated by James and Prescott Lawrence (Ashborn 1944; Hoyt 1968). This 305 acre campus houses some 350 students. The campus of the school was designed by Frederick Law Olmsted. The campus and surroundings of the historic buildings may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

Powder House (GRO-HA-43). The powder house was built for the Revolutionary War. It was originally a stone building along what is today Powder House Road. The building was removed in 1829 (Murray 2005:16-17). An archaeological survey may locate the site.

Potential for Historic Period Sites. Because this includes the historic town center of Groton, it includes the most dense area of settlement, the oldest structures and cemeteries, and the highest archaeological potential for historic resources. Known sites include numerous taverns and houses with probable associated outbuildings, scatters of artifacts, and buried features, as well as schools, mills, tanneries, and other manufacturing concerns. The highest potential would be in close proximity to houses, inns, and schools of the seventeenth and early eighteenth centuries, particularly in and around the heart of Groton Center. Additional sites such as abandoned houses would be expected along the historic road networks.

West Groton Survey Unit

The West Groton survey unit comprises all of the town lands west of the Nashua River (Figure 7-4). The northern boundary is the border with Pepperell, while the southwestern boundary is the border with Shirley. To the east, the survey unit is separated from Groton Center survey unit by the Nashua River.

The West Groton survey unit includes the historic and commercial community of West Groton, as well as Townsend Road, Pepperell Road, Route 225 (West Main Street), and the railroad line that follows the east side of the border with Shirley. The West Groton survey unit also includes the Squannacook River.

Recorded Native American Sites. The state site files did not contain records of any Native American sites within the West Groton survey unit.

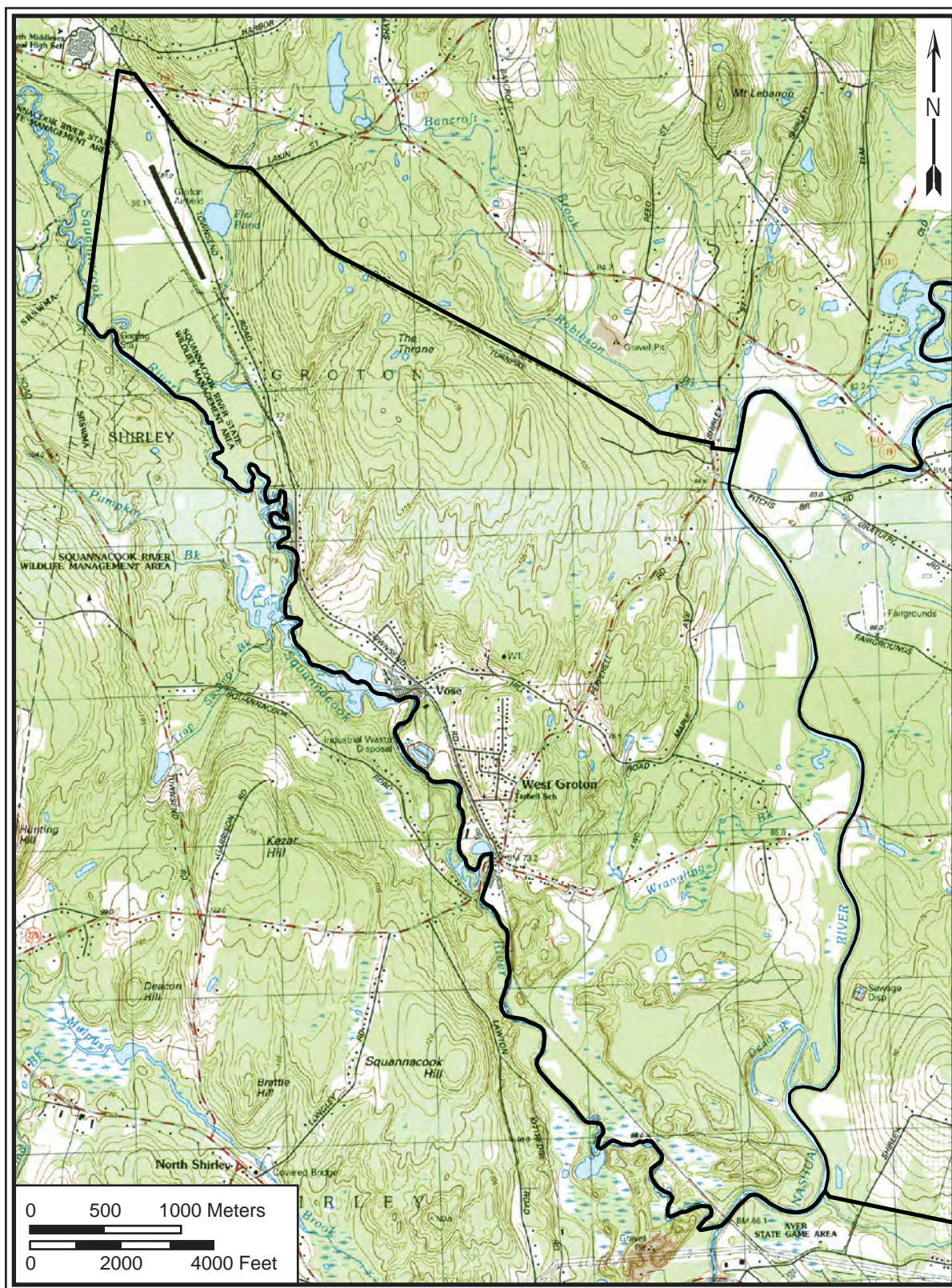


Figure 7-4. Map of West Groton survey unit (based on USGS Quadrangle maps).



Additional Native American Archaeological Sites. During the field reconnaissance portion of the community-wide survey, members of the research team identified three Native American archaeological sites within the West Groton survey unit. These are:

The **Red Bridge site (19-UM-1)**. The site was first reported by Green (1894: 22 [Historical Sketch of Groton, Massachusetts, 1655-1890]): “Judging from the number of stone implements found in the neighborhood, there was an Indian village just above the Red Bridge, on the west side of the Nashua River.” The site was also noted by Dena Dincauze, and listed as site AYR-004 in her site files, but apparently this information was never transferred to the MHC database. No actual collections related to this site were identified. To determine the site’s significance, an archaeological survey would be required to locate and evaluate the site.

The **Upper Nashua River site (19-UM-4)** is located on a small knoll, just north of the border with Ayer, and just west of the Nashua River. The site location was identified based on Dena Dincauze’s site files. There is no information on the site other than location. To determine the site’s significance, an archaeological survey would be required to locate and evaluate the site.

The **Lower Nashua River site (19-UM-5)** is located on the west side of the river . The site location was identified based on Dena Dincauze’s site files. There is no information on the site other than location. To determine the site’s significance, an archaeological survey would be required to locate and evaluate the site.

Potential for Native American Sites. The West Groton survey unit encompasses the western plain along the Nashua River, as well as the entire length of the Squannacook River in Groton. High potential areas in this survey unit are most concentrated along the plans adjacent to the Nashua River, and secondarily along the Squannacook. The main high potential areas are clustered within one kilometer of the Nashua, with some wider areas along Wrangling Brook, and wetlands west of Pepperell Road.

Known and Recorded Historic Sites. One historic period site is on record at the Massachusetts Historical Commission:

The **Academy Hill Historic Site 1 (GRO-HA-16)** is a historic period cellar hole located near the intersection of Old Road (MHC Site Form) (Figure 7-4). The site consists of a cellar hole, a stone wall and a stone-lined well (Donohue and Dudek 2006). The survey suggests that the site has integrity. Additional archaeological survey would be necessary to determine if the site is eligible for inclusion in the National Register.

Additional Historic Archaeological Sites. During the field reconnaissance portion of the community-wide survey, members of the research team identified nine historic archaeological sites within the West Groton survey unit. These are:



The structures of the **Groton Leatherboard Company** (MHC Structures GRO.182-188; GRO-HA-26). The old red brick Groton Leatherboard factory still stands as an example of the late industrial period of a New England mill village. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

The **Jephthah Hartwell/Hollingsworth and Vose Paper Mill** (MHC Structure; 477 GRO-HA-27). Prior to 1832, the mill was a Starch Factory and before 1846 the mill was known as the Jephthah R. Hartwell Paper Mill. Later, in 1843, the Hollingsworth brothers (John, Mark, & Lyman) were granted a U.S. patent for the manufacture of paper from manila fiber (bolt ropes, cut from old sails). In 1846, the mill was destroyed by fire, but was rebuilt by Hartwell. After purchase by Lyman Hollingsworth in 1852, and until 1881, the Hollingsworth Paper Mill factory manufactured paper from jute and manila fiber. In 1881, Lyman's nephew Zachary T. Hollingsworth formed a partnership with Charles Vose, and purchased the mill from Lyman, continuing to make paper. The mill was then named Hollingsworth & Vose. By 1955, the West Groton division of Hollingsworth & Vose manufactured approximately 25 tons per day of specialized industrial paper, including filters (for autos, diesel, gas, liquids); electrical and cable insulation; and artificial leather for wallets and other objects. The mill has remained in continuous operation since 1852. There are several dwellings that were once worker's housing associated with the mill. They include MHC Structure GRO.469, GRO.470, GRO.472, GRO.473, GRO.475, GRO.476 at 208 Townsend Road, GRO.478 at 224 Townsend Road, GRO.479 at 22 Vose Avenue, GRO.480 at 24 Vose Avenue, GRO.481 at 28 Vose Avenue, GRO.482 at 29 Vose Avenue and GRO.449 at 37 Nod Road. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

The Morse, Woods and Tarbell Saw and Grist Mills (GRO-HA-31). Renovated and restored extant red brick buildings and associated dam were listed on National Register of Historic Places in 2002. The mill is in use as an assisted living facility for seniors. The mill and associated dam and housing are considered representative of a late industrial period New England mill village. This mill was in operation from 1662 to the 1970s. From 1662-1707, the mill was a saw and grist mill, wool carding mill and dye house. The owners included Jonathan Morse, Samuel Woods and Thomas Tarbell, Sr. In 1744, the mill was named Tarbell's Mill. In 1875, the mill was called Strawboard Mill that produced the material of its name (a cardboard-like product made from straw fiber used in making boxes). From 1899 to the 1970s, the mill was named the Groton Leatherboard Company. The product, leatherboard was an imitation leather made by combining leather fragments and wood pulp. The yard and immediate surroundings of this house may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.



The **Scales and Son Saw and Stave Mill** (GRO-HA-35) was located on Squannacook River and was north of the Hollingsworth & Vose mill. From 1815-1885, the mill was named the John Scales & Son Saw & Stave Mill. The Scales family operated the mill for almost 70 years. In 1885, Asa H. Thompson and his uncle Granville T. Shepley bought the mill, naming it the Thompson & Shepley Mill. Thompson later purchased the mill from Shepley, and started a box & reel factory. By 1891, complex included five houses, barn and mills. Curiously, this mill complex is not shown on any of the historic maps. It may have been overshadowed by the paper mill run by Hollingsworth & Vose. An archaeological survey may locate intact components of this site.

The **Thompson Mill** (GRO.231; GRO-HA-36). A.H. Thompson purchased property in 1896 and built the Thompson Mill, a steam powered mill to manufacture wooden reels, cores, and frames. In 1919, Thompson brought his sons Clarence L. and David B. into the company and incorporated. The mill was named A.H. Thompson & Sons. Clarence continued operation after his father's death in 1926. The mill was enlarged during the 1940s and ran three shifts during WWII. By 1955, the factory consumed over 2,000,000 ft of lumber and produced more than 31,000 reels annually. Thompson operations closed in 1966. There are extant nineteenth century buildings on the site. From 1966-1969, the factory housed Rocky Derico Woodworking, and in 1970 The Carver's Guild. The yard and immediate surroundings of this mill may contain significant archaeological resources. A determination of eligibility for inclusion in the National Register of Historic Places would require an archaeological survey.

An **Unnamed Mill** (GRO-HA-38) is located in the West Groton square. The mill was on the south side of the road near Thompson Mill. This is an abandoned mill site with a dam and mill pond. Red brick is found in the area. If undisturbed, the site may be eligible for inclusion in the National Register. An archaeological survey is recommended.

