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Cultural Landscape Report for Sagamore Hill National Historic Site

Volume II: Treatment

"The house stands right on the top of the hill, separated by fields and belts of woodland from all other houses, and looks out over the bay and the Sound."

Theodore Roosevelt,
An Autobiography, 328.

CULTURAL LANDSCAPE REPORT FOR SAGAMORE HILL NATIONAL HISTORIC SITE

OYSTER BAY, NEW YORK

VOLUME II

TREATMENT

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The Olmsted Center for Landscape Preservation promotes the stewardship of significant landscapes through research, planning, and sustainable preservation maintenance. The Center accomplishes its mission in collaboration with a network of partners including national parks, universities, government agencies, and private nonprofit organizations. Techniques and principles of preservation practice are made available through training and publications.

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Cover Photo: View across West Lawn of the Theodore Roosevelt Home, 2004, Charles Markis, Sagamore Hill National Historic Site

Title Page: Theodore and Archibald Roosevelt under the vine-covered porte-cochere, 1912. From *Roosevelt at Home*, Roosevelt Memorial Association, Inc.

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FOREWORD

This Cultural Landscape Report Treatment Plan update is a critical management document for a Presidential site whose cultural landscape is arguably as important as the buildings and collections contained within them. Theodore Roosevelt loved Sagamore Hill and used and appreciated every aspect of his working farm. Whether riding his horses through the fields, watching birds in the orchard, chopping trees to save his water view, or leading the children on "point to point walks" at the beach, the grounds were always an important part of family life at Sagamore Hill.

This updated treatment plan builds on the site's 1995 Cultural Landscape Report and the original treatment plan completed in 1998. The goal in updating the plan was to ensure that the cultural landscape recommendations in the 2008 General Management Plan are clearly integrated into the park management program. The plan details and explains those recommendations; and incorporates new historical information and photographs discovered over the last ten years. It provides detailed mapping and architectural drawings to guide the implementation of the recommendations.

This treatment plan is an invaluable resource for park staff and the National Park Service as we work toward the implementation of the General Management Plan's recommendations over the next 15-20 years. I thank the talented team at the Olmsted Center for Landscape Preservation and especially Tim Layton, ASLA for his quality work in producing this plan; and the site staff and volunteers who assisted him.

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This report represents a collaborative effort between the Olmsted Center for Landscape Preservation and Sagamore Hill National Historic Site. At the Olmsted Center Rumika Chaudhry, Student Conservation Associate, and Margie Coffin Brown, Senior Project Manager, conducted an initial review with park staff to identify new treatment tasks and tasks requiring an update to align with Sagamore Hill's General Management Plan. Timothy W. Layton, Historical Landscape Architect, served as lead author with guidance and contributions from Margie Coffin Brown. Robert Page, Director, provided project oversight and reviewed draft documents. The Olmsted Center's preservation maintenance team including Charlie Pepper, Deputy Director, Dan McCarthy, Preservation Arborist, and Jamie McGuane, Preservation Arborist, provided treatment recommendations in the context of current best management practices in landscape maintenance.

At Sagamore Hill National Historic Site, Thomas Ross, Superintendent, and Amy Verone, Curator, participated in the formulation, coordination, and review of this project. Eric Witzke, Chief of Maintenance, Scott Gurney, Natural Resources Interpretative Ranger, and Bo Stein, Maintenance Mechanic, assisted in identifying treatment tasks, coordinated on-site documentation, and reviewed draft documents. Mark Koziol, Museum Technician, provided digital copies of images from the Sagamore Hill collection and Charles Markis, former Chief of Interpretation, supplied the cover photograph.

Betsy Lyman and Brian McDonnell, Northeast Exotic Plant Management Team, and Sheila Colwell, Senior Natural Resource Program Manager, Northeast Region, coordinated management of invasive non-native species at Sagamore Hill with the treatment recommendations. In particular, Betsy Lyman proposed a mixture of native warm season grasses and forbs and reviewed the selections to integrate reseeding efforts with the larger goal of rehabilitating the cultural landscape.

The foundation for this report was prepared by the research, analysis, and recommendations authored by Regina M. Bellavia and George W. Curry in the *Cultural Landscape Report for Sagamore Hill National Historic Site* (1995) and the Volume 2 *Treatment Recommendations and Implementation Plan* (1998) authored by Regina M. Bellavia and David L. Uschold.

INTRODUCTION

Sagamore Hill National Historic Site preserves the home and associated cultural resources of Theodore Roosevelt, the twenty-sixth President of the United States. Located in the Village of Cove Neck, within the Town of Oyster Bay in New York, Sagamore Hill is situated on one of the highest points of a peninsula bounded by Oyster Bay and Cold Spring Harbor (Figure 1). Theodore Roosevelt purchased the 155-acre property in 1880, built a 22-room Queen Anne-Shingle style house between 1884 and 1885, and resided on the property until his death in 1919. During this period he sold sections of the property to relatives but retained 87 acres that contained his home, a working farm, woodlands, and a tidal marsh and beach on Cold Spring Harbor.

Following Roosevelt's death, his wife Edith Carow Roosevelt continued to live at the property until she passed away in 1948. During this time, Edith continued the family's stewardship of the property as a working farm. She encouraged her eldest son, Theodore Jr., and his wife to build an estate within the property, known as Old Orchard. Completed in 1938, the resulting main house, auxiliary buildings, and circulation features altered the character of the property, but did not end Sagamore Hill's primary use as a working farm. Spanning the tenure of President Theodore Roosevelt and First Lady Edith Carow Roosevelt, the period of significance for Sagamore Hill is 1884 to 1948.[1]

The Roosevelt Memorial Association — which later became the Theodore Roosevelt Association — began planning the future of Sagamore Hill with Edith Roosevelt and her children. Founded in 1919 to preserve and display the home and belongings of Theodore Roosevelt, the Association initiated negotiations after Edith's death that culminated in the purchase of the property in 1948. Changes were made to the site to open it for public visitation and consequently, farm operations ceased. Sagamore Hill's landscape transitioned from a working farm to a well-groomed park that opened for the public in 1953.

In 1962 the United States Congress authorized the establishment of the Sagamore Hill National Historic Site as part of the National Park Service. The following year, the Theodore Roosevelt Association donated the site to the federal government. The National Park Service now manages 83 acres of the Roosevelt estate. At its core are the Theodore Roosevelt Home, historic farm buildings, the Old Orchard estate built for Theodore Roosevelt Jr., open fields, and an orchard. Beyond the core, the outer acreage consists of undeveloped woodlands and a beach, salt marsh, and tidal creek complex associated with Cold Spring Harbor (Figure 2 and Drawing 1). The site is open year round and receives over 40,000 visitors a year.

PURPOSE AND METHODOLOGY

The Cultural Landscape Report (CLR) is the primary document used by the National Park Service to guide the treatment and management of a cultural landscape. This second volume provides treatment guidance within the context of the site's history and significance, extant features and historic character, and current planning objectives and management goals. For Sagamore Hill, treatment seeks to preserve and enhance its historic character within the context of other park management goals such as public access, natural resource conservation, recreation, and interpretation. Treatment is informed by the site history, existing conditions, and analysis of the cultural landscape's significance presented in the *Cultural Landscape Report for Sagamore Hill National Historic Site, Volume 1: Site History, Existing Conditions, and Analysis* completed in 1995 (reprinted 2003). Based on the existing conditions and completed park planning documents at the time, managing the landscape for historic character is detailed in *Cultural Landscape Report for Sagamore Hill National Historic Site, Volume 2: Treatment Recommendations and Implementation Plan*, completed in 1998.[2] The primary planning document informing the 1998 report was a 1963 Master Plan developed when Sagamore Hill was transferred to the National Park Service.

In 2008, the National Park Service redefined its management approach for Sagamore Hill for the next twenty years through a General Management Plan. The treatment recommendations herein are updated to align with the preferred planning alternative articulated in the General Management Plan. The updated treatment recommendations and plans also incorporate changes to the existing conditions since 1998 and new research from natural and cultural resource professionals. Changes to the existing conditions include several projects undertaken since 1998 to enhance the historic character of the property such as the removal of some successional vegetation, restoration of the daisy meadow, and propagation of the Cousin's Beech. New sources of information from resource professionals include an invasive non-native plant management plan and 1910s film images complied by the Theodore Roosevelt Association. The films are now maintained in the Library of Congress American Memory collection and several images, including those recorded at Sagamore Hill in 1912 for the film *Roosevelt at Home*, are featured in this report.[3]

The methodology used in this report is based on *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (National Park Service, 1998). Expanding upon the recommendations in the 1998 document, this updated treatment plan is organized into two chapters. The first chapter establishes a framework for treatment that includes highlighting general treatment issues, outlining a primary treatment approach and period, and articulating a treatment philosophy for intended landscape character. The second chapter provides narrative tasks necessary to retain, enhance, and reestablish the historic character

of the landscape. The report concludes with appendices containing supplemental information and scope of work documentation for high priority tasks. Treatment tasks in the report are organized according to the following landscape characteristics: buildings and structures, vegetation, circulation, views and vistas, and small-scale features. For each task, a feature's history, existing condition, and details on treatment implementation are provided.

In support of the General Management Plan, a boundary survey was completed in 2006 and where needed, new survey monuments were set delineating Sagamore Hill's property lines. This report utilizes the 2006 survey drawing as the base for all of the maps and maintains the New York State Plane coordinate system the surveyors referenced.[4] Older drawings and unprojected aerial photographs were either converted to the state plane system or proportionally scaled and rotated to align with the 2006 survey. For all maps, the canopy outlines showing masses of vegetation were traced from 2007 color orthophotos provided by Nassau County. A majority of landscape features were incorporated from a plan prepared for the 1995 Historic Plant Inventory for Sagamore Hill and checked with the orthophotos and information obtained during site visits in March and April 2009.

This updated treatment document includes plans at four different scales to convey the existing conditions and treatment tasks. The plans depict the overall boundaries and context of Sagamore Hill, adjacent and related spaces that define the cultural landscape, and detailed landscape features. Specifically, a large-scale map at approximately 1"=300' shows the overall property from an area west of Sagamore Hill Road to Cold Spring Harbor. Plans at a scale of 1"=150' provide additional detail on the relationship among buildings, circulation features, and landscape spaces. These plans roughly divide the property in half with the western map starting at Sagamore Hill Road and proceeding east to the Cow Pasture. The eastern map overlaps a portion of the Cow Pasture and proceeds east to Cold Spring Harbor. Plans at 1"=60' show the existing conditions and proposed rehabilitation of the Old Orchard complex and orchard. Finally, small-scale plans at 1"=30' identify the existing conditions and treatment tasks associated with the Theodore Roosevelt Home and Pet Cemetery.