The **Town Asylum or Town Farm** (GRO-HA-49) Built in 1822, the asylum is shown in 1856 (Figure 2-6), 1875 (Figure 2-9); and in 1930 (Figure 2-14). When the area became the Town Forest, the farm was closed in 1929, and the last three residents transferred to Fitchburg (Murray 2006: 119). The area in the vicinity of the town farm has archaeological potential. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

Unnamed Mill remains (GRO-HA-53) are shown on an undated, un-authored historic map (Figure 7-5). The mill is shown on the east side of the Squannacook River. There was a road extending southwest from Townsend Road, across the Boston and Maine railroad tracks. A house foundation is shown northeast of the mill remains. A house in that possible location is shown on the 1930 Tercentenary map occupied by Flora Boutelle (Figure 2-14). To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

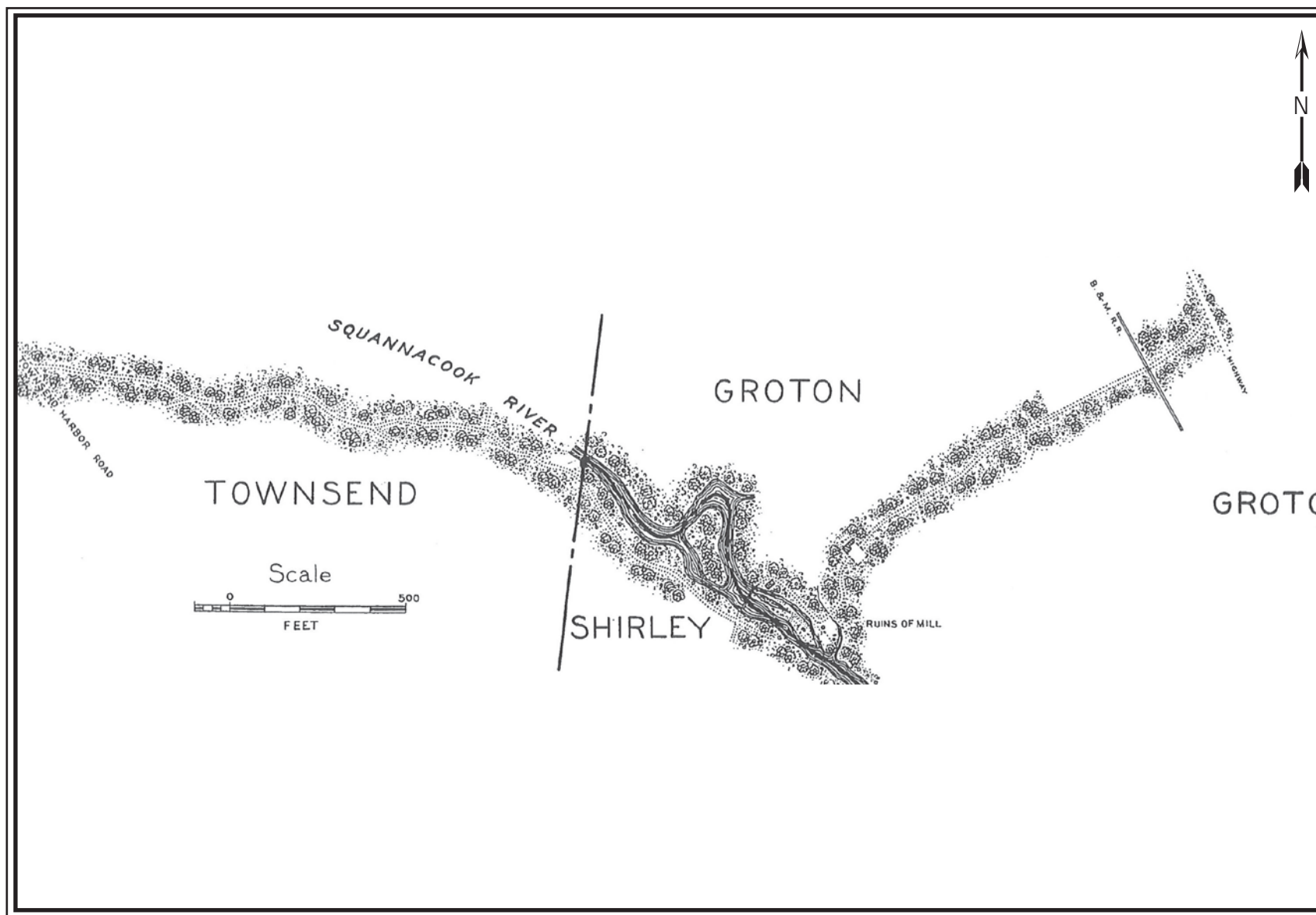


Figure 7-5. Survey map of the town boundary between Shirley and Groton along the Squannacook River detailing mill ruins (Anonymous n.d.).



An **Ice House** (GRO-HA-54) is mapped on the east side of the Peterborough and Shirley Railroad in the extreme northwest of town. The house is located on the east side of the railroad tracks. To determine the site's significance, an archaeological survey would be required to locate and evaluate the site.

Potential for Historic Period Sites. Historic resources in this survey unit are concentrated along the Squannacook River, and include numerous mills. It is expected that additional sites not yet recorded will be associated with these mills. These may include worker housing, camps, wells, and outbuildings. Resource procurement locations may also be present. Commercial structures and schools could be found in the West Groton center area as well. Away from this community, homesteads and farming sites are also a possibility.

Summary of Field Results

As a result of the combined efforts of background research, informant interviews, and field survey, this project has added eight Native American archaeological sites to the state record, in addition to the three that were in the state inventory prior to this project. These 11 sites form the body of specific data on Native American site locations and contents within the town of Groton. At the start of this survey, 16 Historic period archaeological sites were recorded in the state inventory, to which this project has added another 41. The total of 57 historic sites now on record can be useful in many ways in developing interpretation regarding Groton's past.



CHAPTER 8: PROTECTION OF ARCHAEOLOGICAL RESOURCES IN OTHER TOWNS IN MASSACHUSETTS

Several towns and commissions in Massachusetts review potential impacts to archaeological and historical resources. In addition to the procedures established by the towns and municipalities, there exist federal, state, and regional protections for archaeological resources. For example, any undertaking that is reviewed under Section 106 of the National Historic Preservation Act, the Massachusetts Environmental Policy Act, or Massachusetts burial legislation could be required to conduct an archaeological survey. In most cases, the local historical commission would be contacted for review, and copies of reports can be requested by the local commissions. The following section presents a discussion of several towns that have archaeological legislation or personnel, the manner in which reviews are triggered, and the procedures that are followed for cultural resources. The discussion is provided to give the Groton Planning Board and Groton Historical Commission models upon which to base an appropriate system of archaeological site protection.

Description by Town

Aquinnah. In 2000, a by-law to protect archaeological resources was established by the town of Aquinnah (formerly Gay Head) on Martha's Vineyard. The bylaw is administered through the Aquinnah Planning Board Review Committee. As a part of the establishment of a District of Critical Planning Concern (DCPC), the town instituted the by-law that requiring the Planning Board Review Committee to determine what steps must be taken to locate, identify, and evaluate any archaeological and historical resources that may be significant (Herbster and Cherau 2002). If it is determined that a significant site may be impacted by a proposed project, the project proponent must fund an archaeological survey that would be conducted by a professional consultant. The process is similar to that followed by the Massachusetts Historical Commission. Once an archaeological resource area has been identified, an order of conditions is issued by the Committee, detailing the conditions under which a project may proceed (Skelly 2003:31). If significant sites are located during the survey, subsequent archaeological surveys may be funded by the proponent and conducted to determine the significance of the site and to mitigate impacts to it. The Review Committee consults with the Aquinnah Tribal Historic Preservation Officer, the MHC, and other appropriate agencies.

Barnstable. Archaeological resources in Barnstable are protected through the Conservation Commission (BCC) if sites are believed to be within Wetland Resource Areas (such as wetlands, coastal bank, etc.) under the jurisdiction of the BCC and a 100-foot buffer through the wetland ordnance. Under the ordnance, the Commission has the authority to require archaeological surveys where proposed work within the wetland resource areas may have an impact on archaeological sites. In these cases, the Conservation Commission would collaborate with the Barnstable Historical Commission. The Historical Commission scans the Conservation Commission agenda in advance. If impacts are determined, the Conservation Commission is notified, and it takes over the review.



The Historical Commission also reviews projects as do individual Historic District Commissions.

In reviewing a construction project, the Historical Commission uses an Archaeological Potential Map published in its Historic Preservation Plan, which was last updated in 1990 (Town of Barnstable Comprehensive Plan 2007). The maps indicate areas of *Primary* potential (those that are within 1,000 feet of a marine or marine related ecosystem. These areas have a high potential to contain Native American sites. Areas of *Secondary* potential are areas within 500 feet of a lake or pond larger than 500 feet in width. These also have a high potential to contain Native American sites. The third level or *Tertiary* Potential covers areas that are adjacent to lakes or ponds that are less than 500 feet in width (Town of Barnstable Comprehensive Plan 2007).

In recent years, the frequency of required archaeological surveys has been reduced because of a regulation that archaeological resources must be in the resource area and must be listed in the state inventory or other site lists. According to Rob Gatewood, (personal communication 2010) the BCC now interprets the wetland ordinance in a more literal manner than in the past, protecting archaeological sites that only fall within the resource area that is their area of jurisdiction. The resource area is defined as a surface water body, vegetated wetland or un-vegetated wetland, any land under said waters, coastal bank, and any land subject to flooding or inundation by ground water, surface water, tidal action, or coastal storm flowage (such as a coastal bank), but not the 100-ft upland buffer. Unfortunately, the 100-ft buffer is the area most likely to contain Native American and some European American historic archaeological sites. Unless the wetland resource is artificial (for example, a formerly dry area dammed by a railroad or highway), the wetland area itself has a low potential to contain sites. If sites did exist in these areas, the cost for their survey and recovery would be high. Another drawback with this system is that only those areas within wetlands and streams are protected. Many other areas in the town contain important archaeological resources that are not covered under the Conservation Commission's jurisdiction.

The issue of protection only within the resource area is the result of the unfortunate wording of the bylaw definitions. The intent is to protect areas with *historical values*. The statement is as follows:

Historical Values: The importance of wetlands and adjoining land areas as sites often used for prehistoric [sic] and historic occupation, subsistence, industry, trade, agriculture, burial and other cultural purposes. Resource areas which are known to contain sites of historic or archaeological resources (as being listed on the State Register of Historic Places, the Inventory of Historic and Archaeological Assets of the Commonwealth, and/or the Barnstable Historical Commission's Historic Properties Inventory) are deemed to have historic value. Activities in, or within 100 feet of resource areas shall not have a significant effect on historical values (Town of Barnstable: Special Conditions of Approval).

When sites are found within a resource area, the Conservation Commission recommends an archaeological survey according to the three-phase approach defined in the state permit regulations. The Conservation Commission then confers with the Massachusetts Historical Commission, and includes the requirements in the Order of Conditions of the wetland permit.



Contacts: Marylou Fair, Administrative Assistant to the Barnstable Historical Commission, 508-862-4665; Jackie Etsten, Principal Planner, Barnstable Historical Commission, Contact: Jackie.etsten@town.barnstable.ma.us; Rob Gatewood, Barnstable Conservation Commission, 508-862-4093.

Boston. The City of Boston funds a City Archaeologist but there are no overriding archaeological regulations in the city. Reviews of archaeological projects are provided to the City Archaeologist by the Massachusetts Historical Commission for comment. Any project notifications or private inquiries to the City Archaeologist are sent to the Massachusetts Historical Commission for review. Thus, the MHC is the reviewing agency, with comment from the City Archaeologist. Much of the City Archaeologist's time is spent reviewing archaeological issues related to the Central Artery project, and in maintaining the city's archaeological laboratory. The remainder is spent in education programs, which enhance the public appreciation of archaeology and the importance of preserving the City's important archaeological sites.

Brewster. Under town regulations, new construction is reviewed by a Development Plan Review Committee, which coordinates the review of *substantial* development proposals (Brewster Code, Development Plan Review, Chapter 83). The purpose of the committee is to facilitate communication among several regulatory boards and committees. The committee is made up of the Building Commissioner and one member from each of the various town commissions including the Historical Commission. Projects that trigger a review are those that:

- 1) Propose construction other than single-family or two-family homes and include a new principal building;
- 2) Involve an increase in lot coverage by more than 800 square feet through construction of a new accessory building, or increase coverage of the lot by 10 percent or more;
- 3) Involve substantial alteration of a parking facility having ten or more spaces;
- 4) Require removal of vegetation from more than 10,000 square feet; or 5) involve any subdivision of land into two or more lots.

The archaeological clauses make it clear that the purpose is to avoid damage to the historic or archaeological value of sites. The clause states that project proponents may be required to provide documentation concerning cultural resources within their area of development to the Massachusetts Historical Commission. The clause reads as follows:

Historic and Archaeologic [sic] Resources. Location and design shall not cause avoidable damage or impairment of the historic or archaeologic value of buildings or resources. Applicants may be required to submit documentation from the Massachusetts Historical Commission that the site either contains no such buildings or resources or that all feasible efforts to avoid, minimize or compensate for any



potential damage or impairment have been made (Amended 5-1-1995 ATM, Art. 17, Section 83-9).

Over the years, the duties of the Development Plan Review Committee have been reduced, and today do a much lighter review than what was done a decade ago. This perhaps caused by political pressure. It is felt locally that townspeople are weary of regulations. When the committee reviews a project, the group includes a member of the Old Kings Highway Historic District Commission, but curiously not the Historical Commission. Generally the focus is on reviewing the project plans, and if there is no indication of the plans potentially impacting a historic or archaeological site, there would probably be no conditions made. The exception would be that an individual or group make it known that there is a historic or archaeological concern within the proposed project area.

Code of the town of Brewster also provides protection for archaeological and historical sites from wind turbines and cell towers (Volume 29, updated 07-15-2009) Part II, general Legislation, Chapter 179 Zoning, Art. IX, Special regulations sections 179-40). There is not other discussion in the code.

The contact person for the Town of Brewster is Jillian Douglass, Chief Procurement Officer's Designee (508-896-3701).

Chilmark. The town of Chilmark completed a community-wide archaeological reconnaissance survey in 1998, conducted by the University of Massachusetts Archaeological Services (Mulholland et al., 1998). It was recommended that in the course of its duties, the Chilmark Planning Board identify sites that require review by the Chilmark Historical Commission. The key to the system is the use of two archaeological potential maps (one for European American sites and the other for Native American sites) that were produced by the survey. The maps indicate areas of archaeological concern. The Native American site survey map was made on the basis of the location of previously recorded sites, and a predictive model based on forest change, landform, and potential subsistence resources. Should a construction project be located within an area of moderate to high potential to contain sites, the Planning Board would send the project to the Historical Commission for review. The historic potential map was based on distance to roads, streams (for hydropower industries), agriculturally suitable soils, population and commercial centers, and areas otherwise suitable for historic industry and commerce.

An issue that was considered concerns thresholds established to trigger the review process. It was recommended that Chilmark use their own version of the process developed by the regional Martha's Vineyard Commission, in which projects of specific sizes and impact trigger historical review (see below). It was recommended that review not be redundant with the review of the MVC or other review processes (such as Historic District Commission, Massachusetts Historical Commission, or other state and federal agencies).

Chilmark has no town bylaws or ordinances that consider archaeology. However, protection of historical and archaeological resources is an important part of the town's Master Plan.

The contact person for the Chilmark Historical Commission is Jane Slater (508-645-3378). The Executive Secretary of the town is Timothy Carroll 508-645-2101).



Falmouth. In 1995 and 1996, a town-wide archaeological reconnaissance survey was conducted for the town of Falmouth by Archaeological Services (Donta et al. 1996). This was one of the first such surveys in Massachusetts. The project was co-funded by the Falmouth Historical Commission and the Massachusetts Historical Commission. It was recommended that the Falmouth Historical Commission (FHC) implement a program with the purpose of archaeological site protection and adopt a by-law allowing the review of project plans to determine impacts to archaeological sites. It was further recommended that the town use models such as used by the regional Martha's Vineyard and Cape Cod Commissions, that review projects that meet certain criteria or thresholds, and then be referred to the Massachusetts Historical Commission. The program that was recommended involves the establishment of town-sanctioned regulations spelling out the FHC's responsibility and jurisdiction to review certain construction projects in advance with the intent of minimizing or avoiding adverse impacts to archaeological resources. In the proposed program, the legislation would clearly address the responsibility of key town boards and departments that would notify the Commission in advance of construction and the actions that the Commission would be authorized to take. It was urged that the Commission be allowed to review any town-sponsored, private, or commercial construction of a pre-determined size and nature, and that as early as possible the FHC and cooperative departments identify review thresholds. In the Falmouth program, the Commission would determine if the area of proposed construction is within a town archaeological-historical potential map. If the project area is located within an area of concern, the Commission would be able to review the project area and determine whether or not the area requires a professional survey. If a survey appeared to be necessary, the Commission would solicit the advice of the Massachusetts Historical Commission.

Protection attitudes, goals, and policies currently in place in Falmouth are as follows (Falmouth Local Conservation Plan 2005):

Goal 1. To protect and preserve the important historic, scenic, and cultural features of the Falmouth landscape and built environment, which are critical components of Falmouth's heritage and economy.

And, specifically for archaeological site preservation:

Policy 1. To protect and preserve the important historic, scenic, and cultural features of the Falmouth landscape and built environment, which are critical components of Falmouth's heritage and economy (Falmouth Local Conservation Plan 2005).

Policy 6. Where development is proposed on or adjacent to known archaeological sites or sites with high archaeological potential as identified by the Massachusetts Historical Commission or the Historical Commission during the review process, it shall be configured to maintain and/or enhance such resources where possible. A predevelopment investigation of such sites shall be required early in the site planning process to serve as a guide for layout of the development. Archaeological sites determined eligible for listing on the National Register of Historic Places shall be preserved and protected from disturbance (Falmouth Local



Conservation Plan 2005:).

The town also recognizes that existing laws and attitudes can conflict with the goals of historic and archaeological preservation. For example:

Over time, the town's zoning bylaw and subdivision regulations, special permit, variance, and appeals processes have undermined the historic character of the town by encouraging suburbanization and strip development. Some efforts are now being made to correct this with changes to the zoning bylaw, but a more effective change might be to include preservation and enhancement of community character and archaeological and scenic resources among the purposes of the zoning bylaws and other development review regulations (Falmouth Local Conservation Plan 2005).

To-date, a bylaw specifically protecting archaeological sites has not been implemented. The contact for the Falmouth Historical Commission is Sheryl Kozens-Long (508-495-7480), E-Mail: fhc@falmouthmass.us.

Marion. The town of Marion was the subject of an early community-wide archaeological reconnaissance survey conducted by Public Archaeology Laboratory, Inc. (PAL) (Binzen et al. 1998). This project also was conducted as a Survey and Planning Grant. The project was co-sponsored by the Sippican Historical Society because a historical commission does not exist in the town. Matching funds were provided by the Massachusetts Historical Commission. The town was provided with a report covering the archaeological potential of the town, as well as several maps showing high, moderate, and low archaeological potential. Maps were divided by Native American and European American site potential and topographic zones. It was recommended that the maps be used as planning documents to assess the archaeological potential of construction projects in order to avoid destruction of important archaeological sites. It was recommended that the town consider a town by-law that the Planning Board could use to request that development in high potential areas require an archaeological survey. The Planning Board would be the sole review organization for the town.

In 2010, there are no bylaws or ordinances that pertain to the protection of archaeological sites in the town, and the town clerk's office could remember no recent issues related to protection of archaeological sites.

The contact person is Judith Rosbe of the Sippican Historical Society (508) 748-1116).

Medfield. The Town of Medfield has a formal Archaeological Advisory Committee that functions within the Medfield Historical Commission. Through an established process, notice of building permits and other reviewed projects are sent to the various review committees of the town, including the Medfield Archaeological Advisory Committee. The committee reviews projects that may impact archaeological sites and refers them to the Massachusetts Historical Commission for comment (Simon and Bell 1998).

At the Town Meeting of April 1995, the Archaeological Advisory Committee was established and charged with producing a site potential map. The committee is allowed to review



development projects that fall within the mapped potential areas. If development occurs outside a sensitive area, there is no review. If proposed projects are likely to impact archaeological resources, the Archaeological Advisory Committee can establish an order of conditions governing the steps to be taken to protect them. The Committee can require that the project proponent conduct an archaeological survey prior to construction; there is no size threshold that triggers a survey. In one recent case, a private developer was asked to conduct an intensive (locational) archaeological survey. The Massachusetts Historical Commission was asked to provide a review of the archaeological scope of work. When a potentially significant site was found on the property, a site examination was recommended. The town opted to provide the funding for the second phase of archaeological survey. Thus far, if a private landowner is conducting a small-scale project, the Commission persuades the owner to watch for archaeological materials and, if necessary, dig test pits while the construction is ongoing. Members of the Archaeology Committee visit the site prior to construction to show the owner how to observe.

The jurisdiction of the Advisory Committee was approved in Town Meeting, but is a part of the Medfield Historical Commission. The Archaeology Committee functions within the Historical Commission and comes under the legislation governing the Commission. The Committee writes its own internal regulations. The Archaeological Committee conducts projects of archaeological interest. In 1996-1997, the town of Medfield provided matching funds for a Survey and Planning Grant that was awarded to the Public Archaeology Laboratory, Inc.. The purpose of the project was to formalize the potential map and provide guidance in managing the town's cultural resources.

Town bylaws related to archaeological sites were adopted, but were ineffective. A revised by-law is being developed that would allow a review proposed projects with zones of archaeological sensitivity, as indicated on the town sensitivity map. If a development would fall within an archaeologically sensitive zone, the project proponent would be required to provide for identification of sites, their evaluation, and to develop avoidance or mitigation measures.

In 1996-1997, the Public Archaeology Laboratory conducted a community-wide reconnaissance study for a Planning and Review project in Medfield under contract with the town (Ritchie 1977). The survey was conducted with matching funds from the Massachusetts Historical Commission. Four archaeologically sensitive areas were identified and put under an Archaeological Protection District. A demolition delay bylaw was adopted by the town to protect archaeological sites within the district (Ritchie 1997).

West Tisbury. The town of West Tisbury completed a community-wide archaeological reconnaissance survey in 1999 (submitted to the Commission at the same time as the Oak Bluffs study). The study was conducted by the University of Massachusetts Archaeological Services under a Survey and Planning Grant funded by the Martha's Vineyard Commission and the Massachusetts Historical Commission (Mulholland et al. 1999). It was recommended that in the course of its duties the Chilmark Planning Board should identify parcels that require review by the Chilmark Historical Commission. The key to the system is the use of two archaeological potential maps (one for historic European-American sites and the other for Native American sites) that were produced by the survey. The maps indicate areas of archaeological potential. As with the Chilmark study, the Native American potential map was made on the basis of the location of previously recorded sites, and a predictive model based on forest change, landform,



potential subsistence resources, and patterns evident in other parts of the region. The European American site potential map was based on distance to roads, streams (for hydropower industries), agriculturally suitable soils, population and commercial centers, and areas otherwise suitable for historic industry and commerce. If a project proponent proposes a construction project to be located within an area of moderate to high potential to contain sites, the West Tisbury Planning Board would send the project to the West Tisbury Historical Commission for review.

It was recommended that Chilmark use their own version of the process developed by the Martha's Vineyard Commission (MVC) in which projects of specific sizes and impact trigger historical review (see below). It was recommended that review not be redundant with the review of the MVC or other review processes (such as Historic District Commission, Massachusetts Historical Commission, or other state and federal agencies). The review processes now in place by these organizations provide consideration of archaeological and historic resources.

Today, neither the Historical Commission nor the Historic District Commission consider archaeological sites. The Historic District Commission is limited to a review of exterior modifications of historic structures. Archaeological surveys in the town may be triggered by the Wampanoag Tribe and the Martha's Vineyard Commission. However, the importance of archaeological sites to the town is reflected in the town's bylaws for open space:

5. 5-1 Conservation Value of Open Space. Land in the Special Overlay Districts and land identified as worthy of preservation in the Town's Open Space and Recreation Plan shall be deemed to be land of conservation value. If such land is protected as permanent open space, it shall be shown on the recorded plan and shall generally form contiguous blocks of one or more of the following:

The contact persons for the Chilmark Historical Commission are Jennifer Rand of the West Tisbury Selectmen's office (508-696-0102). The Historic District Commission contact is Sean Conley (508-693-6677).

Wayland. The town of Wayland has an informal system for avoiding damage to archaeological sites when threatened by development. At present there are no formal town by-laws or other regulations concerning archaeological resources. If construction in the vicinity of an archaeological site is reported, the Wayland Historical Commission will review the project. If the project is a small private development, the Historical Commission may monitor construction. If the site is a larger development, the Commission will seek the advice of the Massachusetts Historical Commission. The Wayland Commission does not prescribe archaeological surveys on its own.

Since 1983, the Wayland Historical Commission has been conducting excavations at the Sand Hill site, a prehistoric site within a town-owned gravel pit. The Historical Commission has provided a modest budget by the town to purchase equipment and determine radiocarbon dates. Space for curation of artifacts is provided in the town hall.

Wayland's zoning bylaws include consideration of preserving archaeological sites within Conservation Cluster Development Districts:



Chapter 301-2B Encourages the preservation of open land for conservation, agriculture, open space and recreational use and preserving historical and archaeological resources.

Chapter 198-1801. 1 For the purpose of promoting the more efficient use of land in harmony with its natural features; encouraging the preservation of open land for conservation, agriculture, open space and recreational use; *preserving historical and archaeological resources*; and protecting existing or potential municipal water supplies, all in accordance with the general intent of this Zoning Bylaw to protect and promote the health, safety, convenience and general welfare of the inhabitants of the Town of Wayland, an owner or owners of a tract of land within a Single Residence District, or an authorized agent or agents of such owner or owners, may submit an application for a special permit exempting such land from the lot area and frontage, yard, setback and width of lot requirements of Article 7.

A contact for the town of Wayland is Steve Curtin, Chair, at (508) 647-9870 or escurtin@comcast.net.

Cape Cod Commission. The Cape Cod Commission (CCC) is a regional commission that reviews projects determined to have regional impact. If CCC review is triggered through its checklist of review thresholds, sites or potential sites identified by the Massachusetts Historical Commission or a local historical commission may be protected from proposed construction or land alteration. Review by the Commission is triggered for:

- 1) a proposed demolition or substantial alteration that is to occur to a historical or archaeological site that is listed in the National or State Register of Historic Places, or site outside a historic district (the CCC does not review existing historic districts or sites that are already under the jurisdiction of a historic district commission or other review body);
- 2) construction or expansion of a bridge, ramp, road, or other vehicular access to a water body;
- 3) subdivisions or developments of 30 acres or more;
- 4) any development that will divide a parcel into 30 or more lots;
- 5) any commercial, health, recreational or educational development that includes new construction or use changes of 10,000 square feet or more on indoor facilities, or 40,000 square feet on outdoor facilities, and ;
- 6) any development providing transportation facilities.

The CCC 's Minimum Performance Standards related to archaeology are as follows:



7. 1. 3 Where development is proposed on or adjacent to prehistoric or historic archaeological sites as identified by the Massachusetts Historical Commission or local historic commissions, it shall be configured so as to maintain and/or enhance such resources where possible. A pre-development investigation of such sites shall be required before a final design proposal is submitted. This will minimize difficulties and expense should the site be of archaeological or historic importance.