STATEMENT OF SIGNIFICANCE

Sagamore Hill National Historic Site is presently updating its documentation for the National Register of Historic Places in conjunction with the 2008 General Management Plan. The site is significant under Criterion B for its association with Theodore Roosevelt, twenty-sixth President of the United States, and First Lady Edith Carow Roosevelt. The site is also significant under Criterion A and C for its association with estate development on the north shore of Long Island and its embodiment of the Queen Anne and Colonial Revival architectural styles. The

site's period of significance begins in 1884, with the construction of the Stable and Lodge and ends in 1948, with the death of Edith Carow Roosevelt. It reflects the tenure of President Roosevelt and First Lady Edith Carow Roosevelt, who together shaped and managed the public, domestic, agricultural, recreational, and natural landscapes that comprised Sagamore Hill. The period also encompasses the construction of Old Orchard, a second mansion erected on the property for Theodore Roosevelt Jr. and his family. The property is also significant for association with Theodore Roosevelt Jr., a public figure instrumental in the founding of the American Legion. The property also contains historical archeological resources that are significant under Criterion B and D, and are associated with Roosevelt's use of the property, as well as a prehistoric site significant under Criterion D.[5]

For over sixty years, Sagamore Hill served as a working farm managed and maintained by Theodore and Edith Carow Roosevelt. Today the property retains its overall integrity with respect to location, design, setting, materials, workmanship, feeling, and association. Many of the structures associated with the Roosevelts remain including the main house, Gardener's Shed, Farm Shed (formerly called the Carriage Shed), Chicken House (formerly called the Chicken Coop/Tool Shed), Gray Cottage, New Barn, Ice House, and Pump House.[6] Others were removed by the Theodore Roosevelt Association including the Cow Shed, pig sty, and oxen pen. Landscape features including the field patterns, historic woodlands, ponds, and Cold Spring Harbor beach retain their appearance from the time of the family's occupancy. The most notable change is that the property no longer functions as a working farm and successional vegetation has encroached on the open fields creating an increased sense of enclosure.[7] With guidance from the recently completed General Management Plan, the park is focusing on retaining the landscape's historic character and enhancing its ability to interpret the Roosevelt tenure at Sagamore Hill. To achieve this objective, the primary treatment for Sagamore Hill is rehabilitation with a treatment date of 1948 to serve as a benchmark for managing the cultural landscape.

Figure 1. Location map for Sagamore Hill National Historic Site. Sagamore Hill is located in the Village of Cove Neck, within the Town of Oyster Bay, New York. The property is situated on one of the highest points of the Cove Neck peninsula (Regina M. Bellavia and George W. Curry, *Cultural Landscape Report for Sagamore Hill National Historic Site,* vol.1*, Site History, Existing Conditions, and Analysis*, 1995; reprint, United States Department of the Interior, National Park Service, 2003).

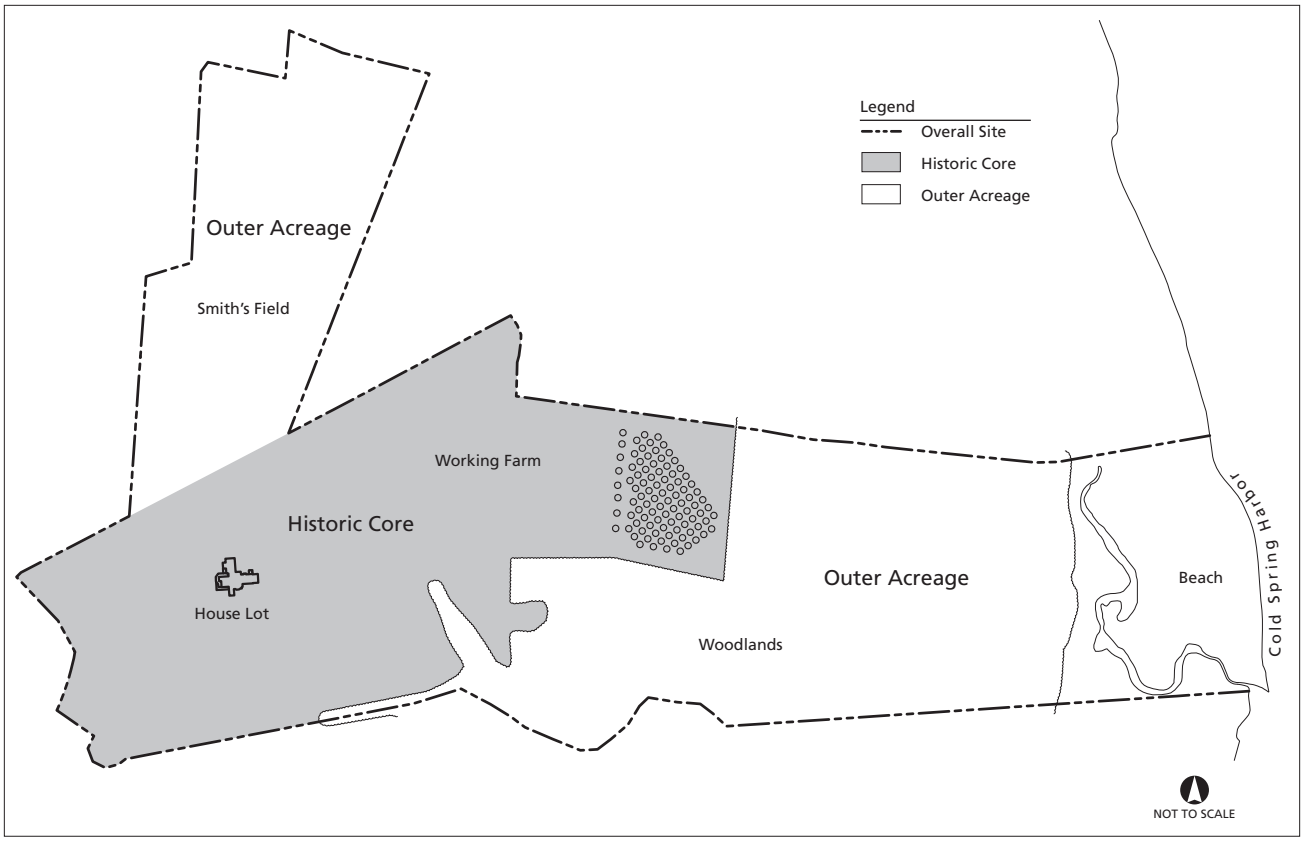


Figure 2. Map showing the historic core and outer acreage, circa 1919. Sagamore Hill can be divided into two major categories that reflect the site's use during the Roosevelt tenure. Areas with limited or no development comprise the outer acreage and are distinct from the home, farm buildings, and agricultural spaces that comprise the historic core (Bellavia and Curry, *Cultural Landscape Report*).

TREATMENT FRAMEWORK

The framework for treatment of the Sagamore Hill landscape is based on federal legislation, park planning documents, and previous cultural landscape research and recommendations. Chief among park planning documents is the General Management Plan, approved in March 2008. Based on the General Management Plan, this section articulates a treatment philosophy that preserves and enhances landscape character as it developed through the end of the Roosevelt tenure in 1948.

RELATIONSHIP TO EXISTING PLANNING DOCUMENTS

Congress approved enabling legislation for Sagamore Hill National Historic Site in 1962. As defined by the legislation, the purpose of the park is to preserve in public ownership and interpret the structures, landscapes, collections, and other cultural resources associated with Theodore Roosevelt's home in Oyster Bay, New York, to ensure that future generations understand and appreciate the life and legacy of Theodore Roosevelt, his family, and the significant events associated with him at Sagamore Hill.[8]

A year after the legislation passed, the National Park Service acquired Sagamore Hill from the Theodore Roosevelt Association and efforts immediately focused on preparing a Master Plan. At that time, the Master Plan served as the primary planning document for the National Park Service. The Master Plan consists of a narrative document, a set of five drawing sheets entitled *General Package Narrative*, and a drawing sheet showing a *Historical Base Map*. A list of guidelines in the narrative state that the house, grounds, and woodlands, "…shall be preserved or restored as nearly as possible as it was during the historic period consistent with the needs of development, protection, and visitor use."[9] The Master Plan does not clearly define the historic period, but emphasizes Theodore Roosevelt's residency and the presidential era. This emphasis is seen in another guideline that calls for, "operation of the area to suggest the farming and outdoor activities Theodore Roosevelt engaged in."[10] Reinforcing the narrative document, the *Historical Base Map* identifies features in the landscape from Theodore Roosevelt's tenure and was prepared with National Park Service staff consulting his surviving children, Archibald Roosevelt and Ethel Roosevelt Derby (Figure 3).

Further documentation of the historic landscape was completed for the *Cultural Landscape Report for Sagamore Hill National Historic Site, Volume 1: Site History, Existing Conditions, and Analysis* (hereafter Volume 1) in 1995. Volume 1 details the property's history and existing conditions in 1995 and provides an analysis of the significance of the cultural landscape. The report concludes that, in the same

manner as the buildings and structures, the landscape and its features are significant for their association with Theodore Roosevelt from his purchase of the property in 1880 until his death in 1919.[11] Volume 1 also calls for a treatment plan aimed at reestablishing the form of the historic farm and the preservation management of the historic landscape at Sagamore Hill.[12]

To guide management of the resources identified in Volume 1, the *Cultural Landscape Report for Sagamore Hill National Historic Site, Volume 2: Treatment Recommendations and Implementation Plan* (hereafter Volume 2) was completed in 1998. Volume 2 explores treatment alternatives for the cultural landscape and recommends rehabilitation as the most appropriate choice for the park's overall treatment. Rehabilitation was selected to preserve historic features, improve features that were in decline, and allow compatible changes at Sagamore Hill so the site could operate as a public park and fulfill its legislative mandate to interpret the life of Theodore Roosevelt.[13] With rehabilitation selected as the preferred treatment alternative, Volume 2 then addressed specific recommendations for landscape features that were organized by landscape characteristic.

As the National Park Service's stewardship of Sagamore Hill entered into the twenty-first century, the agency undertook the preparation of a General Management Plan to serve as the new guiding document for planning and management at the park for the next twenty years. Approved in 2008, the General Management Plan identifies rehabilitation as the preferred treatment approach and emphasizes that the historic character of the site be retained and preserved. In addition, the plan calls for the removal of non-historic structures and the replacement of missing historic landscape and architectural features to enhance the park's ability to interpret the Roosevelt tenure at Sagamore Hill (Figure 4).[14]

Three management objectives cited in the General Management Plan further define the rehabilitation treatment of the landscape. The first objective addresses the historic core that contains the Theodore Roosevelt Home, historic farm buildings, the Old Orchard estate, open fields, and contemporary visitor services. The second objective pertains to native plant species and natural diversity, and the final objective addresses universal accessibility at Sagamore Hill's structures, grounds, and facilities.