The project proponent must include an Environmental Notification Plan (ENF) with the application. The application is considered incomplete by the CCC if not included. If the historical review is required, the CCC requests a review from the Massachusetts Historical Commission.

The contact person for the Cape Cod Commission is Sarah Korjeff (508-362-3828).

Martha's Vineyard Commission. There are no formal regulations concerning archaeology in any of the towns on Martha's Vineyard. However, the Martha's Vineyard Commission, the first regional commission formed in Massachusetts, has review over projects that reach a specific threshold. The Commission has as its mandate the provision of health, safety, and general welfare of Martha's Vineyard residents and visitors. Among the areas of interest covered by their "checklist standard" is the enhancement of historical and scientific values in light of developments of regional impact. Developments of regional impact concerning archaeological or historical resources include demolition of historic structures as determined by the Historical Commission in areas that are not already within a recognized historical district (and subsequently reviewed by a historic district commission), the Martha's Vineyard Camp Meeting Association, and in towns where no historical boundaries exist. Sites to be protected include those that are listed in the National and State Registers of Historic places. The Commission also considers any subdivision that is identified as having archaeological significance by any state, federal, or local agency (Standards and Criteria Pursuant to Section 12 of Chapter 831 of the Acts of 1977 as Amended).

Archaeological and historic resources are explicitly included in the Commission's checklist. There is a requirement that if there is a site of archaeological significance within a project area, the project must be referred to the Commission for review. The project is then referred to the Massachusetts Historical Commission. A survey can then be required prior to construction. The thresholds include:

- 1) developments which divide a parcel of contiguous ownership of 30 acres or more into six or more parcels;
- 2) any subdivision of 15 acres or more that was the result of earlier subdivision within eight years;
- 3) developments that divide land into ten or more lots;
- 4) any division of land in a business, commercial, or light industrial zone;
- 5) any subdivision on active farmland or land identified as prime agricultural land,



and;

6) any development of ten or more dwellings or rental rooms, or four or more businesses. Commercial developments triggering Commission review include new commercial construction of 2,000 square feet or more, additions or auxiliary buildings of 1,500 square feet or more, outdoor commercial space of 6,000 square feet or more, and change of use of floor space of 2,000 square feet or more. Certain piers or harbor facilities, public facilities of 2,000 square feet or greater, and transportation facilities also require review by the Commission.

Contact for the Martha's Vineyard Commission is Paul Foley (508-693-3453, ext 18).

Summary

All of the towns and commissions discussed above are far ahead of the hundreds of communities statewide that have no provision for protecting archaeological and historical resources. There are advantages and disadvantages to many of the systems. Towns with procedures that are not included in town regulations protect sites in an unsystematic, opportunistic manner. If a development is brought to the attention of the commission, there is some hope of protection. If not, nothing happens. There is no legal compliance involved and many resources are not protected. Towns that rely on local volunteers or landowners to monitor impacts to archaeological resources have similar shortcomings, unless the volunteers have the proper qualifications to recognize all forms of archaeological resources. On the positive side, in all of these situations the public is brought into the process in an informative and supportive manner.

The most effective processes are those used by the two regional commissions. A clear checklist is used to identify projects requiring archaeological and historical review. Once a review is necessary, the project is referred to the Massachusetts Historical Commission for review and recommendations. The MHC's established survey protocol and archaeological permit system ensure consistency and a high quality of results.



CHAPTER 9: RECOMMENDATIONS FOR AN ARCHAEOLOGICAL SITE PROTECTION PLAN IN GROTON

The Town of Groton is fortunate to contain a wide variety of archaeological sites, which offer a unique link between today's residents and the past inhabitants of the town. They include Native American sites, and historic period residential and industrial sites. In Groton, as in other Massachusetts towns, these sites are finite, fragile, and frequently endangered resources. The great majority of the land in Groton has not been professionally surveyed; in fact only four professional archaeological surveys have been conducted in the town. Thus, eligibility for listing in the National Register of Historic Places for most inventoried archaeological sites in the town is unknown. Final determination of eligibility would depend upon the results of future testing and research. It can be assumed that additional, significant, unrecorded Native American and European American archaeological sites exist in the town.

This chapter suggests the establishment an archaeological site protection program for Groton, and outlines a process whereby the consideration of archaeological resources can be integrated into the municipal review of construction permits. The intended result is not an archaeological survey for every project that will involve ground disturbance. Rather, it is to ensure that the town (through it's Commissions) is empowered to request surveys of areas considered archaeologically sensitive, in specific cases where state or federal regulations do not already require such survey. In specific instances where archaeological concerns exist, Groton regulatory organizations (hereafter called ROs) should refer construction permit applications to the Groton Planning Board (GPB), and/or Groton Historical Commission (GHC) for review. As appropriate, the GPB/GHC can then consult the Massachusetts Historical Commission (MHC) to determine whether archaeological survey is warranted, and to discuss the extent of any survey that is necessary.

The protection of Groton's archaeological heritage will be enhanced by the formulation of an archaeological site protection plan, and the adoption of town regulations, ordinances, or bylaws pertaining to the management of archaeological resources. Because a bylaw will depend on public support for its adoption and enforcement, it should reflect the historic preservation priorities of the Groton community. These priorities include the protection and investigation of archaeological resources associated with ancient Native American occupations in Groton and with Groton's settlement and historic period.

Permit applications for construction projects in Groton frequently are submitted to municipal regulatory organizations or state agencies for review and approval. These permits pertain to various undertakings, including highway construction, natural gas pipelines, sewer systems, residential subdivisions, athletic fields, and additions to private homes. Based on their scope and possible effects, some undertakings are reviewed at the municipal level, while others are reviewed by the state. In this chapter, construction undertakings are collectively referred to as "development actions" (borrowing the terminology of the National Park Service).

Any development action that entails ground disturbance in an archaeologically sensitive area has the potential to disturb important Native American or historical archaeological resources, or "sites." The public pays for some development actions, such as new schools, libraries, affordable housing, and municipal sewer systems, (at least in part). The permit applications for such



construction projects are reviewed by the state. Other development actions, such as gas pipelines, cell phone and telecommunications towers, and highway projects, are subject to federal permitting or review. In these instances, state and federal regulations require that archaeological resources in proposed impact areas be considered and that professional archaeological surveys be conducted if necessary. Federal agencies (such as the Army Corps of Engineers and the Federal Aviation Administration) and state agencies (such as the Massachusetts Highway Department) often review projects under legislation that requires compliance with cultural resource regulations.

The majority of development actions, however, are privately funded, located on private property, or designed to avoid the impacts to natural resources (such as wetlands) that can trigger federal or state review under NEPA, the National Historic Preservation Act, MEPA, Massachusetts General Laws Chapter 9, Sections 26-27C, or other regulations. In short, permit applications for such undertakings are reviewed only at the municipal level, by town regulatory organizations. Of course, the privately funded development actions in the latter category typically entail ground-disturbing activities that are equally likely to disturb archaeological resources. Consequently, municipalities that adopt bylaws to consider impacts to archaeological sites are better equipped to preserve and protect their cultural heritage, because archaeological surveys can be conducted in areas of concern to the community that would not otherwise be surveyed under state or federal regulations.

Archaeological Site Protection Program

An effective program to protect Groton's Native American and European American archaeological resources will require coordination between the GPB/GHC and the town's ROs, which may include the Building Commissioner, the Conservation Commission, the Department of Public Works, and the Zoning Board of Appeals.

The ROs review different types of proposed development actions. As part of the permit review process under the proposed program, the members of an RO would plot the location of a proposed development action on the archaeological potential maps of Groton that are provided in this report. If the development action is located within an area that contains known archaeological sites, or has high likelihood to contain unrecorded archaeological sites, the permit application should be referred to the GPB/GHC for review. In turn, the GPB/GHC could then, consult with the MHC to confirm the necessity for an archaeological survey of the proposed construction area. In the limited number of cases where archaeological resources are likely to be impacted, the GPB/GHC can request that the proponent of a development action sponsor an archaeological survey to avoid or minimize impacts to significant sites.

To be truly effective, the archaeological site protection program should result in the adoption of town-sanctioned bylaw that outlines the responsibilities of the GPB/GHC and the ROs and define their jurisdiction to review certain development actions during the planning and permitting phase. The regulations should clearly address the responsibility of the ROs to notify the GPB/GHC during the permitting stage of a development action, and should define the actions that the GPB/GHC is authorized to take. The GPB/GHC should be allowed to review any development action that is town-sponsored, or consists of private or commercial development that exceeds specified parameters of size and scope. These parameters should be determined according to the specific needs and concerns of the Groton community, and should be included



in a new town bylaw. Establishment of such a bylaw for archaeological resources would strengthen the town's ability to request that the proponent of a development action sponsor a professional survey, with the goal of avoiding or minimizing adverse impacts to the archaeological resources that are most valued by the Groton community. These include archaeological sites associated with Native American occupations and European sites occupied during the historic period.

If the GPB/GHC finds that an archaeological survey is merited prior to a particular development action, the GPB/GHC should consult the MHC to confirm the need for the survey, and obtain assistance regarding the scope of work to be performed by an archaeological consultant. The goal of an initial Phase 1 intensive (locational) archaeological survey would be to determine the presence or absence of significant archaeological resources in the area to be impacted by a proposed development action.

The suggested process for Groton's archaeological site protection program is summarized in a flow chart (Figure 9-1). The following sections of this chapter detail the various aspects of this process.

Initiation of Review. It would not be practical for the GPB/GHC to review all proposed ground-disturbing development actions that are submitted to town regulatory bodies. Multiple town commissions and boards annually receive many requests for permits for development actions that involve some form of land alteration. The ROs in Groton include the Planning Board, the Conservation Commission, the Building Inspector, the Sewer Department, the Department of Public Works, and the Zoning Board of Appeals. Procedures therefore should be established to allow these ROs to determine which development actions merit the review of the GPB/GHC. As part of its review process for any proposed development action under its purview, a Groton RO should determine whether the proposed development action is in an area of high archaeological potential, where important archaeological resources are likely to be impacted. This determination should be made by referring to the archaeological potential maps included in this report, to assess the likelihood that a proposed development action is located within an area of high archaeological potential. Locational parameters such as distance to water and location within an existing or proposed historic district should also be considered. It is likely that the majority of the proposed construction undertakings that are ultimately reviewed by the GPB/GHC will be referred to the GPB/GHC by the Planning Board.

Construction permit applications for other types of development actions will be reviewed by different ROs. Many development actions have the potential to impact archaeological resources. Occasionally construction is permitted in a wetland buffer zone if it will not have an adverse effect on the wetland. Such construction can destroy archaeological sites that often are found within wetland buffers. Development actions of this kind are usually reviewed by the Conservation Commission. Small road-widening projects are undertaken by the Department of Public Works. The Zoning Board of Appeals is asked to authorize development actions that require variances from zoning ordinances. Construction areas to be referred to the GPB/GHC for review are those that exceed the development size and scope parameters established by the Town. When the parameters are exceeded, the protection of archaeological resources must be considered.

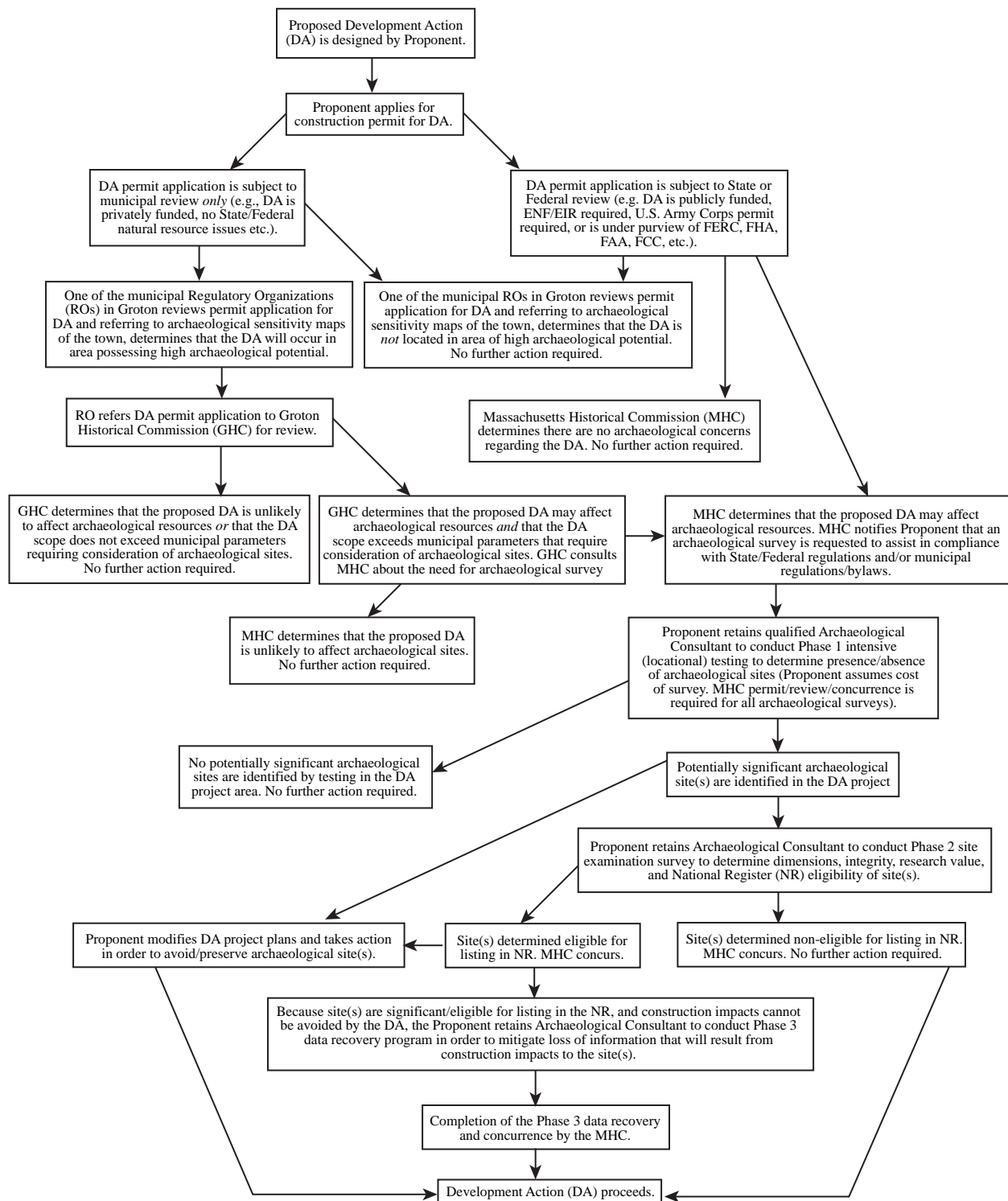
**SUGGESTED PROCESS FOR GROTON ARCHAEOLOGICAL SITE PROTECTION PROGRAM**

Figure 9-1. Flowchart showing site protection procedures suggested for Groton.



If archaeological concerns exist, the RO should then refer the permit application and project plans to the GPB/GHC so that the need for an archaeological survey can be confirmed and a request for survey can be submitted to the proponent of the development action.

Questions that the members of a Groton RO should ask when reviewing a construction permit application include:

Is the development action proposed in an area that possesses high potential to contain Native American or historical archaeological sites (determined by refereeing to the potential maps provided with this report)?

Is the proposed development action already under review by a state agency or a federal agency (which have their own requirements for archaeological survey)? Would review by the GPB/GHC be redundant?

If an archaeological site protection plan were adopted, undertakings that exceed specific parameters and disturb intact soil, or result in soil alteration in wetland buffer zones, would be sent to the GPB/GHC for review.

Regulatory Review Parameters. It will not be feasible to require archaeological surveys for all development actions that are proposed in Groton. As previously described, certain undertakings are reviewed by the state. Many more undertakings are reviewed only by the ROs in the town. The success of an archaeological site protection program depends on the support of the community. Because the cost of an archaeological survey is assumed by the proponent of a development action, it may be politically untenable to require a private landowner to sponsor a survey prior to a small undertaking such as the construction of a residential addition, outbuilding, or residential landscaping. These small projects are also very numerous, and it would be impractical for the GPB/GHC to review them all.

For an RO to determine whether a development action merits review by the GPB/GHC, parameters must be established that characterize each proposed development action according to its size, type and location. Ideally, these parameters or “thresholds” will be adopted as part of a bylaw for archaeological resources. When a proposed development exceeds one or more of the parameters during the RO review process, the RO should refer the permit application to the GPB/GHC for review.

The review parameters that would trigger a request for an archaeological survey should be formulated with the capabilities, resources, and priorities of the GPB/GHC and ROs in mind. If it is to enjoy continued public support, the archaeological site protection program should embody the historic preservation priorities of the community.

Some questions to consider when defining the parameters for a bylaw are:

What is the size of the proposed development action? How much acreage will be impacted by ground-disturbing activities? Suggested parameter: Undertakings that will disturb more than 1.0 acre of land in an area possessing high archaeological potential for Native American or historical archaeological sites should be reviewed by



the GPB/GHC, to determine if an archaeological survey is warranted.

Does the development action involve municipal construction or any form of public funding? (e. g. , a road realignment, a municipal well, a landfill or transfer station, cemetery expansion, park improvements, athletic fields, schools, libraries, etc.) Suggested parameter: All municipally sponsored development actions in areas of high archaeological potential should be reviewed by the GPB/GHC, if not already under review by the MHC.

In the case of residential construction, how many housing units are proposed? Suggested parameter: Proposed developments that will contain two or more single-family homes or condominiums in an area of high archaeological potential should be reviewed by the GPB/GHC.

Will the development action involve construction within 300 feet of a wetland, vernal pool, or watercourse? Suggested parameter: Undisturbed areas in Massachusetts that are located in proximity to freshwater sources often possess high potential to contain Native American sites and, to a lesser extent, historical sites such as sawmill foundations and dams. Any development action in Groton that will involve ground-disturbing activities within 300 feet of a wetland, vernal pool or watercourse in apparently undisturbed ground, should be reviewed by the GPB/GHC, if the area has not been developed previously and possesses high archaeological potential. (Note: The 100-foot buffer zone that surrounds a wetland is generally a no-construction zone unless specifically stated in the project plans. These areas often possess particularly high archaeological potential. However, permits in these cases are usually reviewed by the U. S. Army Corps of Engineers, and cultural resources must be taken into account under federal regulations.)

Have any Native American or historical archaeological sites been recorded previously in or near the location of the proposed development action? Suggested parameter: If a Native American or historical archaeological site has been recorded previously within 1/4 mile of a proposed development action, and the project area possesses high archaeological potential, the project should be reviewed by the GPB/GHC.

A procedure should be established whereby the Zoning Board of Appeals, Conservation Commission, Building Inspector, Department of Public Works, or other ROs that review permits for development actions will notify the GPB/GHC of proposed construction when parameters are exceeded, and refer the construction permit and plans to the GPB/GHC for review.

Determination of Archaeological Potential. This report includes archaeological potential maps that indicate which areas in Groton exhibit high potential to contain unrecorded Native American and European American historic archaeological sites. The maps are overlays on the USGS topographic quadrangle. They show the locations of Native American and European American historical sites, and also areas of high archaeological potential. This assessment is



based upon site locational criteria (e.g., well-drained soils, level terrain, proximity to a source of fresh water, etc.), as well the existence of previously recorded Native American or European American historical sites. The sites that have been recorded previously probably represent only a fraction of the sites that actually exist but are currently obscured by topsoil and vegetation, and have not been identified.

In the future, the potential maps (Figures 5-1, 5-2, 5-3, 5-4) should be updated as additional sites are identified by archaeological surveys or by members of the public. The maps are for public consumption. However, the actual site maps and site forms provided as a part of this project are confidential, and the ROs and GPB/GHC should restrict access to the maps to parties who demonstrate a sanctioned need. These maps should *not* be made available in the library to the *general public*, or to parties such as scouts, amateur archaeologists, and bottle collectors who damage sites through unregulated, unsystematic excavations. The casual or inadvertent disclosure of site locations often results in the destruction of sites and damage to the properties where they are located, through vandalism or unscrupulous artifact collection.

The archaeological potential maps should be referenced by the town ROs during the permit review process, to determine whether a proposed development action is located within an area possessing high archaeological potential for Native American or European American historical resources. If it is, the permit application should be referred to the GPB/GHC for review. The GPB/GHC can also use the maps to further define the need for an archaeological survey.

It is not recommended that archaeological site protection in Groton be the purview of a single RO that has a geographically limited jurisdiction. In some towns, for example, the conservation commission is solely responsible for protecting archaeological sites located within wetland areas. This coverage affords a better chance of protection to sites near wetlands, streams, and lakes, but sites that are not located near wetlands have no protection under such a system. In Groton, it would be more effective if all appropriate ROs integrate consideration of archaeological resources into their permit review process, and to refer specific permit applications to the GPB/GHC for review if archaeological concerns exist. The GPB/GHC will thus have the main review authority for preservation in the town, but will work with the other ROs to protect the archaeological resources that are located within their respective jurisdictions.

Recommending Archaeological Surveys. The development action should require no archaeological survey:

- 1) if the location of a proposed development action in Groton does not coincide with areas of high site potential on the potential maps.
- 2) if the development action will occur within an area that is previously disturbed or has low potential because of environmental factors (such as excessive slope, exposed bedrock, or wet ground). If the action falls within these parameters it will not be necessary to refer the project to the GPB/GHC.

However, if the proposed development action is located on undisturbed ground and is in a zone with high potential to contain sites, and exceeds one or more of the suggested review parameters, the RO should refer the permit application and plans to the GPB/GHC. The GPB/GHC should first consult the proponent of the development action to determine whether



project plans can be modified to avoid archaeologically sensitive areas or to avoid impacting known archaeological sites. If avoidance cannot be arranged during the planning phase, then the GPB/GHC should request comment from the MHC to confirm that an archaeological survey is merited. The MHC can confirm the necessity for an archaeological survey and assist the GPB/GHC in preparation of an appropriate scope of work. The archaeological survey should be conducted by a qualified archaeological consultant under permit from the MHC and must include a carefully considered research and sampling design.

The cost of conducting an archaeological survey is assumed by the proponent of the development action. As important as archaeological resources are, they often are neglected because the proponents of construction projects are averse to the perceived potential for delay and additional cost. Usually, these costs can be minimized if consideration of archaeological resources that are valued by the community is part of the planning stage for a development action. Ultimately, the community must weigh the demands and benefits of development against the need to protect valued archaeological resources. Project proponents need to know that the community places a priority on the appropriate treatment of its archaeological heritage. For this reason, it is helpful if a town adopts a bylaw that requires a project proponent to take archaeological resources into account and then sponsor a survey, if the development action exceeds specific parameters of size and scope.

Archaeological surveys in Massachusetts generally consist of:

- 1) a **Phase 1 intensive (locational) survey** that is designed to determine the presence or absence of possibly significant archaeological sites within a proposed construction area. In areas that are large, the background research portion of a site locational survey (called a reconnaissance, or Phase 1a) is useful in determining the need for subsurface testing.
- 2) If a site is identified by testing during an intensive survey, and is possibly eligible for the National Register of Historic Places, a **Phase 2 site examination archaeological survey** is often recommended. The site examination determines the boundaries of the site; assesses the significance, research value, and integrity of the site; and determines whether the site is eligible for inclusion in the State and National Registers of Historic Places. If the site is not eligible, the survey process ends.
- 3) If the site is eligible, recommendations are provided for protection of the site through avoidance, modification of construction plans, site preservation restrictions, or a Phase 3 **data recovery program**.

Data recovery is the final phase of survey, and occurs only when there is no other alternative. The data recovery phase is a comprehensive archaeological excavation that recovers a large sample of the data that make the site eligible for inclusion in the National and State Registers. Because of the large scale of most data recovery investigations, and the sophisticated analytical techniques employed, the cost is generally very high.

Avoidance of Archaeological Monitoring and “Salvage” Situations. Monitoring of construction activities by members of the GPB/GHC is not recommended as a common practice.



Monitoring is a last-ditch effort that usually does not protect sites, because the construction phase of the development action is already underway, and is actively in the process of disturbing archaeological contexts. Thus, the monitors find previously disturbed features and sites. Furthermore, once construction has commenced, it is very difficult to stop it. Halting a construction crew already under contract can be extremely expensive. If the stoppage is the result of locating an important archaeological site, time would be necessary to determine what steps must be taken to recover information, or to protect the site. If surveys are not conducted at the feasibility stage of a development action, and monitoring is substituted, it is possible that a highly significant site or unmarked human burials will be identified at an inopportune moment, requiring a costly (although temporary) suspension.

Establishment of Town Regulations and Bylaws. Formal, town-sanctioned regulations or bylaws are very important because they add legitimacy and strength to archaeological preservation efforts. Regulations should be modeled after those in use by the regional commissions on Cape Cod and Martha's Vineyard. These regional commissions were among the first to effectively include protection of cultural resources. An archaeological bylaw should be clear about the nature of review parameters, and should state which town ROs are responsible for notifying the GPB/GHC when a parameter is exceeded. The appropriate commissions and departments include the following: the Building Inspector, Zoning Board of Appeals, Conservation Commission, and Department of Public Works.

In Groton, any of these ROs should be able to prompt GPB/GHC review of a development action. The Planning Board and Zoning Board of Appeals are the logical organizations to identify large development actions that require GPB/GHC review. The Building Inspector is the logical trigger for smaller development actions. Parameters (as previously described) should be established to classify development actions by scope and type. The jurisdiction of the Planning Board and other protective governing bodies should not overlap. Rather, the GPB/GHC should review proposed development actions that are not the purview of any other agency or commission.

Overlap with Existing Laws and Protection Measures. To avoid redundancy, the GPB/GHC should not review proposed undertakings that by law are already subject to review by state agencies. The GPB/GHC would be included already in reviews by the MHC and should not duplicate the effort. The MHC conducts state review of development actions where sites are afforded protection under the Massachusetts Environmental Policy Act, the National Historic Preservation Act, and other regulations. Such development actions already require consideration for archaeological survey. Consequently, review by the GPB/GHC may be redundant in these instances. Highway construction conducted by the Massachusetts Highway Department comes under review of the Massachusetts Highway Staff Archaeologist and ultimately the MHC. In these instances, the Massachusetts Highway Department would contract with a qualified archaeological consultant to conduct an archaeological survey in advance of the development action.