The first management objective states that, "Sagamore Hill's cultural landscape in the historic core is rehabilitated to support interpretive objectives."[15] The broader interpretive themes identified for the park include: Sagamore Hill as the Roosevelt family's private home and tensions between public service and private life; Sagamore Hill as the Summer White House and Theodore Roosevelt's presidency in a changing community, country, and world; and Theodore

Roosevelt's legacy and relevance in government, diplomacy, conservation, and literature.[16] Actions identified for rehabilitating the cultural landscape in the historic core include:

- Preserving and properly maintaining the landscape's historic character
- Replacing missing historic features such as portions of the flower and vegetable garden
- Marking and interpreting other missing features such as the Stable and Lodge site
- Managing areas of Roosevelt's working farm to resemble their agricultural appearance
- Removing non-historic features that do not contribute to the landscape's historic character including ornamental trees and shrubs and the current visitor contact station
- Removing or relocating commemorative features that detract from the landscape's historic character
- Preserving historic site engineering elements such as gutters and retaining walls
- Selecting and locating outdoor site furnishings that are sensitive to landscape's historic character

The second management objective pertains to areas in both the historic core and outer acreage and states that, "The park's cultural landscape is managed in a manner that opportunistically encourages native species and natural diversity where possible."[17] As a result of development activities and disturbance within and around the park, Sagamore Hill's flora is comprised of forty percent non-native plant species. Many of these plant species are invasive and threaten the character of maintained areas in the historic core and undeveloped areas in the outer acreage. Actions contained in this objective include:

- Coordinating efforts among resource professionals to control non-native invasive species
- Concentrating management efforts where techniques can be reasonably successful and sustainable
- Maintaining Sagamore Hill's mixed habitat complex of forests, fields, and fresh water that support several nationally and locally rare species

The final management objective states that, "Structures, grounds, and facilities at Sagamore Hill are made universally accessible to the greatest degree possible."[18] In accordance with federal laws and National Park Service Management Policies, all reasonable efforts would be made to make facilities, programs, and services accessible and usable by all people, including those with disabilities. Actions related to rehabilitating the cultural landscape include:

- Improving access to historic structures without adversely affect the significant qualities of the historic landscape
- Improve access to the grounds
- Consulting with disabled persons or their representatives to determine what facilities and services are inaccessible and what might be done to make them accessible

GENERAL TREATMENT ISSUES

Several general treatment issues for Sagamore Hill's cultural landscape were identified in the General Management Plan and through consultations with park staff. Properly addressing these issues will result in preserving the historic character of Sagamore Hill and improving the interpretation of the Roosevelt tenure.

Management of fields and pastures

Agricultural fields, pastures, and an expansive open area west of the Theodore Roosevelt Home were defining features during the historic period and distinguished the historic core of the working farm from the woodlands and the beach in the outer acreage. As Sagamore Hill transitioned from the Roosevelt family to the Theodore Roosevelt Association and finally to the National Park Service, historic open areas were not consistently maintained and successional woody vegetation emerged.

Non-historic masses of large trees and shrubs now obscure the spatial organization of the historic farm and block internal and external views. This report examines areas of successional vegetation that should be managed to resemble an agricultural appearance. Proper management will reinforce historic spatial organization, maintain views, and improve the overall landscape character.

Change in vegetation around the Theodore Roosevelt Home

During the historic period, trees, ornamental shrubs, and vines grew around the Theodore Roosevelt Home. The yard featured trees in open lawn and on the home itself, vines were trained to grow on the library, porte-cochere, veranda,

and North Room. Today, changes in vegetation around the home have resulted in a loss of historic character. The lawn has been filled in with non-historic ornamental shrubs and the vines in almost all locations have been removed. The heaviest ornamental shrub planting is located between the entry drive and Ice House with a mixture of forsythia, lilacs, leucothoe, and pieris scattered around the buildings. This report details vegetation treatments that will enhance historic character around the Theodore Roosevelt Home.

Loss of trees in the orchard

An orchard existed at Sagamore Hill when Roosevelt purchased the property in 1880 and continued to be a distinct landscape feature throughout his tenure. Between fifty and seventy fruit trees, primarily apples, where maintained in a northwest to southeast grid pattern on the easternmost section of the working agricultural landscape. The total number of trees and the consistent, geometric form of the ensemble planting were severely impacted by construction of the Old Orchard complex between 1937 and 1938 and a subsequent ice storm in circa 1940. Since that time, additional trees have been removed or have declined with age. The current scattered arrangement of trees makes it difficult to discern a prominent landscape feature from the historic period. This report proposes to reestablish the orchard's historic grid pattern in order to convey a component of the agricultural landscape from the Roosevelt tenure.

Universal accessibility

Sagamore Hill offers visitors accessible parking, some accessible circulation routes, and first floor access to the exhibits at the Old Orchard home. The General Management Plan directs that to the greatest degree possible, the park will make a reasonable effort to have accessible facilities, programs, and services.[19] As the park's primary resource, providing universal access to the Theodore Roosevelt Home is a priority of this management objective. Situated on the highest point on the property, there is presently no universally accessible route between the Theodore Roosevelt Home and visitor parking lot. Providing a new accessible route should not adversely affect features or the landscape's character. This report proposes a schematic route that will minimize impacts to the landscape's historic character.

Consistency of circulation surfaces

Prior to the completion of the Macadam Road in 1912, the vehicle and pedestrian circulation surfaces at Sagamore Hill were compacted earth. New circulation features have been added since the historic period to facilitate visitor access and operations as a National Park Service site. As a result, a variety of surfaces are presently encountered including crushed stone, brick, bluestone, and asphalt.

This report presents surface options that will aid in a more consistent and historically compatible finish for the park's circulation systems.

Management of invasive non-native plant species

In preparation for the General Management Plan, Sagamore Hill completed an invasive non-native plant management plan in 2006. The plan identifies a total of thirty invasive non-native plants and classifies seventeen of the thirty as highly invasive. The report then outlines management techniques for the highly invasive species.[20] The park is currently working with the Northeast Exotic Plant Management Team to implement the report recommendations. Invasive non-native plant management is needed to preserve the open character of Sagamore Hill's historic agricultural spaces and prevent emerging woody vegetation. Additionally, invasive non-native plants can block historic views and impact natural systems and features such as Eel Creek and the Lower Lake that were present during the historic period. This report highlights specific areas where managing invasive non-native plants can improve historic character.

PRIMARY TREATMENT: REHABILITATION

Management objectives in the General Management Plan for the historic core and outer acreage identify rehabilitation as the primary treatment for Sagamore Hill. The plan specifically emphasizes rehabilitation of the cultural landscape in the historic core to support the park's interpretive objectives.[21]

Rehabilitation acknowledges the need to meet continuing or changing uses through alterations or new additions while retaining the historic character of the property. It allows for repairs and alterations of the cultural landscape, and for improving the utility and function of landscape features. It is used to make an efficient, compatible use while preserving those portions or features of the property that contribute to its historical significance. For some historic properties, changes are necessary to accommodate visitor use, such as the addition of parking, concessions, and visitor facilities or the modification of circulation surfaces to withstand high use and meet Americans with Disabilities Act (ADA) accessibility standards. In other cases, modifications are necessary for sustainable management, such as the reduction of formal gardens or the elimination of agricultural practices. A rehabilitation strategy allows for the replacement of missing features as they existed historically based on documentary evidence, or replacement with compatible features.

Standards for Rehabilitation

- A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and relationships.

- The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
- Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historical properties, will not be undertaken.
- Changes to a property that have acquired historic significance in their own right will be retained and preserved.
- Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
- Deteriorated historical features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new material will match the old in composition, design, color, texture, and where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
- Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
- Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
- New additions, exterior alterations, or related new construction will not destroy historical materials, features and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historical materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
- New additions or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

TREATMENT PERIOD

Definition of a treatment period provides a benchmark for managing historic character in a landscape. A treatment period corresponds to a time during the historic evolution of the landscape when it reached the height of its development and when it best illustrates the park's significance and interpretive themes.

Sagamore Hill's National Register of Historic Places Registration Form is currently being revised. Based on the current draft of the National Register documentation, the period of significance for Sagamore Hill is 1884 to 1948 and "…reflects the tenure of President Roosevelt and First Lady Edith Carow Roosevelt, who together shaped and managed the public, domestic, agricultural, recreational, and natural landscapes that comprise Sagamore Hill."[22] The period begins with the construction of the Stable and Lodge and main house; encompasses Roosevelt's years as president; includes his death, Edith's subsequent management of the property and the construction of the Old Orchard complex; and concludes with Edith's death in 1948. The end of the period, corresponding with Edith's death, recognizes her management of the property and agricultural operations during Theodore's lifetime and for almost thirty years after he passed away.[23]

This treatment plan recommends that the landscape be managed to preserve and enhance its character as it had developed through the end of the Roosevelt tenure in 1948. Managing for character based on 1948 does not conflict with the cultural landscape's ability to support interpretive objectives focusing on Theodore Roosevelt and his tenure at Sagamore Hill that ended in 1919. Following Theodore Roosevelt's death, Edith continued to oversee the operation of Sagamore Hill and agricultural production did not cease but was maintained, "…on a reduced scale, reflecting the reduced population of the property" during her tenure.[24] In addition to a change in the intensity of agricultural production, changes in the landscape between 1919 and 1948 include:

- Removal of akebia vines from the porte-cochere and veranda in circa 1922
- Construction of the Old Orchard complex in 1938 and related changes to the property's spatial organization, vegetation, circulation, and views
- Loss of the Stable and Lodge due to fire in 1944
- Alteration of the New Barn between 1944 and 1948 to serve as a residence for the caretaker
- Addition of a new vehicular circulation route north of the Farm Shed to the New Barn
- Addition of an outbuilding, the Cow Shed, north of the Farm Shed
- Appearance of successional woody vegetation in portions of Smith's Field, the South Field, and the West Lawn

The most dramatic change to Sagamore Hill between Theodore Roosevelt's death and the end of the period of significance was the construction of the Old Orchard complex. However, the addition of Old Orchard was consistent with a

second generation of the development throughout Long Island's north shore. During the second quarter of the twentieth century, available land for new development became scarce and new residences were often created on portions of older estates by the children of the original estate owners.[25] Additionally, the Old Orchard home is significant for its embodiment of the Colonial Revival architectural style and the complex is significant for its association with Theodore Roosevelt Jr. due to his career in public service and founding of the American Legion.[26] The other changes at Sagamore Hill reflect the property's continued use as a working farm and a reduction in maintenance intensity and consistency.

TREATMENT PHILOSOPHY

The ultimate goal of treatment is to improve the interpretation of Theodore Roosevelt, his life, and family by preserving and/or rehabilitating the character-defining elements of Sagamore Hill as their residence and working farm, and improve visitor orientation, access, and circulation.[27] Rehabilitating the Sagamore Hill landscape involves preserving the extant features that contribute to the significance of the site. In addition, characteristics of the cultural landscape that would have been evident during the Roosevelt tenure include:

- A frequently visited home and actively used set of outbuildings that hosted many family members, visitors, and dignitaries
- A working farm that was highly managed, cultivated, and maintained
- Expansive gardens filled with fruits, berries, grape vines, flowers and vegetables
- Frequent changes in the use of fields and cultivated areas for rotating crops, hayfields, and pasture with livestock

To achieve a landscape character that better interprets the life and legacy of Theodore Roosevelt and his family, the late nineteenth and early twentieth century buildings in the historic core should be preserved. Fields and cultivated areas should be differentiated from manicured lawn and the woodlands in the outer acreage. The working farm should also convey that crops, fruit and vegetable production, and livestock were components of a maintained agricultural landscape. Circulation features should display surfacing compatible with the historic materials and an organized hierarchy according to transportation mode and use. Universal access to buildings and landscape features should be implemented to minimize impacts to the historic landscape and structures. Similarly, lighting and other contemporary structures needed for public safety should be selected that are small, minimize visual intrusions, and provide adequate coverage.

The woodlands in the outer acreage should be preserved with tree and shrub removal taking place only for safety hazards along the Woodland Trail and invasive species management. Invasive species management should focus on the seventeen targeted species identified in the *Invasive Non-native Plant Management Plan*. Care should be exercised in removing invasive species that have reached the canopy level as this will puncture the continuous canopy and with increased light penetrating to the woodland floor, may encourage the growth of additional invasive species.[28] The Woodland Trail from Old Orchard and the boardwalk should be managed to provide a safe, durable, and clearly defined walking surface. Although research documents bathhouse and boathouse structures, their exact location on the Cold Spring Harbor beach is not known. Interpretative media should be used to inform visitors how Roosevelt and his family interacted with the beach and Cold Spring Harbor during the historic period.

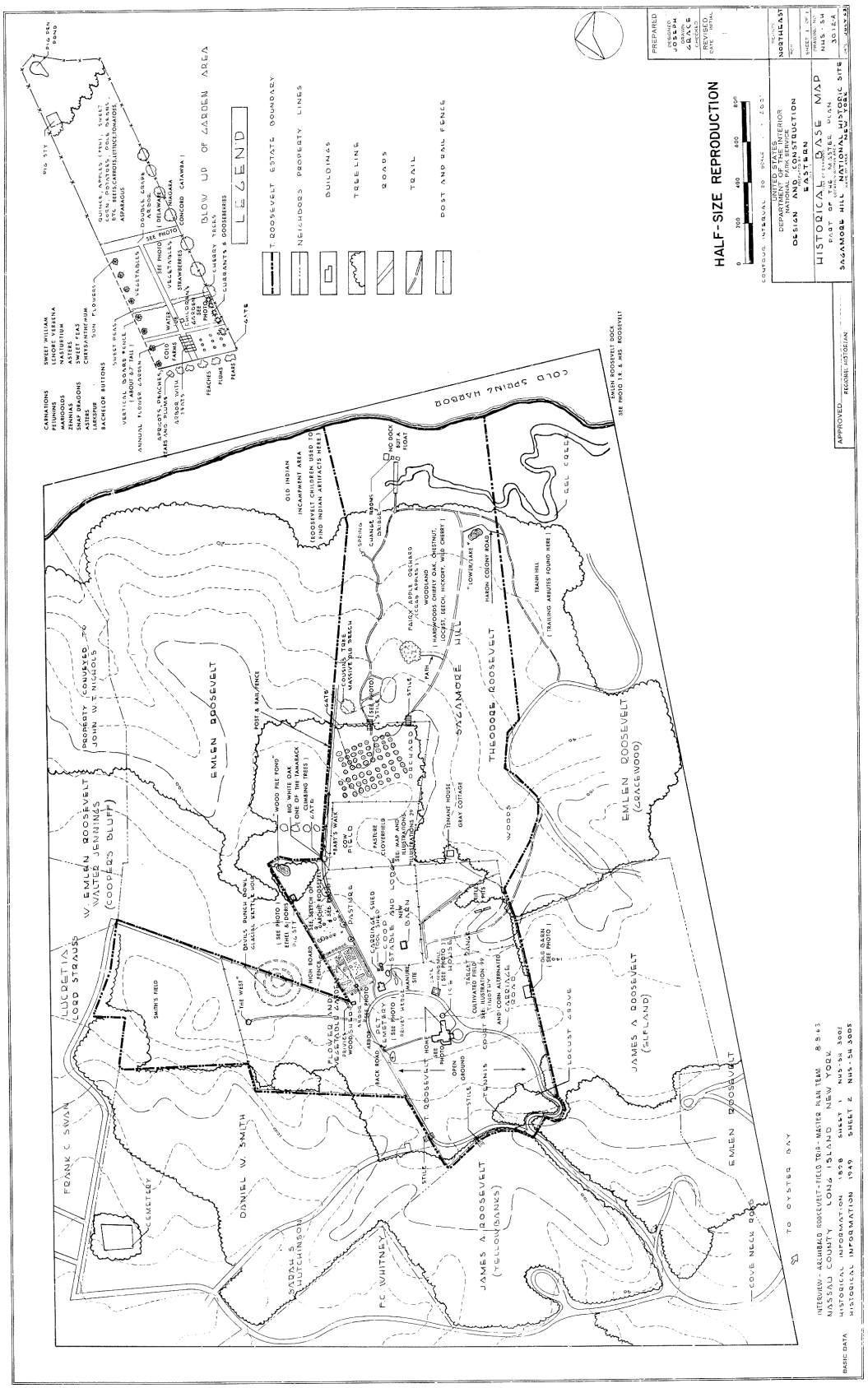


Figure 3. *Historical Base Map*, 1963. After acquiring Sagamore Hill, the National Park Service began a Master Plan process and produced this map in consultation with Theodore Roosevelt's surviving children. The map identifies features in the landscape from Theodore Roosevelt's tenure and was part of a document that called for a restoration of the landscape to its appearance in 1919 (National Park Service).

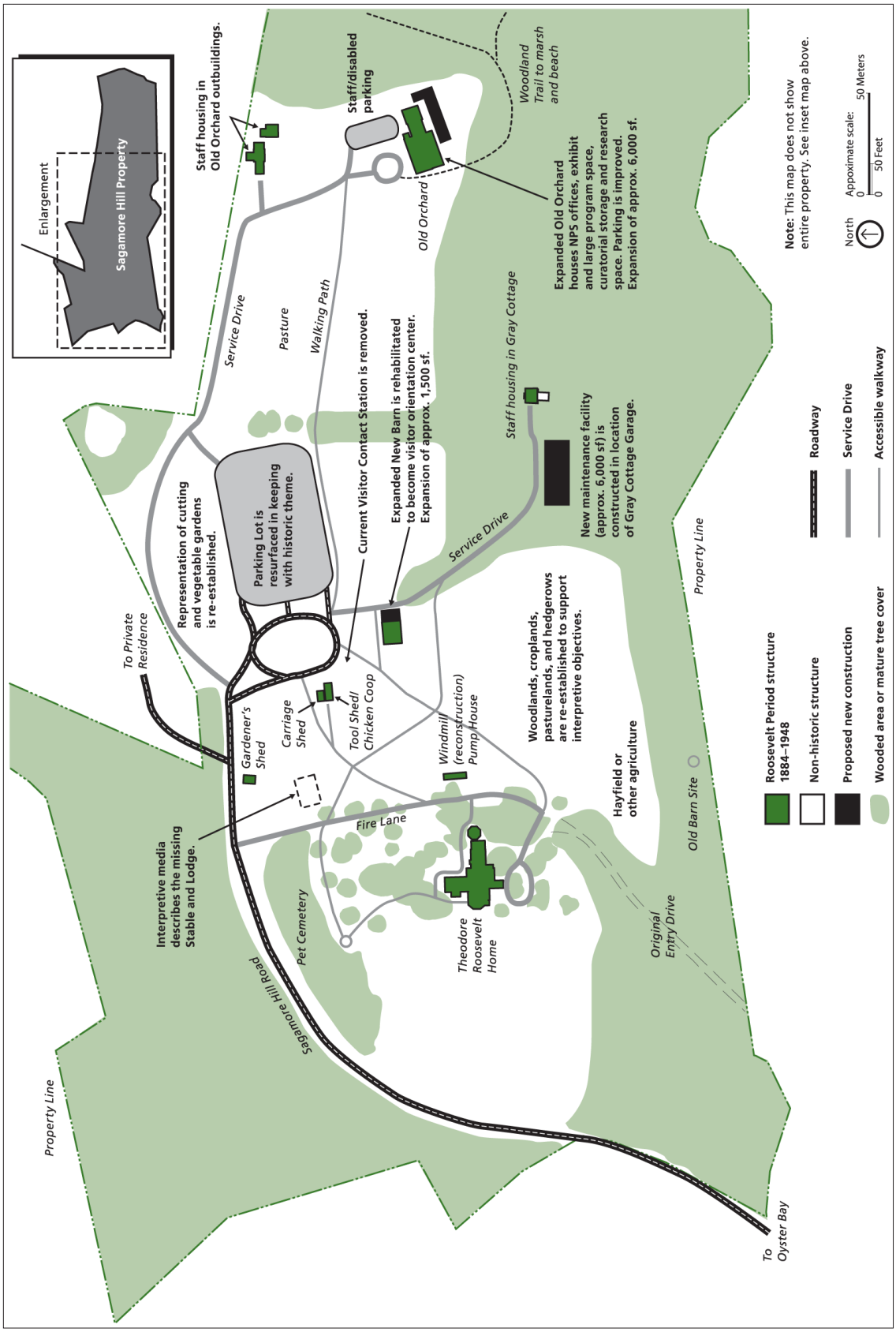


Figure 4. ***General Management Plan Map*****, 2008. The approved General Management Plan emphasizes that the historic character of the site be retained and preserved. In addition, the plan calls for the removal of non-historic structures and the replacement of missing historic landscape and architectural features to enhance the park's ability to interpret the Roosevelt tenure at Sagamore Hill (National Park Service).**

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Existing Conditions
Site Wide

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. USGS DEM files provided by NYS DEC
4. Existing Conditions Plans for Historic Plant Inventory, 1995
5. Landscape Rehabilitation Plan, 1998
6. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

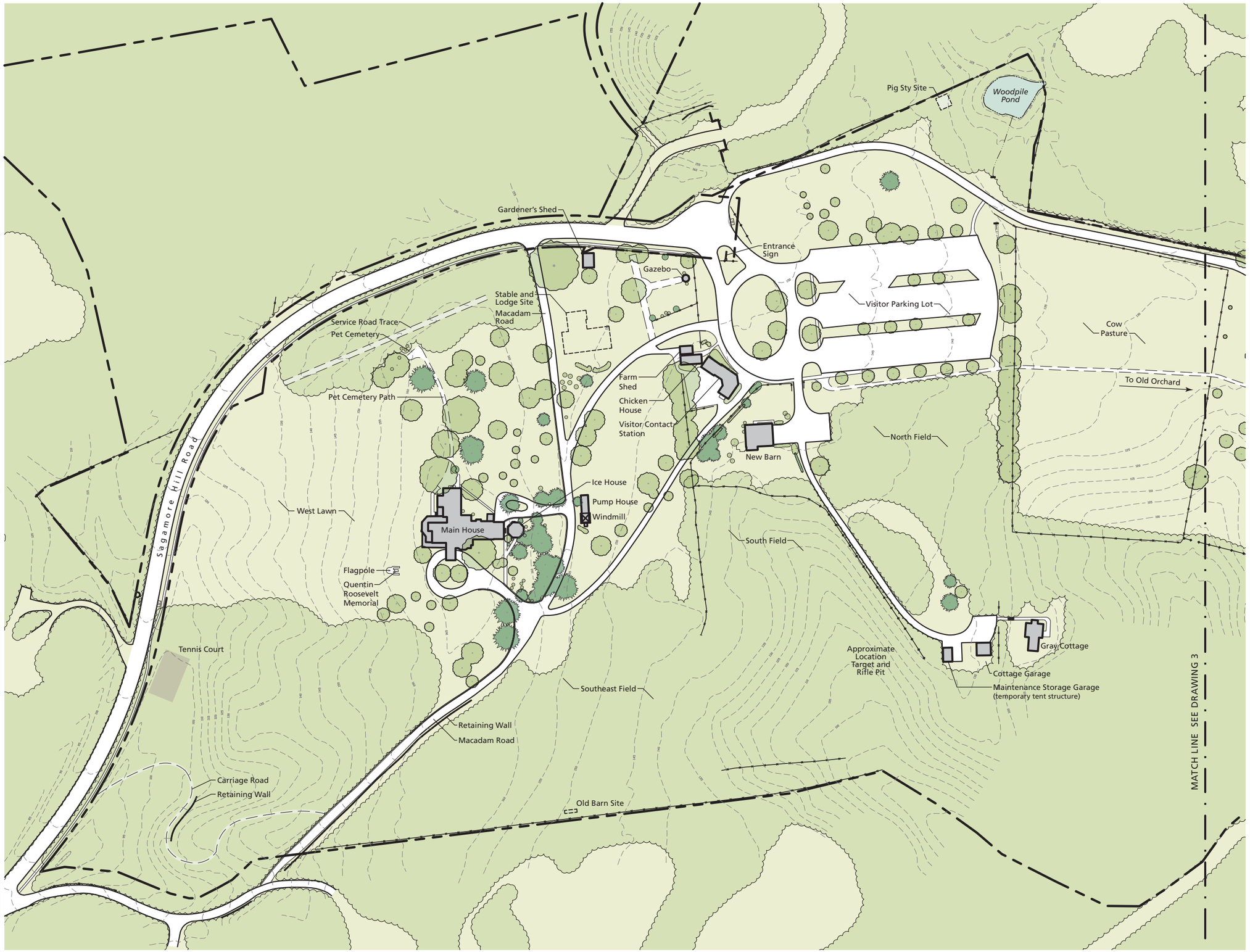
- Property Line
- Mean High Water
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Fence
- Tidal Marsh
- Deciduous Tree
- Evergreen Tree