In the planning stage of a Groton development action that is under review by the MHC, the GPB/GHC would be notified and its input would be sought. Generally, a letter requesting an archaeological survey is sent to the proponent of a development action, and a copy is forwarded to the local historical commission. The GPB/GHC can request a copy of any reports from



archaeological surveys conducted within the town. The source would be the agency or firm actually conducting the research. If conducted properly, any archaeological survey includes a notification of the local historical commission by the professional consultant conducting the survey. If the development action is conducted for a private firm, the MHC may include a request that a copy of the final report be provided to the GPB/GHC.

Education and Public Participation. The GPB/GHC, and perhaps in conjunction with the Groton Historical Society, should develop a public education program aimed at developing public appreciation for the importance of Native American and European American archaeological sites. The focus of the program should be to raise the consciousness of archaeological issues in the town. Education is one of the most cost-effective means of providing protection for sites. Appreciation of the importance of archaeological sites begins with the very young. Today's curriculum in elementary and secondary schools often includes archaeology and history. It is important for the GPB/GHC to establish a relationship with curriculum development personnel in the local schools to assist in the development of programs that incorporate the local Native American and historical heritage. Possible contributions might be lectures and school presentations, the development of text or displays to be used in the schools, and prizes for student development actions concerning archaeology and the protection of archaeological sites. Displays concerning archaeological site protection could be mounted at the town library and town hall. The interpretive portion of this survey should be used as a basis for themes of archaeological importance to be used in educational programs. Funding through grants is available which helps program development of this nature.

The GPB/GHC should regularly sponsor public presentations concerning the archaeology of the town and immediate vicinity, especially concerning successful preservation programs. Using the themes presented in the interpretive portion of this survey, walking tours should be established for use by the schools and the general public. There are many archaeology and history faculty members and graduate students who live in the area and are associated with universities and colleges in the area who could be asked to speak, especially in conjunction with Archaeology Week in October of each year. Information about Archaeology Week can be obtained from the MHC (617-727-8470). An artifact identification session is a popular addition to presentations, encouraging townspeople to bring artifacts for identification. Through such events, many previously unrecorded sites can be reported to the GPB/GHC and added to the site files maintained by the MHC. With increased public appreciation of archaeological sites, damage and looting may be reduced.

Conclusions and Management Recommendations

The Town of Groton contains a notable diversity of archaeological resources. These include sites occupied by Native Americans more than 8,000 years ago, as well as the homes of the men and women who lived in Groton in the earliest days of historic period settlement. The sites and the artifacts they contain offer a unique and immediate link to the past residents of the town. However, these archaeological resources are fragile and finite, where they have survived obliteration by natural and manmade forces.

In the future, the preservation of Groton's archaeological heritage will depend upon several variables:



- The importance of archaeological sites, and the centrality of the sites to the interpretation of Groton's history, must be recognized and appreciated by the town's residents and passed on to future generations. Fortunately, many people in the community are interested in preserving evidence of the past, in the form of historical buildings, historic districts, and archaeological sites. The Groton Historical Commission, the Groton Historical Society, and the Groton Public Library are all actively involved in historic preservation and education.
- The town should adopt a bylaw that codifies an archaeological site protection plan, in order to require consideration of possible archaeological resources in areas of high archaeological potential where new construction is proposed. The bylaw would pertain to construction projects not already being reviewed under the National Environmental Policy Act, the National Historic Preservation Act, or other federal and state regulations. The objective would be to identify, preserve, or appropriately investigate the significant archaeological sites that still exist in the town. Under an archaeological site protection plan, town regulatory organizations responsible for review of construction permit applications would consider the possibility for significant archaeological resources to be disturbed by proposed development actions that exceed specific parameters of scope and size, specified in the bylaw. If a development action exceeded specific parameters and would impact an archaeologically sensitive area, the regulatory organization would refer the permit application to the Groton Historical Commission for review. The GPB/GHC could then determine whether an archaeological survey was merited, and in consultation with the MHC would decide an appropriate scope of archaeological survey. In the long term, an archaeological site protection plan would help the Groton community to achieve a balance between the requirements of modern development and the need to preserve and protect the valuable archaeological heritage of the town. The GPB/GHC should continue its efforts to ensure that the maximum number of cultural resource management surveys is conducted, and the amount of survey will increase if a bylaw is adopted.
- Future archaeological research in Groton should not be limited only to cultural resource management surveys that are required for compliance purposes. While these investigations are important and produce valuable information, they generally are targeted at localized, arbitrary project areas (such as gas pipeline easements or small subdivisions), and thus are less likely to provide the level of insight into the past that is offered by research-oriented surveys that test hypotheses by conducting extensive excavation at a specific Native American or historical site, by sampling targeted locations across a broad area, or by synthesizing existing data obtained from a geographic sub-region. The latter category of hypothesis-testing archaeological survey is much less common, but can be undertaken by an archaeological field school, professors and graduate students, and other researchers.
- The inventory of archaeological sites in the town should be updated continuously as



additional sites are recorded and researched. This information should be added to the town and state archaeological site files. Archaeological sites that have not been recorded cannot be protected. The present reconnaissance survey has recorded numerous additional Native American and historical sites in Groton, but the inventory is not exhaustive. The archaeological potential map information, which may be incorporated into the town's GIS database, should be updated as new areas of disturbance or archaeological concern are identified.

- It is recommended that the community-wide archaeological reconnaissance survey report, site maps and site potential maps be kept in a secure location where they are easily accessible to members of the GPB/GHC, Planning Board and other parties that require site information for management purposes. Ideally, once that organization is fully staffed and has climate-controlled, secure storage, this would be a safe place to store the materials. In the meantime, the History Room at the Groton Library would be an excellent storage location.
- It is recommended that a modification copy of the Community-wide Archaeological Reconnaissance survey report be posted on the town's web site. Prior to this, a version will be produced that has no Native American or historic site locations. Both potential maps should also be posted. Prior to posting the report on the web site, a copy should be sent to the MHC for their review.





REFERENCES RESEARCHED AND CITED

- Adovasio, J.M., J.D. Gunn, J. Donahue, and R. Stuckenrath
1978 Meadowcroft Rockshelter, 1977: an overview. *American Antiquity* 43:632-651.
- Adovasio, J.M., J.D. Gunn, J. Donahue, R. Stuckenrath, J.E. Guilday, and K. Volman
1980 Yes Virginia, It Really Is That Old: A Reply to Haynes and Mead. *American Antiquity* 45: 588-595
- Anonymous
1856 *County Map of Groton*. On file at the Massachusetts Historical Commission, Boston, MA.
- 1847 *A Map of Groton, Shirley and Perrere*.
- Anthony, D.
1978 *The Archaeology of Worcester County: An Information Survey*. Institute for Conservation Archaeology Report 21. Peabody Museum, Harvard University, Cambridge.
- Ashborn, Frank D.
1944 *Peabody of Groton*. Coward McCann, Inc., New York.
- Barber, R.J.
1979 *A Summary and Analysis of Cultural Resource Information on the Continental Shelf from the Bay of Fundy to Cape Hatteras*. Vol. II: Archaeology and Paleontology. Institute for Conservation Archaeology, Peabody Museum, Harvard.
- Barnstable, Town of
2007 Town of Barnstable Comprehensive Plan. Town of Barnstable, Massachusetts.
- Beadeau, Michael, A. Bennett, T. Boland, E. Crowley, A. Forbes, M. Himes, M. Landry, A. Robinson, M. Schwartz, P. Weslowski
1989 *Historic Preservation in Groton: A Guide to Planning*. Prepared by the Boston University Preservation Studies Program, for the Groton Historic Districts Commission and the Groton Planning Board.
- Beers, F.W.
1875 *Atlas of Middlesex County*. F.W. Beers & Co., New York, NY.



Benton, Jr., J.

1909 *Early Census Making in Massachusetts 1643-1765 with a Reproduction of the Lost Census of 1765 (Recently Found) and Documents Relating Thereto*. The University Press, Cambridge, Massachusetts.

Bickford, W. and U. Dymon

1990 *An Atlas of Massachusetts River Systems, Environmental Designs for the Future*. Massachusetts Department of Fisheries, Wildlife & Environmental Law Enforcement. University of Massachusetts Press, Amherst.

Binzen, Timothy, Suzanne G. Cherau, and Kerrylynn Boire

1998 *Marion Community-Wide Reconnaissance Archaeological Survey: Marion, Massachusetts*. Massachusetts Historical Commission, Office of the Secretary of State, Boston, Massachusetts.

Bolian, C.E.

1980 *The Early and Middle Archaic of the Lakes Region, New Hampshire*. In *Early and Middle Archaic Cultures in the Northeast*, edited by D. R. Starbuck and C.E. Bolian. Occasional Publications in Northeastern Anthropology 7.

Boudreau, Jeff

2008 *A New England Typology of Native American Projectile Points*. Massachusetts Archaeological Society, Middleboro, Massachusetts.

Bourque, B.J.

1976 *The Turner Farm Site: A Preliminary Report*. *Man in the Northeast* 22: 21-30.

1995 *Diversity and Complexity in Prehistoric Maritime Societies: A Gulf of Maine Perspective*. Plenum, New York.

Boutwell, Francis Marion

1890 *People and Their Homes in Groton, Massachusetts in Older Times*. Available in Groton Public Library.

Bower, Beth Anne and Leonard Loparto

1984 *An Intensive Archaeological Survey of the Groton, Massachusetts Facilities Plan*. Report on file with the Massachusetts Historical Commission, Boston.

Bragdon, K.J.

1996 *Native Peoples of Southern New England, 1500-1650*. University of Oklahoma Press, Norman.

Braun, Esther K. and David P. Braun

1994 *The First Peoples of the Northeast*. Lincoln Historical Society, Lincoln, MA.



Brockman, C.F.

1986 *A Guide to Field Investigation, Trees of North America*. Golden Books, New York.

Bumstead, M.P.

1980 VT-CH-94: Vermont's Earliest Known Agricultural Experiment Station. *Man in the Northeast* 19:73-82.

Bunker, Victoria and Jane Potter

1988 Archeological Resource Study: Open Season Project, Tennessee Gas Pipeline Company, Pembroke, NH, ANE Segment 10. Report prepared for Stone and Webster Engineering Corporation, Boston, MA.

1989 Archeological Research Study: NOREX Project, Tennessee Gas Pipeline Company, Allenstown, Hooksett and Manchester, NH, Concord Lateral Section 9, Vol. 3. Report prepared for Stone and Webster Engineering Corporation, Boston, MA.

Butler, Caleb

1830 Plan of the Town of Groton.

1932 Plan of the Town of Groton.

1848 History of the Town of Groton, Including Pepperell and Shirley. T.R. Marvin, Boston.

Byers, D. S.

1954 Bull Brook - A Fluted Point Site in Ipswich, Massachusetts. *American Antiquity* 19:343-351.

1956 Additional Information on the Bull Brook Site, Massachusetts. *American Antiquity* 20(23):74-276.

Candee, Richard

2006 *Building Portsmouth*. Back Channel Press, Portsmouth, NH.

Carlson, C.C.

1986 Archival and Archaeological Research Report on the Configuration of the Seven Original 17th Century Praying Indian Towns of the Massachusetts Bay Colony. University of Massachusetts Archaeological Services, Amherst. Report on file with the Massachusetts Historical Commission, Boston.

Carlson, C.C., G.J. Armelagos, and A.L. Magennis

1992 Impact of Disease on the Precontact and Early Historic Populations of New England and the Maritimes. In *Disease and Demography in the Americas*, edited by J.W. Verano and D.H. Ubelaker, pp. 141-153. Smithsonian, Washington.



Carty, Frederick M., and Arthur E. Spiess

1992 The Neponset Paleoindian Site in Massachusetts. *Archaeology of Eastern North America* 20: 19-37.

Chilton, Elizabeth S.

2005 Farming and Social Complexity in the Northeast. In *North American Archaeology*, edited by Timothy R. Pauketat and Diana DiPaolo Loren, pp. 138-160.. Blackwell, Malden, Massachusetts.

Commonwealth of Massachusetts

1961 The Population of Massachusetts as determined by the Eighteenth Census of the United States. Wright and Potter, Boston.

Cross, J.R., and D. Doucette

1994 Middle Archaic Lithic Technology, Typology and Classification: A View from Annasnappet Pond, Massachusetts. Paper presented at the 21st Annual Meeting of the Eastern States Archaeological Federation, Albany.

Curran, M.L.

1987 The Spatial Organization of Paleoindian Populations in the Late Pleistocene of the Northeast. Ph.D. dissertation, Department of Anthropology, University of Massachusetts, Amherst.

Curran, M.L., and D.F. Dincauze

1977 Paleo-Indians and Paleo-Lakes: New Data from the Connecticut Drainage. *Annals of the New York Academy of Sciences* 288:333-348.

Custer, J.

1984 *Delaware Prehistoric Archaeology: An Ecological Approach*. University of Delaware, Newark.

Dalton, Ronald and Barbara Donohue

2003 Historic Assessment of Still Meadows, Groton, Massachusetts. Report on file with Milner Associates, Littleton, Massachusetts.

Deetz, James

1977 *In Small Things Forgotten: The Archaeology of Early American Life*. Anchor Press, Garden City, New York.

Dincauze, D.F.