NOTES

1. Projection: New York State Plane, Long Island Zone, NAD 83, US Survey Feet
2. Contour Interval = 5'-0"

0' 75' 150' 300'

Drawing 1



Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill National Historic Site
Oyster Bay, New York

Existing Conditions West Enlargement

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Fence
- Deciduous Tree
- Evergreen Tree

NOTES

1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 37.5' 75' 150'

Drawing 2

Garage
Foreman's Cottage
Orchard
Orchard
Cold Cellar
Orchard
Old Orchard
Woodland Trail
Woodland Trail
Boardwalk
Lower Lake
Eel Creek
Cold Spring Harbor
MATCH LINE SEE DRAWING 2

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Existing Conditions
East Enlargement

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Mean High Water
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Fence
- Tidal Marsh
- Deciduous Tree
- Evergreen Tree

NOTES

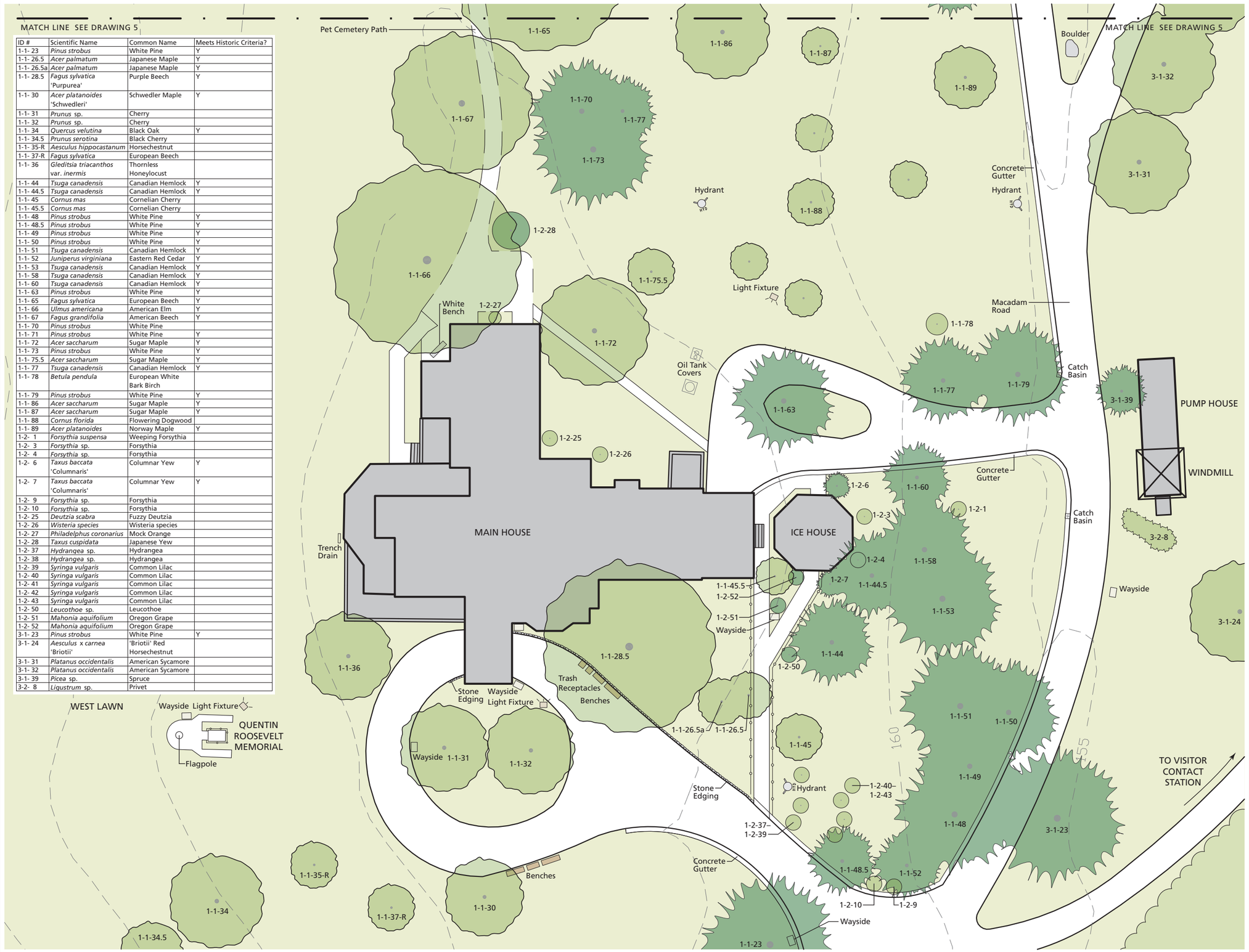
1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 375' 75' 150'

Drawing 3

MATCH LINE SEE DRAWING 5

ID #	Scientific Name	Common Name	Meets Historic Criteria?
1-1- 23	*Pinus strobus*	White Pine	Y
1-1- 26.5	*Acer palmatum*	Japanese Maple	Y
1-1- 26.5a	*Acer palmatum*	Japanese Maple	Y
1-1- 28.5	*Fagus sylvatica* 'Purpurea'	Purple Beech	Y
1-1- 30	*Acer platanoides* 'Schwedleri'	Schwedler Maple	Y
1-1- 31	*Prunus* sp.	Cherry	
1-1- 32	*Prunus* sp.	Cherry	
1-1- 34	*Quercus velutina*	Black Oak	Y
1-1- 34.5	*Prunus serotina*	Black Cherry	
1-1- 35-R	*Aesculus hippocastanum*	Horsechestnut	
1-1- 37-R	*Fagus sylvatica*	European Beech	
1-1- 36	*Gleditsia triacanthos* var. *inermis*	Thornless Honeylocust	
1-1- 44	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 44.5	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 45	*Cornus mas*	Cornelian Cherry	
1-1- 45.5	*Cornus mas*	Cornelian Cherry	
1-1- 48	*Pinus strobus*	White Pine	Y
1-1- 48.5	*Pinus strobus*	White Pine	Y
1-1- 49	*Pinus strobus*	White Pine	Y
1-1- 50	*Pinus strobus*	White Pine	Y
1-1- 51	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 52	*Juniperus virginiana*	Eastern Red Cedar	Y
1-1- 53	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 58	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 60	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 63	*Pinus strobus*	White Pine	Y
1-1- 65	*Fagus sylvatica*	European Beech	Y
1-1- 66	*Ulmus americana*	American Elm	Y
1-1- 67	*Fagus grandifolia*	American Beech	Y
1-1- 70	*Pinus strobus*	White Pine	
1-1- 71	*Pinus strobus*	White Pine	Y
1-1- 72	*Acer saccharum*	Sugar Maple	Y
1-1- 73	*Pinus strobus*	White Pine	Y
1-1- 75.5	*Acer saccharum*	Sugar Maple	Y
1-1- 77	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 78	*Betula pendula*	European White Bark Birch	
1-1- 79	*Pinus strobus*	White Pine	Y
1-1- 86	*Acer saccharum*	Sugar Maple	Y
1-1- 87	*Acer saccharum*	Sugar Maple	Y
1-1- 88	*Cornus florida*	Flowering Dogwood	
1-1- 89	*Acer platanoides*	Norway Maple	Y
1-2- 1	*Forsythia suspensa*	Weeping Forsythia	
1-2- 3	*Forsythia* sp.	Forsythia	
1-2- 4	*Forsythia* sp.	Forsythia	
1-2- 6	*Taxus baccata* 'Columnaris'	Columnar Yew	Y
1-2- 7	*Taxus baccata* 'Columnaris'	Columnar Yew	Y
1-2- 9	*Forsythia* sp.	Forsythia	
1-2- 10	*Forsythia* sp.	Forsythia	
1-2- 25	*Deutzia scabra*	Fuzzy Deutzia	
1-2- 26	*Wisteria species*	Wisteria species	
1-2- 27	*Philadelphus coronarius*	Mock Orange	
1-2- 28	*Taxus cuspidata*	Japanese Yew	
1-2- 37	*Hydrangea* sp.	Hydrangea	
1-2- 38	*Hydrangea* sp.	Hydrangea	
1-2- 39	*Syringa vulgaris*	Common Lilac	
1-2- 40	*Syringa vulgaris*	Common Lilac	
1-2- 41	*Syringa vulgaris*	Common Lilac	
1-2- 42	*Syringa vulgaris*	Common Lilac	
1-2- 43	*Syringa vulgaris*	Common Lilac	
1-2- 50	*Leucothoe* sp.	Leucothoe	
1-2- 51	*Mahonia aquifolium*	Oregon Grape	
1-2- 52	*Mahonia aquifolium*	Oregon Grape	
3-1- 23	*Pinus strobus*	White Pine	Y
3-1- 24	*Aesculus* x *carnea* 'Briotii'	'Briotii' Red Horsechestnut	
3-1- 31	*Platanus occidentalis*	American Sycamore	
3-1- 32	*Platanus occidentalis*	American Sycamore	
3-1- 39	*Picea* sp.	Spruce	
3-2- 8	*Ligustrum* sp.	Privet	



Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Existing Conditions
Theodore Roosevelt Home

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Post and Chain Fence
- Deciduous Tree
- Evergreen Tree

NOTES

1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 7.5' 15' 30'

Drawing 4

ID #	Scientific Name	Common Name	Meets Historic Criteria?
1-1-65	*Fagus sylvatica*	European Beech	Y
1-1-86	*Acer saccharum*	Sugar Maple	Y
1-1-90	*Pinus strobus*	White Pine	Y
1-1-94	*Acer platanoides*	Norway Maple	Y
1-1-95	*Acer saccharum*	Sugar Maple	Y
1-1-98	*Acer saccharum*	Sugar Maple	Y
1-1-98.5	*Prunus serotina*	Black Cherry	Y
1-1-99	*Acer rubrum*	Red Maple	Y
1-1-99.5	*Pinus strobus*	White Pine	
1-1-100	*Catalpa speciosa*	Northern Catalpa	Y
1-1-101.5	*Betula papyrifera*	Paper Birch	
1-1-103	*Acer saccharum*	Sugar Maple	Y
2-1-58	*Prunus serotina*	Black Cherry	Y
2-1-61	*Quercus* (velutina) sp.	Black Oak	
2-1-62	*Quercus* (rubra) sp.	Red Oak	
2-1-63	*Cedrus atlantica* 'Glauca'	Blue Atlas Cedar	
2-2-2	*Taxus baccata*	English Yew	
2-2-3	*Taxus baccata*	English Yew	
2-2-4	*Forsythia* sp.	Forsythia	
2-2-5	*Forsythia* sp.	Forsythia	
3-1-33	*Platanus occidentalis*	American Sycamore	
4-1-1	*Quercus alba*	White Oak	Y
4-1-2	*Magnolia x soulangiana*	Saucer Magnolia	
4-1-9	*Acer platanoides*	Norway Maple	Not evaluated
4-1-10	*Pinus strobus*	White Pine	
4-2-34	*Spiraea x bumalda* 'Anthony Waterer'	Anthony Waterer Spirea	
4-2-36	*Forsythia* sp.	Forsythia	
4-2-37	*Forsythia* sp.	Forsythia	
4-2-38	*Forsythia* sp.	Forsythia	
4-2-39	*Forsythia* sp.	Forsythia	
4-2-40	*Forsythia* sp.	Forsythia	
4-2-41	*Forsythia* sp.	Forsythia	
4-2-42	*Forsythia* sp.	Forsythia	
4-2-43	*Ligustrum ovalifolium*	California Privet	
4-2-44	*Ligustrum ovalifolium*	California Privet	

Sagamore Hill Road
Vehicular Gate
Utility Pole
GARDENER'S SHED
4-1-1
4-1-2
Service Road Trace
Pet Cemetery Stone
Wayside
Pet Cemetery Arbor
2-2-5
2-2-4
2-2-3
2-1-62
2-2-2
2-1-61
Pet Cemetery Path
2-1-63
2-1-58
1-1-100
1-1-101.5
1-1-99
1-1-99.5
1-1-98
1-1-65
1-1-86
1-1-103
1-1-98.5
1-1-95
1-1-94
1-1-90
Macadam Road
Concrete Gutter
Wayside
STABLE AND LODGE SITE
4-2-44
4-2-43
4-1-10
4-2-36–4-2-42
4-1-9
Bench
4-2-34
3-1-33
160
150
155
MATCH LINE SEE DRAWING 4
MATCH LINE SEE DRAWING 4

Cultural Landscape Report Updated Treatment Plan

Sagamore Hill National Historic Site

Oyster Bay, New York

Existing Conditions Pet Cemetery

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Fence
- Deciduous Tree
- Evergreen Tree

NOTES

1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 7.5' 15' 30'

Drawing 5

ID #	Scientific Name	Common Name	Meets Historic Criteria?
6-1-3	*Malus pumila*	Apple	
6-1-4	*Malus pumila*	Apple	Y
6-1-6	*Malus pumila*	Apple	Y
6-1-7	*Malus pumila*	Apple	
6-1-10	*Malus* 'Yellow Bellflower'	Yellow Bellflower Apple	Y
6-1-11	*Malus* 'Rome Beauty'	Rome Beauty Apple	Y
6-1-15	*Malus* 'Rome Beauty'	Rome Beauty Apple	Y
6-1-16	*Malus pumila*	Apple	Y
6-1-19	*Malus pumila*	Apple	Y
6-1-20	*Malus* 'Baldwin'	Baldwin Apple	Y
6-1-21	*Malus* 'Golden Delicious'	Golden Delicious Apple	
6-1-22	*Malus* 'Golden Delicious'	Golden Delicious Apple	Y, semi-dwarf
6-1-23	*Malus* 'Red Delicious'	Red Delicious Apple	Y, semi-dwarf
6-1-24	*Malus* 'Stark'	Stark Apple	Y
6-1-26	*Malus* 'Smokehouse'	Smokehouse Apple	Y
6-1-29	*Malus* 'Smokehouse'	Smokehouse Apple	Y
6-1-49	*Pyrus* sp.	Pear	Y
6-1-49-R	*Pyrus* sp.	Pear	
6-1-49-R	*Pyrus* sp.	Pear	
6-1-49-R	*Pyrus* sp.	Pear	
6-1-50	*Malus* 'Red Delicious'	Red Delicious Apple	
6-1-51	*Malus pumila*	Apple	
6-1-52	*Malus pumila*	Apple	Y
6-1-54	*Pyrus* sp.	Pear	Y
6-1-55	*Pyrus* sp.	Pear	Y
6-1-56	*Catalpa* sp.	Catalpa	

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Existing Conditions
Old Orchard

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Double-Post Split Rail Fence
- Contemporary Split Rail Fence
- Stockade Fence
- Deciduous Tree
- Evergreen Tree

NOTES

1. Projection: New York State Plane, Long Island Zone, NAD 83, US Survey Feet
2. Contour Interval = 5'-0"

0' 15' 30' 60'

Drawing 6

TREATMENT TASKS

This section outlines specific physical treatment tasks for rehabilitation of Sagamore Hill's cultural landscape. The identification, history, and analysis of landscape features are based on the work presented in the *Cultural Landscape Report for Sagamore Hill National Historic Site, Volume 1: Site History, Existing Conditions, and Analysis* (hereafter Volume 1) completed in 1995. Many of the treatment tasks presented in this report build upon recommendations first articulated in the *Cultural Landscape Report for Sagamore Hill National Historic Site, Volume 2: Treatment Recommendations and Implementation Plan* (hereafter Volume 2) that was completed in 1998. Treatment tasks are organized by five landscape characteristics including buildings and structures, vegetation, circulation, views and vistas, and small-scale features. Tasks closest to the Theodore Roosevelt Home are discussed first followed by tasks that are further away from the home in the historic core. The presentation of tasks concludes with those located in the outer acreage. Proposed actions include adjustments in maintenance techniques, individual tree replacements, and woodland clearing. While most of these actions will result in only minor adjustments to landscape features and their maintenance, the cumulative effect will have a great impact on the overall character of the landscape at Sagamore Hill. The individual tasks are described through a combination of text and graphics. In addition to individual task descriptions and graphics, all of the tasks appear in a summary table at the conclusion of this section and are illustrated on Drawings 7–13.[29]

A site-wide drawing corresponding to the existing conditions Drawing 1 is not included in the seven treatment plans. In order to clearly communicate the treatment tasks, Drawings 7 and 8 are presented at an intermediate scale of 1"=150' showing first the approximate the western half and then the approximate eastern half of the property. More detailed treatment tasks are identified on Drawings 9 and 10 which show the Theodore Roosevelt Home and Pet Cemetery respectively at a smaller scale of 1"=30'. Finally, Drawings 11, 12, and 13 address the rehabilitation of the orchard by showing existing and recently lost fruit trees, proposed fruit trees to remove, and a proposed planting plan. All three drawings are at a scale of 1"=60'.

BUILDINGS AND STRUCTURES

Sagamore Hill's buildings and structures served as residences, supported farming operations, and were integral in the Roosevelt family's use and enjoyment of the landscape during the historic period. Following the family's departure from the property, some buildings and structures have been added or altered to facilitate Sagamore Hill's staffing and operation as a public park. To improve the interpretation of Theodore Roosevelt's life at Sagamore Hill, the General

Management Plan calls for rehabilitation of the New Barn and Old Orchard. The following treatment tasks address methods for minimizing impacts on landscape features, removing non-historic features that detract from landscape character, and improving existing features to convey the landscape setting during the historic period.

BL-1 Minimize landscape impact of rehabilitating and expanding the New Barn to serve as a visitor contact station

When Theodore Roosevelt purchased Sagamore Hill, only one building was located on the property. Referred to as the Farm Barn or Old Barn, the building stored animal feed and carriage horses until it collapsed circa 1905.[30] In 1907, construction was completed on the New Barn located in the southwest corner of the North Field near the fence that divided the North and South Fields (Figure 5). Between 1944 and 1948, the New Barn was altered to accommodate a residence and garage and presently serves as park staff housing, storage, and a garage for park vehicles (Figure 6).[31]

Based on the 2008 General Management Plan, the existing, non-historic visitor contact station will be removed from Sagamore Hill's historic core. To provide visitor services and foster a better visitor experience, the New Barn will be rehabilitated and expanded to serve as a visitor contact station. Non-historic additions to the New Barn's exterior, such as siding and shingles, will be removed. Missing architectural features from the period of significance, such as the cupola and sliding barn doors, will be replaced.[32] A compatible, 1,500-square foot expansion is proposed and will go through a rigorous design and review process to minimize impacts to the historic structure, archeological resources, and the cultural landscape. The General Management Plan proposes the expansion should be located to the east of the New Barn.

In order to minimize the landscape impact of the expansion, the new construction should match or be smaller than the height and width of the New Barn to minimize impacts on views from the Theodore Roosevelt Home to the historic agricultural spaces. Furthermore, the area proposed in the General Management Plan is presently asphalt paving and constructing an addition here will minimize impacts to historic vegetation and potential archeological resources (Drawing 7).[33] During the rehabilitation and expansion of the New Barn, non-historic, ornamental plantings should be removed and no new ornamental plantings should be added after the building work is completed. The New Barn and expansion are located in the North Field and proposed planting should be compatible with the agricultural crops historically grown in this field. A detailed discussion of rehabilitating the North Field and recommended planting is presented under the Vegetation section of the treatment tasks (VG-10).

BL-2 Rehabilitate Pet Cemetery arbor

During the Roosevelt tenure, an arched arbor was located east of the Pet Cemetery and framed a pedestrian path from the Service Road to the Theodore Roosevelt Home (Figure 7). The arbor was aligned on center with a north-south oriented, compacted soil path. West to east, the width of the arbor was roughly nine feet by six feet in length. Its approximate height was seven feet and underneath the arbor, wood benches flanked either side of the central path (Figure 8).

The current arbor, benches, and central path all differ from the composition seen in historic photographs. Presently there are three wood benches, constructed from pressure treated lumber, and located on the north, west, and east sides of the arbor. Due to the bench on the north side, access through the arbor to the Service Road—presently a road trace—is impossible. A north-south oriented crushed-stone path ends at the arbor and expands to the west for visitors to observe the Pet Cemetery stone marker. The arbor is constructed from metal pipe that has been painted black and the paint finish is in fair to poor condition. The overall shape of the arbor is rectangular with rounded corners were the vertical pieces meet the horizontal, overhead members. A mixture of Norway maple, oak, and black cherry form a wooded area north of the arbor (Figure 9).