1968 Cremation Cemeteries in Eastern Massachusetts. *Papers of the Peabody Museum of Archaeology and Ethnology* 59(1).

1974 An Introduction to Archaeology in the Greater Boston Area. *Archaeology of Eastern North America* 2:39-67.



(Dincauze, continued)

1975 The Late Archaic Period in Southern New England. *Arctic Anthropology* 12(2):23-34.

1976 *The Neville Site: 8,000 Years at Amoskeag*. Peabody Museum Monographs No. 4. Harvard University, Cambridge.

1990 A Capsule Prehistory of Southern New England. In *The Pequots in Southern New England: The Fall and Rise of an American Indian Nation*, edited by L. M. Hauptman and J. D. Wherry, pp. 19-32. University of Oklahoma Press, Norman, Oklahoma, and London.

Dincauze, D.F., and M.L. Curran

1984 Paleoindians as Flexible Generalists: An Ecological Perspective. Paper presented at the 24th Annual Meeting of the Eastern States Archaeological Federation, Hartford, Connecticut.

Dincauze, D.F., and M.T. Mulholland

1977 Early and Middle Archaic Site Distributions and Habitats in Southern New England. In *Amerinds and Their Paleoenvironments in Northeastern North America*, pp. 439-456. *Annals of the New York Academy of Sciences* 288.

Donohue, Barbara

2004 Site Examination Report on the East Groton Charcoaling Area (GRO-HA-12), Groton, Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.

Donohue, Barbara, and Martin G. Dudek

2006 Intensive (Locational) Survey for the Academy Hill Subdivision and Reconnaissance Survey for the Southern Entrance Road to the Academy Hill Subdivision, Groton, Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.

Donta, Christopher L.

2005 The Neponset Site, Locus 4: More Evidence of a Michaud-Neponset Phase Occupation. *Bulletin of the Massachusetts Archaeological Society* 66: 76-87.

Donta, Christopher L., Thomas L. Arcuti and Mitchell T. Mulholland

1996 Archaeological Reconnaissance Survey of Falmouth, Massachusetts. 211 pages. Massachusetts Historical Commission, Office of the Secretary of State, Boston, Massachusetts.

Doucette, Diana

2003 Unraveling Middle Archaic Expressions: A Multidisciplinary Approach Towards Feature and Material Culture Recognition in Southeastern New England. Doctoral Dissertation, Harvard University, Department of Anthropology.

2005 Reflections of the Middle Archaic: A View from Annasnappet Pond. *Bulletin of the Massachusetts Archaeological Society* 66: 22-33.



Doucette, Dianna L. and John R. Cross

1997 Annasnappet Pond Archaeological District: An Archaeological Data Recovery Program, North Carver, Massachusetts. Massachusetts Historical Commission, Office of the Secretary of State, Boston, Massachusetts.

Drake, Samuel Adams

1880 *History of Middlesex County*. Boston, MA. Copy available at Groton Public Library.

Dudek, Martin G.

2005 The Whortleberry Hill Site: An Early Holocene Camp in Dracut, MA. *Bulletin of the Archaeological Society of Massachusetts*, 66(1): 12-21.

Dwyer, Alison and Martha Pinello

1992 Exeter to Epping, NH, Route 101/51 Environmental Impact Statement, Technical Report: Archeological Survey. Report prepared for Preservation Company and Normandeau Associates, Inc.

Edens, Christopher, Leith Smith, Jane Carolan, and Michael Roberts

1990 Intensive Archaeological Survey of the Proposed East Groton Village, Groton, Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.

Eldridge, William, and Joseph Vaccaro

1952 The Bull Brook Site, Ipswich, Massachusetts. *Bulletin of the Massachusetts Archaeological Society* 13:39-43.

Elia, Ricardo, J., Douglas C. George, Candace Jenkins, Thomas F. Mahlstedt and Peter Stott

1986 New England/Hydro-Quebec II Transmission Facilities, Cultural Resources Survey, Volume 2: Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.

Elia, Ricardo J., and Alan E. Strauss

1987 Cultural Resources Survey of the Relocated Structure Locations for the Hydro-Quebec (Phase II) Project. Volume 2: Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.

Falmouth, Town of

2005 Falmouth Local Conservation Plan. Town of Falmouth, Massachusetts.

Farrow, Lee, and Patricia Weslowski

1989 A Predictive Analysis of the Archaeological resources in Groton, Massachusetts. Boston University Preservation Studies Program.

Fessenden, F.W., J. Ayers, and S.L. Dean

1975 A Summary of the Geology of Eastern Massachusetts. Report prepared for the U.S. Army Corps of Engineers, New England Division.



Fiedel, S.J.

1999 Older Than We Thought: Implications of Corrected Dates for Paleoindians. *American Antiquity* 64:95-115.

Filios, Elena L.

1990 Thresholds to Group Mobility Among Hunter-Gatherers: An Archaeological Example from Southern New England. Ph.D. dissertation, Department of Anthropology, University of Massachusetts, Amherst. University Microfilms, Ann Arbor.

Forrest, Daniel T.

1999a Beyond Presence and Absence: Establishing Diversity in Connecticut's Early Holocene Archaeological Record. *Bulletin of the Archaeological Society of Connecticut* 62: 79-99.

1999b Preliminary Results from Recent Excavations at the Sandy Hill Site. Paper presented at the 39th Annual Meeting of the Northeastern Anthropological Association, Rhode Island College, March 20, 1999.

Fuller, Caleb

1830 *A Plan of the Town of Groton*. On file at the Massachusetts Historical Commission, Boston, MA.

Funk, Robert E.

1972 Early Man in the Northeast and the Late-Glacial Environment. *Man in the Northeast* 4:7-39).

1973 The West Athens Hill Site. In *Aboriginal Settlement Patterns in the Northeast*, edited by W. Ritchie and R. Funk pp. 9-36.. New York State Museum and Science Service Memoir 20.

1976 Recent Contributions to Hudson Valley Prehistory. New York State Museum and Science Service Memoir 22. Albany.

Gale, Jillian

2006 Strategic Consumption: Archaeological Evidence for Costly Signaling Among Enslaved Men and Women in the 18th Century Chesapeake. Presentation at the Society for American Archaeology, San Juan, Puerto Rico.

Galvin, William Francis

1997 *Historical Data Relating to Counties, Cities and Towns in Massachusetts*. The New England Historic Genealogical Society, MA.

Garvin, Donna-Belle and James L. Garvin

1988 *Road North of Boston: New Hampshire Taverns and Turnpikes, 1700-1900*. New Hampshire Historical Society, Concord, NH.



Goddard, I.

1978 Eastern Algonquian Languages. In *Handbook of North American Indians, Northeast*, vol. 15, edited by B. Trigger, pp. 70-77.. Smithsonian, Washington.

Goddard, I. and K.J. Bragdon

1988 *Native Writings in Massachusetts*. American Philosophical Society, Philadelphia.

Gookin, D.

1970 *Historical Collections of the Indians of New England; of their several nations, numbers, customs, manners, religion and government, before the English planted there*. With notes by Jeffrey H. Fiske. Towtaid, New York.

Green, Samuel Abbott, M.D.

1887 *Groton Historical Series: A Collection of Papers Relating to the History of the Town of Groton, Massachusetts*. University Press. John Wilson and Son, Cambridge.

1890 *Groton*. In *History of Middlesex County, Massachusetts, with Biographical Sketches of Many of Its Pioneers and Prominent Men*. Volume II. By D. Hamilton Hurd. J.W. Lewis & Co., Philadelphia, PA.

1912 *Natural History and Topography of Groton, Massachusetts*. Groton.

Grimes, John R.

1979 A New Look at Bull Brook. *Anthropology* 3(1-2):109-130.

Grimes, John R., William Eldridge, Beth L. Grimes, A. Vaccaro, F. Vaccaro, J. Vaccaro, N. Vaccaro, and A. Orsini

1984 Bull Brook II. *Archaeology of Eastern North America* 12: 159-183.

Groton Community Preservation Committee

2009 Groton Community Preservation Plan.

(http://townofgroton.org/xml/town/community_preservation_committee/Groton%20Community%20Preservation%20Plan%202009.pdf, accessed 1/2010).

Groton Historical Commission

2006 Communitywide Preservation Project. Five Volumes. Funded by the Community Preservation Act.

Harrington, Faith

1986 Power, Politics, Wine Stems, and Wig Curlers: The Archaeology of the Joseph Sherburne Houselot. Report on file at Strawberry Banke Museum, Portsmouth, NH.

Haynes, C.V.

1980 The Clovis Culture. *Canadian Journal of Anthropology* 1:115-121.



Haynes, C.V., D.J. Donahue, A.J.T. Jull, and T.H. Zabel

1984 Application of Accelerator Dating to Fluted Point Paleoindian Sites. *Archaeology of Eastern North America* 12:184-191.

Hayward, J.

1857 *Gazetteer of Massachusetts*. Second edition. Otis Clapp Publisher. Boston, MA.

Heitert, Kristen, Jennifer Macpherson, and A. Peter Mair, II

2001 Intensive (Locational) Archaeological Survey: New Groton Dunstable Regional High School Casella Property, Groton, Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.

Herbster, Holly and Suzanne G. Cherau

2002 Archaeological Reconnaissance Survey, Town of Aquinnah, Martha's Vineyard, Massachusetts. Massachusetts Historical Commission, Office of the Secretary of State, Boston, Massachusetts.

Hoffman, Curtiss and Adrienne Edwards

2002 The SuAsCo Watershed Archaeological Inventory Project: Exploring The Cultural Resources of a Suburban Area.

Hoyt, Edwin P.

1968 *The Peabody Influence*. Dodd, Mead & Co., New York.

Hubka, Thomas C.

1984 *Big House, Little House, Back House, Barn: The Connected Farm Buildings of New England*. University Press of New England, Hanover, NH.

Jochim, M.A.

1976 *Hunter-Gatherer Subsistence and Settlement: A Predictive Model*. Academic Press, New York.

Johnson, Eric S.

1993 Bifurcate Base Projectile Points in Eastern and Central Massachusetts: Distribution and Raw Materials. *Bulletin of the Massachusetts Archaeological Society* 54:46-55.

Johnson, Eric S. and Thomas F. Mahlstedt

1984 Prehistoric Collections in Massachusetts: The William Ellsworth Collection, Petersham, Massachusetts. Massachusetts Historical Commission, Boston.

Johnson, Frederick, editor

1949 The Boylston Street Fishweir II: A Study of the Geology, Palaeobotany, and Biology of a Site on Stuart Street in the Back Bay District of Boston, Massachusetts. Papers of the Robert S. Peabody Foundation for Archaeology No. 4(1), Andover, MA.



Johnson, Sanford

2006 Groton Historical Commission, Communitywide Preservation Project. Groton, Massachusetts.

Jones, Brian D. and Daniel T. Forrest

2003 Life in a Postglacial Landscape: Settlement-Subsistence Change During the Pleistocene-Holocene Transition in Southern New England. In *Geoarchaeology of Landscapes in the Glaciated Northeast*, edited by D. L. Cremeens and J. P. Hart. New York State Museum Bulletin No. 497. The University of the State of New York, Albany.

Kenny, Kathleen M., James B. Petersen, Ph.D., John G. Crock, Ph.D., Geoffrey A. Mandel and Chris K. Slesar

2003 Life and Death in the Northeast Kingdom: Archaeology and History at the Old Burial Ground in St. Johnsbury, Vermont, Ca. 1790-1853. Consulting Archaeology Program, University of Vermont, Report No. 303. Burlington, Vermont.

Lacy, David M. and Sheila Charles

2000 "Relics & Ruins" at Aldrichville. *Journal of Vermont Archaeology*, Volume 3. Vermont Archaeological Society, Burlington, VT.

Lightfoot, K.G.

1985 Shell Midden Diversity: A Case Example from Coastal New York. *North American Archaeologist* 6:289-324.

Lothrop, Welcome

1858 Plan of Simeon Ames Farm, July 1, 1858.

Luedtke, Barbara E.

1980 The Calf Island Site and the Late Prehistoric Period in Boston Harbor. *Man in the Northeast* 20: 25-76.

1985 The Camp at the Bend in the River: Prehistory at the Shattuck Farm Site. Massachusetts Historical Commission, Boston.

1988 Where are the Late Woodland Villages in Eastern Massachusetts? *Bulletin of the Massachusetts Archaeological Society* 49(2):58-65.

Lull, Howard W.

1968 A Forest Atlas of the Northeast. United States Department of Agriculture, Northeast Forest Experiment Station, Upper Darby, Pennsylvania.

Lynch, Thomas F.

1990 Glacial-Age Man in South America? A Critical Review. *American Antiquity* 55:12-36.



Massachusetts Historical Commission (MHC)

1980a MHC Reconnaissance Survey Report: Groton. Massachusetts Historical Commission, Boston, Massachusetts.

1980b Cultural Resources in Massachusetts: A Model for Management. Massachusetts Historical Commission, Boston.

Various dates. Archaeological site forms on file with the Massachusetts Historical Commission, Boston.

May, Virginia A.

1955 *Tercentenary, 1655*. Groton, Massachusetts.

1976 *A Plantation Called Petapawag: Some notes on the history of Groton, Massachusetts*. Groton Historical Society, Groton, MA.