The arbor is an important feature in the landscape that acts as a pedestrian gateway to the Theodore Roosevelt Home and is highly visible to visitors on Sagamore Hill Road. The current arbor is not historic and a new arbor, seating, and planting should be part of a rehabilitation to highlight the Roosevelt family's use of their landscape and to reinforce historic circulation routes.

Rehabilitating the arbor is a challenging task with few pictures from the period of significance and no written record providing a description, purchase information, or correspondence about the design and construction. The photographs do not clearly show if the arbor attaches to the benches or if the arbor members extend all the way to the ground. If the latter configuration is correct, it is not clear how the members are supported or anchored.

The proposed design for a new arbor seeks to recapture the arched form of the historic structure and the symmetry of the bench layout. The arbor structure and benches are independent components and would allow flexibility if new research revealed details of the historic design. To reduce future maintenance requirements, the arbor should be fabricated and then the metal components finished with a color-galvanized coating in a light gray that matches the historic photograph.[34] The color-galvanized coating will last longer and require less maintenance than traditional prime and paint finishes. Duncan Galvanizing™ and Voigt and Schweitzer Galvanizing™ are two national companies that offer color-galvanizing services.

Two new benches should be constructed that reflect the simple detailing seen in the historic photographs. The benches should be made from cedar, left unfinished, and allowed to weather naturally. Before the installation of the arbor and benches, the crushed-stone surface should be graded to balance a higher elevation on the east side and lower elevation on the west side. The arbor should be shifted slightly to the west from its current location to align on center with the current path. A concrete, sonotube footing should be installed at each corner of the new arbor. At the north end of the arbor, a three-foot wide crushed-stone path should be extended to the Service Road trace (Figure 10). The excavation for the footings and extension of the crushed-stone path to the Service Road trace will require review and consultation with regional archeologists. After installation of the new structure and benches, the historic character of the arbor should be enhanced by adding new plant material. Planting recommendations for the arbor will be discussed under Vegetation section of the treatment tasks (VG-7).

BL-3 Remove non-historic wood gazebo in the flower and vegetable garden

East of the Stable and Lodge and north of the Chicken House and Farm Shed, the Roosevelt family maintained a sizeable flower and vegetable garden during their stewardship of Sagamore Hill. The garden was rectangular in shape, approximately 3.2 acres in area, and produced all the fruits and vegetables the family needed.[35]

A central path lined with evenly-spaced trees divided the garden into northern and southern halves.[36] A wood post and rail fence marked the southern boundary of the garden and kept it separated from the North Field. At the west end of the central path, an arched arbor marked the entry into the garden. South of the arbor, a planting bed contained cut flowers, space for the Roosevelt children to plant what they wished, and roses.[37] In general, planting in the garden was divided into a western third containing fruit trees and flowers and a larger eastern portion where vegetables and grapes were grown.

The entry drive for the current visitor parking lot, constructed in 1953, bisected the flower and vegetable garden and left a fragmented piece to the west and east of the drive. In September 1958, the Theodore Roosevelt Association purchased a nine-foot diameter, wood timber gazebo and installed the structure west of the entry drive at the end of the truncated central path.[38]

Although arbors were located in the historic flower and vegetable garden, the gazebo is a non-historic introduction. The gazebo creates the appearance that the central path was intended to terminate at a structure instead of continuing across the entire garden. Additionally, the gazebo implies the garden was

primarily decoration for a restful, covered seating area and not actively maintained to provide food and recreation opportunities.

To better present and interpret the historic flower and vegetable garden as an integral part of the Roosevelt family's daily life, the non-historic gazebo should be removed.[39] Further discussion of the flower and vegetable garden is provided under the Vegetation section of the treatment tasks (VG-14).

BL-4 Remove non-historic visitor contact station and rehabilitate chicken yard

As a component of the working farm maintained during the Roosevelt tenure, the family and staff raised chickens and incorporated structures into the landscape to support this activity. In circa 1900, the Chicken House was constructed south of the Farm Shed on the western edge of the North Field.[40] A chicken yard associated with the structure is indicated by a series of historic aerial photographs that show a region south of the Chicken House with a different surface treatment.

In addition to the aerial photographs, evidence that an area south of the Chicken House was maintained as a chicken yard throughout the period of significance is supported by historic photographs, Edith Carow Roosevelt's account books, and an insurance survey performed immediately following the end of the period. A circa 1918 photograph shows a fenced area south of the south facade of the Chicken House (Figure 11). The posts are four-by-fours approximately seven feet in height and spaced at four feet on center. Hexagonal mesh chicken wire is attached to the outside face of the posts. The posts appear to be attached to two-by-fours that were driven into the ground as stakes to secure the fence. On the inside face of each post, a two-by-four is visible extending approximately eighteen inches above the ground surface. The above ground portion of the stake provided a nailing surface to attach the post. Access into the chicken yard was through a double-leaf gate that swung away from the yard and was located at the southwest corner of the Chicken House (Figure 12).

Edith Carow Roosevelt's account books for the property span from 1912 to 1940 and further demonstrate that throughout the period of significance, the family and staff raised chickens, sold chicken eggs, and would have maintained the chicken yard.[41] Following Edith's death, an insurance survey conducted in June 1950 recorded extant structures and their condition on the property. There is no description of the chicken yard, however, the survey describes the "Wood Shed and Chicken House" and notes presence of "a few chickens kept in this building."[42] A diagram prepared for the survey shows the Chicken House, a second structure—the wood shed—attached to the east facade of the Chicken House, and a dashed line represented the chicken yard (Figure 13). Based on this

diagram, the chicken yard measured approximately thirty by fifty feet with the longer dimension running south from the Chicken House.

In 1956, the Theodore Roosevelt Association constructed a visitor contact station on the western edge of the North Field. Sometime between the 1950 insurance survey and this new construction activity, the chicken yard was removed. The visitor contact station was positioned west of the parking lot and southeast of the Chicken House and Farm Shed. The new building forms a barrier between the parking lot and the Theodore Roosevelt Home and its massing and exterior finish are not compatible with the agricultural buildings from the period of significance. The visitor contact station draws attention away from the Chicken House and Farm Shed and detracts from visitors' understanding of the site as a working farm.

As part of the General Management Plan, the park plans to expand and rehabilitate the New Barn to serve as a visitor contact station. Coupled with that objective, the park should remove the 1956 visitor contact station and rehabilitate the chicken yard. The existing picnic tables and associated site furnishings west of the visitor contact station should also be removed. The chicken yard should be defined by a fence constructed from series of four-by-four posts installed at four feet on center. The posts should be seven feet high and have hexagonal mesh chicken wire attached to their outside face. The fence should begin twelve feet east from the southwest corner of the Chicken House and extend twenty-eight feet wide by forty-eight feet in length to create even sections with the post spacing. A double-leaf gate with each leaf having a diagonal cross brace should be located at the northwest corner of the fence where it meets the Chicken House (Figure 14).

The proposed area for the chicken yard coincides with an existing area of stonedust paving west of the visitor contact station. The stonedust paving inside the chicken yard should remain and be periodically replenished. The stonedust paving outside the chicken yard should be removed, clean topsoil added to the removed area to match surrounding grades, and finally planted with a traditional lawn seed blend. Although located in the North Field, the Chicken House and chicken yard are not contiguous with other sections of the field due to the visitor parking lot. The Chicken House and chicken yard area share a boundary with the north section of the Southeast Field and identical to this area, should be managed as regularly mown lawn in order to support park programming. Recommendations for mowing schedules are presented under the Vegetation section of the treatment tasks (VG-13). The agricultural character of the chicken yard should be further enhanced through vegetation tasks described in treatment task VG-15.

BL-5 Minimize landscape impact of new maintenance facility near Gray Cottage

In 1910, Gray Cottage was constructed for Roosevelt's valet, coachman, and their respective families. The two and one-half story wood frame structure was located on the western edge of the woodlands and east of a forested ravine that divided the South Field. Based on a review of aerial photographs, a two-car garage was added west of Gray Cottage sometime after 1950 but before 1962. During the period of significance, the South Field was cultivated for hay production and most likely had alternating crops of alfalfa and timothy.

Gray Cottage currently provides staff housing. Originally divided into two apartments, the structure has been modified into a single family home. The two-car garage is still present west of Gray Cottage and a temporary metal frame structure has been erected west of the garage for maintenance storage.

The park's current maintenance facility is located in the Old Orchard garage about 300 feet north of the Old Orchard home. The converted six-car garage provides 1,800 square feet of space for maintenance functions and lacks many operational and environmental safeguards. The garage has no fire suppression system and does not meet Occupational Safety and Health Administration (OSHA) standards for ventilation, lighting, and egress. Additionally, the building does not meet national or state codes for mechanical and electrical systems.[43]

Due to the size of the Old Orchard garage, the park has dispersed maintenance functions and storage to other locations on the site. In addition to a temporary structure near the Gray Cottage garage, dumpsters for trash and recycling collection are located in a paved area east of the New Barn (Figure 15). A stockpile of stonedust, to replenish the path to Old Orchard, is located in the Southeast Field as are a few piles for composting leaves and organic debris. The dumpsters, stonedust, and composting piles are partially screened by woody vegetation in the North and Southeast Fields. While the dumpsters can be seen looking south from the visitor parking lot, heavier vegetation and signage discouraging visitors from entering the Southeast Field and keep the piles out of view. The General Management Plan calls for removing the 1950s Gray Cottage garage and constructing a new 6,000 square foot maintenance facility in this general location. The existing topography in this area creates a challenge in siting a building of this size.

The new maintenance facility should be appropriately located with minimum impact to the historic scene and configured to maximize visitor and employee safety and operational efficiency.[44] A recommended approach would be to orient the long axis of the building in a roughly north-south direction. With woody vegetation removed from the North Field, this orientation would expose a smaller portion of the building when visitors look south across the field. Parking

and vehicle storage would be to the west of the proposed building and a retaining wall would be required on two sides to provide a sufficiently level area for vehicles. A screen planting that utilizes a mixture of deciduous and evergreen species should be incorporated on the north side of the new building and parking area to further minimize views of non-historic features. The proposed plant material, such as eastern white pine (*Pinus strobus*), American holly (*Ilex opaca*), and blackhaw viburnum (*Viburnum prunifolium*), should be compatible with the surrounding woodlands and by blending with existing plants, will aid in screening the area (Figure 16).

In addition to siting the new maintenance building, design development should include safe and functional circulation along with areas for trash and recycling, material storage, and composting. The existing trash and recycling containers and stockpiled materials are incompatible with the open, agricultural character of the historic fields. The presence of these items will be more pronounced after the existing woody vegetation has been cleared and the areas replanted with compatible grass species as detailed under the Vegetation section of the treatment tasks (VG-10). Plans for locating trash, recycling, and material storage must address the proper space and clearance requirements as well as providing access. Ideally, these areas would be located south of the new maintenance building so that the building screens the containers from views across the North Field.