McArdle, Alan

1980 Phase I and II, Archaeological and Historic Surveys and Preparation of an Interpretive Plan for Moore State Park, Paxton, Massachusetts. Institute of Conservation Archaeology, Harvard University, Cambridge, MA. Report submitted to Department of Environmental Management, Boston, MA.

McGhee, R., and J.A. Tuck

1975 An Archaic Sequence from the Strait of Belle Isle, Labrador. Archaeological Survey of Canada, paper no. 34. National Museum of Man Mercury Series, Ottawa.

McIntyre, W. G., and Morgan, J. P.

1963 Recent Geomorphic History of Plum Island, Massachusetts. and Adjacent Coasts. Baton Rouge, Louisiana State University, Coastal Studies, No. 8.

McManamon, F.P.

1984 Chapters in the Archaeology of Cape Cod I: results of the Cape Cod National Seashore Archaeological Survey 1979-1981. National Park Service, Boston.

1990 A Regional Perspective on Assessing the Significance of Historic Period Sites. *Historical Archaeology* 24(2):14-22.

Meltzer, David J.

1989 Why Don't We Know When the First People Came to North America? *American Antiquity* 54:471-490.

Mulholland, J.A.

1981 *A History of Metals in Colonial America*. University of Alabama Press, Alabama.



Mulholland, M.T.

1984 Patterns of Change in Prehistoric Southern New England: A Regional Approach. Ph.D. dissertation. Department of Anthropology, University of Massachusetts, Amherst.

1988 Territoriality and Horticulture, A Perspective for Prehistoric Southern New England. In *Holocene Human Ecology in Northeastern North America*, edited by G.P. Nicholas, pp. 137-166. Academic Press, New York.

Mulholland, Mitchell T., Timothy Binzen, and Christopher L. Donta

1999 Community-wide Archaeological Reconnaissance Survey of West Tisbury, Massachusetts. Massachusetts Historical Commission, Office of the Secretary of State, Boston, Massachusetts.

Mulholland, Mitchell T., Christopher L. Donta, and Thomas L. Arcuti

1998 Community-wide Archaeological Reconnaissance Survey of Chilmark, Massachusetts. Massachusetts Historical Commission, Office of the Secretary of State, Boston, Massachusetts.

Murray, Barbara with Deborah E. Johnson and Jayme Kulesz (eds.)

2005 *Groton at 350: The History of a Massachusetts Town, 1655-2005*. The Town of Groton, Groton, Massachusetts.

Muzzey, Elizabeth

2003 NH Division of Historical Resources Determination of Eligibility for the Goodchild Tenement/Dupont House, 69 Plaistow Road, Plaistow, NH. New Hampshire Division of Historical Resources, Concord, NH.

Nason, E.

1874 *A Gazetteer of the State of Massachusetts*. B.B. Russell, Boston.

National Park Service

1983 Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Federal Register 48(190). National Park Service, Department of the Interior, Washington, D.C.

Office of Public Archaeology (OPA)

1986 *New England/Hydro Quebec Phase II Transmission Facilities: Cultural Resources Survey*. Boston University.

O'Steen, Lisa D.

1989 Cultural Resource Literature and Research Review for the Berkshire Mainline Branch of the Champlain Gas Pipeline Corridor: Vermont and Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.



Peragallo, T.A.

2009 Soil Survey of Middlesex County, Massachusetts. USDA, Soil Conservation Service, Washington.

Petersen, James B. and D. E. Putnam

1992 Early Holocene Occupation in the Central Gulf of Maine Region. In *Early Holocene Occupation in Northern New England*, edited by B. S. Robinson, J. B. Petersen, and A. K. Robinson, pp. 13-61. Occasional Publications in Maine Archaeology No. 9, Augusta.

Potter, Jane

1994 New Hampshire's Landscape and Environment. *The New Hampshire Archeologist* 33/34:9-19.

Prescott, Oliver, Jr.

1794 Plan of the Towns of Groton, Pepperell, and Shirley, Massachusetts. Copy available at the Massachusetts Archives, Boston.

Ritchie, W.A.

1965 The Small Stemmed Point In New England. *Pennsylvania Archaeologist* 35:134- 138.

1969 *The Archaeology of New York State*. Second edition. Natural History Press, Garden City, New York.

1971 The Archaic in New York. *New York State Archaeological Association Bulletin* 52:2-12.

1980 *The Archaeology of New York State*. Second edition. Natural History Press, Garden City NY.

Ritchie, W.A., and R.E. Funk

1971 Evidence for Early Archaic Occupations on Staten Island. *Pennsylvania Archaeologist* 41(3): 45-59.

1973 *Aboriginal Settlement Patterns in the Northeast*. New York State Museum and Science Service Memoir 20.

Ritchie, Duncan

1977 Cultural Resource Survey: Town of Medfield, MA. Massachusetts Historical Commission, Office of the Secretary of State, Boston, Massachusetts.

Ritchie, Duncan, Marsha K. King, Christy Vogt, and Patricia Fragola

1990 *Archaeological Investigations of Minuteman National Historical Park, col. II: An Estimation Approach to Prehistoric Sites*. Cultural Resources Management Study no. 23. National Park Service, North Atlantic Regional Office, Boston.



Roberts, Michael

2010 *In Search of John Tinker*. Groton Historical Society Newsletter, 2010. Groton, Massachusetts.

Robbins, M.

1967 The Titicut Site. *Bulletin of the Massachusetts Archaeological Society* 28(3+4): 1-10.

1980 *Wapanucket*. Massachusetts Archaeological Society, Attleboro, Massachusetts.

Robinson, Brian S.

1992 Early and Middle Archaic Period Occupation in the Gulf of Maine Region: Mortuary and Technological Patterning. In *Early Holocene Occupation in Northern New England*, edited by B. S. Robinson, J. B. Petersen, and A. K. Robinson, pp. 63-116. Occasional Publications in Maine Archaeology No. 9, Augusta.

Robinson, Brian and Charles Bolian

1987 A Preliminary Report on the Rock's Road Site (Seabrook Station): A Late Archaic to Contact Period Occupation in Seabrook, New Hampshire. *The New Hampshire Archeologist* 28(1):19-51.

Robinson, B.S. and J.B. Petersen

1993 Perceptions of Marginality: the Case of the Early Holocene in Northern New England. *Northeast Anthropology* 46:61-75.

Ruckstuhl, Charles Emil

2001 *Forgotten Tales of Groton 1676-1941*. Charles Ruckstuhl Co., Groton, MA.

Russell, Howard S.

1982 *A Long, Deep Furrow, Three Centuries Of Farming In New England*. Abridged version, original edition published 1976. University Press of New England, Hanover, NH.

Salisbury, N.

1982 *Manitou and Providence: Indians, Europeans, and the Making of New England, 1500–1643*. Oxford University Press, New York.

Salwen, B.

1978 Indians of Southern New England and Long Island: Early Period. In *Handbook of North American Indians, Northeast*, vol. 15,. edited by B. Trigger pp. 160-176. Smithsonian, Washington, D.C..

Sammons, Mark and Valerie Cunningham

2004 *Black Portsmouth: Three Centuries of African-American Heritage*. University Press of New Hampshire, Portsmouth, New Hampshire.



- Sanford, R. D. Huffer, N. Huffer, T. Neumann, G. Peebles, M. Butera, and D. Lacy
1994 *Stonewalls and Cellarholes: A Guide for Landowners on Historic Features and Landscapes in Vermont's Forests*. Vermont Agency of Natural Resources, Waterbury, VT.
- Sanger, David
1973 *Cow Point: An Archaic Cemetery in New Brunswick*. Mercury Series, Archaeological Survey of Canada, no. 12. National Museums of Canada, Ottawa.
- Simon, Brona and Edward Bell
1998 *Community Archaeology: Working with Local Governments*. Massachusetts Historical Commission, Boston, MA
- Simmons, W.S.
1986 *Spirit of the New England Tribes: Indian History and Folklore, 1620-1984*. University Press of New England, Hanover NH.
- Skelly, Christopher
2003 *Preservation Through Bylaws and Ordinances*. Massachusetts Historical Commission, Office of the Secretary of State, Boston, MA.
- Smith, J.
1614 Map of New England. Reproduced in Deetz, J. and P. Deetz 2000, *The Times of Their Lives: Life, Love and Death in Plymouth Colony*. W.H. Freeman and Company, New York.
- Snow, D.
1980 *The Archaeology of New England*. Academic Press, New York.
- Somes, Dana
1930 *The Tercentenary Map of the Town of Groton, Massachusetts*. Groton Historical Society, Groton, MA.
- Spence, M.W., and W.A. Fox
1986 The Early Woodland Occupations of Southern Ontario. In *Early Woodland Archaeology*, edited by K.B. Farnsworth and T.E. Emerson, pp. 4-46, Center for American Archaeology, Kampsville.
- Spiess, A.E., and D. Wilson
1989 Paleoindian Lithic Distribution in the New England-Maritimes Region. In *Eastern Paleoindian Lithic Resource Use*, edited by C.J. Ellis and J.C. Lothrop pp. 75-97. Westview Press, Boulder, Colorado.
- Spiess, Arthur E., Deborah Brush Wilson, and James Bradley
1998 Paleoindian occupation in the New England-Maritimes region: Beyond cultural ecology. *Archaeology of Eastern North America* 26:201-264.



Strauss, Alan E. and Brendon J. McDermott

1990 Intensive Archaeological Survey of the Proposed Access Roads, Laydown Areas, Relocated Structures and Timber Clearing for the New England/Hydro-Quebec Phase II Transmission Line Facilities. Volume 2: Massachusetts. Report on file with the Massachusetts Historical Commission, Boston.

Taylor, Marla

2007 Slavery in Strawberry Banke Guided Walking Tour. Strawberry Banke Museum, Portsmouth, NH.

Taylor, William B.

1976 A Bifurcated Point Concentration. *Bulletin of the Massachusetts Archaeological Society* 37(3-4): 36-41.

Thomas, Peter A.

1979 In the Maelstrom of Change: the Indian Trade and Cultural Process in the Middle Connecticut River Valley, 1635-1665. Ph.D. dissertation, Department of Anthropology, University of Massachusetts, Amherst.

Thorbahn, Peter

1988 Where are the Late Woodland Villages in Southern New England? *Bulletin of the Massachusetts Archaeological Society* 49 (2): 46-57.

Tuck, J.A.

1976 *Newfoundland and Labrador Prehistory*. National Museums of Canada, Ottawa.

United States Geological Survey

1893 Lowell quadrangle, 15-minute topographic map. The Survey, Reston, Virginia.
1917 Groton quadrangle, 15-minute topographic map. The Survey, Reston, Virginia.
1939 Ayer quadrangle, 7.5-minute topographic map. The Survey, Reston, Virginia.
1939 Shirley quadrangle, 7.5-minute topographic map. The Survey, Reston, Virginia.
1941 Tyngsborough quadrangle, 7.5-minute topographic map. The Survey, Reston, Virginia.
1944 Pepperell quadrangle, 7.5-minute topographic map. The Survey, Reston, Virginia.
1944 Townsend quadrangle, 7.5-minute topographic map. The Survey, Reston, Virginia.

Useem, John

1942 Changing Economy and Rural Society in Massachusetts. In *Agricultural History Volume 16*, edited by Everett E. Edwards. AMS Reprint Company, New York.

Vermont Division for Historic Preservation (VDHP)

1990 *Vermont Historic Preservation Plan: Our Agricultural Heritage*. Vermont Division for Historic Preservation, Montpelier, Vermont.



Wall, Suzanne, g. Nelson Eby, and Eugene Winters

2004 Geoarchaeological Traverse: Soapstone, Clay and Bog Iron in Andover, Middleton, Danvers and Saugus, Massachusetts. In Guidebook to Field Trips from Boston, Massachusetts to Saco Bay, Maine edited by Hanson, L. p. 257-276. New England Intercollegiate Geological Conference, Salem, Massachusetts.

http://faculty.uml.edu/nelson_eby/Field%20Trip%20guides/Wall%20Geoarchaeology%20NIEGC.pdf, accessed 2/13/2010.

Walling, H.F.

1856 *Map of Groton*. Atlas of Middlesex County, Massachusetts.

Walker, George H.

1889 *Map of the Town of Groton*. Atlas of Middlesex County, Massachusetts. Geo. H. Walker & Co., Boston.

Ward, Barbara McLean

2002 *The Moffatt-Ladd House and Garden. Cross-Grained and Wily Waters*. W. Jeffrey Bolster, Editor. Peter E. Randall Publisher, Portsmouth, NH. Pages 84-85.

Whiton (no initials)

1849 Map of Groton.

Wilkie, R., and J. Tager

1991 *Historical Atlas of Massachusetts*. University of Massachusetts Press, Amherst, Massachusetts.

Wilson, Harold Fisher

1967 *Hill Country of Northern New England: Its Social and Economic History*. AMS Press, Inc., New York.

Yesner, D.R.

1988 Subsistence and Diet in North-Temperate Coastal Hunter-Gatherers: Evidence from the Moshier Island Burial Site, Southwestern Maine. In Diet and Subsistence: Current Archaeological Perspectives, edited by B.V. Kennedy and G.M. LeMoine, pp. 207-226. Proceedings of the 18th Annual Chacmool Conference, Department of Archaeology, University of Calgary.

Websites:

http://www.nashuariverwatershed.org/5yr_plan/subbasins/james.html