BL-6 Minimize landscape impact of addition for curatorial, research, and educational functions at Old Orchard

When Theodore Roosevelt purchased Sagamore Hill in 1880, an orchard existed on the eastern edge of developed, agricultural land. During his thirty-nine years at the property, between fifty and seventy fruit trees, primarily apples, where maintained in a northwest to southeast grid pattern. In 1937, Theodore Roosevelt Jr. and his wife Eleanor commissioned architect William McMillan to design a nineteen-room, brick, Georgian Revival home in the southern portion of the orchard. McMillan's design also called for a wood-shingled foreman's cottage and six-car garage located approximately 250 feet north of the brick home. E. W. Howell Company completed construction on the three buildings in 1938.[45] The main home, known as Old Orchard, and the two other buildings were connected by a driveway that led to a road north of Sagamore Hill. The buildings and driveway occupied approximately one-half acre that had been orchard. Although the number of fruit trees was greatly reduced, trees remained in between the buildings and on either side of the driveway.

In 1966, the first floor of Old Orchard was converted into a museum and the second floor into offices for National Park Service administration. The building continues to serve both interpretive and administrative functions and also

contains some collections storage. Additional archival storage is located in the basement of the Theodore Roosevelt Home but neither this space nor the one at Old Orchard is sufficient for curatorial staffing and adequate protection of the collections. Researchers wishing to study Sagamore Hill's collections do not have a dedicated space and currently use the staff conference room in Old Orchard. To address the needs for climate-controlled collection storage, researcher workspace, and educational programming, the park plans to construct a 6,600-square foot addition at the Old Orchard home.[46]

The addition should be designed to minimize intrusions on views looking east from the historic core landscape toward Old Orchard. Furthermore, the proposed addition should not impact existing trees in the historic orchard or plans to rehabilitate the orchard. Therefore, the siting of the addition should be to the south and east of the existing Old Orchard home (Figure 17). Although the proposed location of the addition is within the footprint of the historic orchard, restoring a contiguous grid of fruit trees across the extents of the historic orchard is not possible due to the interruption caused by the Old Orchard home, auxiliary buildings, and circulation features. More uninterrupted space is available to the north and west of the Old Orchard home. In this larger area, the orchard should be rehabilitated to aid visitors' understanding of an historic agricultural space. The orchard rehabilitation will be discussed further under the Vegetation section of treatment tasks (VG-12). Constructing the addition south and east of the Old Orchard home will require the removal of some existing trees, however, none of the trees were identified as dating to the period of significance in the 1995 Historic Plant Inventory.

BL-7 Replace Eel Creek Bridge in historic location

During the historic period a bridge crossed Eel Creek near the northern property boundary and provided access to the beach along Cold Spring Harbor (Figure 18). Based on a review of aerial photographs, the bridge was removed after 1950 but before 1962. During the National Park Service's stewardship of Sagamore Hill, a new bridge was constructed approximately 275 feet south of the historic location. Presently, Cold Spring Harbor beach is rarely interpreted and the difference in the current and historic bridges does not detract from the historic character of the site. When it becomes necessary in the future to replace the bridge, a more historically accurate construction and location should be used (Drawing 8).[47]

BL-8 Preserve culvert, retaining walls, and drainage gutters

Several site engineering elements were constructed in association with the major vehicular routes that led to the Theodore Roosevelt Home. Near the southwest corner of the property, a culvert and a stone retaining wall were installed along

the Carriage Road. The Macadam Road, constructed in 1912, replaced the Carriage Road as the primary vehicular route to the house. Designed by Hans Rude Jacobsen, construction of the Macadam Road included installing drainage gutters on either side of the new route. A design drawing shows the gutters consisted of four inches of broken stone set into a concrete trough (Figure 19). A 1916 photograph shows the completed Macadam Road with the gutters present on either side. Immediately east of the road, a retaining wall is visible constructed from vertical wood posts and horizontal wood slats (Figure 20). At some point after this photograph was taken, the wooden retaining wall was removed and a dry-laid stone retaining wall was constructed. Further information on the construction of the stone wall has not been discovered.

Both stone retaining walls were recently stabilized through a project that removed adjacent trees and involved masons from the Historic Preservation Training Center who reset the stones (Figure 21). In order to preserve the walls, continued monitoring will be necessary to identify and remove any emerging large, woody vegetation that could impact the walls. Additionally, major freeze and thaw cycles may disrupt a stone and any displacement should be addressed immediately to maintain the structural integrity of the walls.

The culvert associated with the Carriage Road is currently covered by a large piece of bluestone and this cover should remain in place to reduce the possibility of accidents. The concrete drainage gutters are presently in good condition although the layer of broken stone is not present.[48] Large equipment and vehicles should be kept away from the gutters and they should be monitored so that any damage is repaired before further deterioration can develop.

VEGETATION

During the historic period, the general character of the vegetation at Sagamore Hill was vernacular, consisting of features common to a working farm including fields, pastures, and woodlands. Vines were trained to grow at key locations on the Theodore Roosevelt Home and a lawn area around the home was planted with groupings of deciduous and evergreen trees. The eastern end of the working farm contained an orchard and the family maintained over three acres as a garden that produced fruits, vegetables, and flowers.[49]

After farming activities ceased, successional woody vegetation emerged in the agricultural spaces and changed the open landscape character to resemble the mature, surrounding woodlands. Vines were removed from the Theodore Roosevelt Home and in the adjacent areas, non-historic shrubs were added beneath the trees in open lawn. The orchard lost a significant number of trees and the flower and vegetable garden was interrupted by the current entry and parking lot. The vegetation treatment tasks address protection of historic, extant plant material, rehabilitation of missing features such as the agricultural fields,

removal of non-historic plants that detract from historic character, and management of invasive non-native plant species.

VG-1 Replace vine planting on Theodore Roosevelt Home

Photographs and documentary sources from the Roosevelt tenure at Sagamore Hill indicate vines were planted and maintained on components of the main house. Two vine species were trained around the columns of the porte-cochere and greeted the Roosevelt family and visitors arriving at the main entry. The south columns of the porte-cochere were planted with wisteria (Figure 22). The north columns and portions of the veranda were planted with fiveleaf akebia (Figure 23). The akebia can be identified as a different species due to its finer texture and distinct, palmately compound leaves (Figure 24). East of the porte-cochere, additional wisteria was planted around the bay window of the library. In a 1911 letter to his sister, Theodore Roosevelt stated, "…I am dictating this at my desk at Sagamore, and just outside the window the wisteria is blooming in masses on the vine that Edith planted with the special purpose of my being able to see it."[50] In addition to the porte-cochere, veranda, and library, vines were planted on the west and north facades of the North Room. Shortly after construction of the North Room in 1905, wisteria was planted at several locations along the two facades and trained to grow around the windows (Figures 25 and 26). The wisteria remained on the porte-cochere, library, and North Room throughout the period of significance, however, the akebia was removed from the north columns of the porte-cochere and veranda in circa 1922.[51]

During the National Park Service's stewardship of Sagamore Hill, the wisteria vines were removed to prevent damage to the Theodore Roosevelt Home.[52] Today, a wisteria vine is present near the southeast corner of the porte-cochere and another is growing southwest of the library's bay window. Both vines may be remnants of or possibly self-seeded from the historic plant material. At both locations, the vines are maintained away from the building and without training or structural support their new growth splays across the ground. Other vines planted at the porte-cochere and North Room are not present.

Vines were an integral component of the historic character of Sagamore Hill's landscape and should be replaced. Their replacement should be done in a manner that avoids damage to the structure and reduces maintenance difficulties. A detachable trellis system should be installed that will prevent damage to the structure (Figure 27).[53] Design details for such a system can be found in Appendix A. The following vines should be replaced on the main house:

- Wisteria (*Wisteria* sp.) should be planted by the southwest column of the porte-cochere and allowed to grow up and around the column. The single, existing wisteria should be trained onto the southeast column.

- Wisteria (*Wisteria* sp.) should be planted southeast of the library's bay window. An existing wisteria southwest of the bay window and the new planting should be trained to surround the window.
- Wisteria (*Wisteria* sp.) should be planted along the north and west sides of the North Room and trained to cover those facades (Figure 28).

The installation of a trellis system and vine planting should occur after exterior repairs to the Theodore Roosevelt Home, scheduled to begin in fall 2010. Once established, the vines should be pruned two to three times a year. The first pruning should be scheduled for spring to reduce the vines' length to four to six vegetative buds. If the vines are vigorously growing, a second pruning can take place in August but this pruning is as needed. The final pruning should be scheduled for fall.[54]

VG-2 Replace shrub planting near porte-cochere

Several photographs from the historic period indicate shrubs were planted south of the porte-cochere and in an area between the circular drive and library. A 1905 photograph was analyzed in Volume 1 and a bridalwreath (*Spiraea prunifolia*) was identified along the circular drive east of the porte-cochere and south of the library (Figure 29). In the same image, barberries were identified at the southwest and southeast corners of the porte-cochere and a single yew (*Taxus* sp.) was identified adjacent to the barberry at the southwest corner.[55] A later photograph shows a shrub planted near the southwest corner of the porte-cochere, however, it is difficult to clearly identify planting at the southeast corner (Figure 30). Finally, film recorded between 1916 and 1918 shows Roosevelt greeting visitors west of the porte-cochere. The camera looks over Roosevelt's back at the circular drive lawn and a deciduous shrub can be seen near the southwest corner of the porte-cochere (Figure 31).

In 1995, the Historic Plant Inventory recorded three Japanese barberries approximately six feet south of the porte-cochere. The barberries were spaced between eight and twelve feet apart. The inventory did not list an age range for the shrubs or if the shrubs were likely present during the historic period. Between the circular drive and library, the inventory recorded a hedge comprised of seven Japanese barberries. Volume 2 recommended that the barberry hedge be removed and today, the shrubs are no longer present.[56] A single barberry is located near the southwest corner of the porte-cochere and is in fair to poor condition.

In addition to replacing the vines on the porte-cochere, deciduous shrub plantings south of the structure and near the library should be replaced. Multiple photographs from the historic period show deciduous material while the presence of an evergreen shrub, identified as a single yew (*Taxus* sp.), is

inconsistent (see Figures 29 and 31). The added planting will improve the character of the primary entry used by the Roosevelts and experienced by visitors today.

A bridalwreath (*Spiraea prunifolia*) should be planted east of the library's bay window along the circular drive. Presently, a large purple beech (*Fagus sylvatica* 'Purpurea') that dates to the Roosevelt tenure is located immediately south of the library. In order to minimize potential conflicts with the purple beech, the bridalwreath should be planted at the end of the purple beech's lifecycle. Deciduous shrubs should also be added south of the porte-cochere, however, barberries are not recommended for replanting due to the prolific number of seeds each barberry can produce and the ease with which they escape cultivation. Barberries have been identified by the U.S. Department of Agriculture as an invasive exotic plant species of management concern primarily because of the plant's ability to spread by seed. The existing barberry near the southwest corner of the porte-cochere should be removed. In place of barberries, male winterberry hollies (*Ilex verticillata* 'Jim Dandy') should be planted since they are deciduous and compatible in leaf size and texture (see Figure 28). Male winterberry hollies will not produce fruit and compact-growing cultivars such as 'Jim Dandy' will appear consistent with the character of shrubs seen in the historic images. Similar to other vegetation tasks around the main house, shrub replacement should occur after completion of exterior repairs to the Theodore Roosevelt Home.

VG-3 Replace cherry trees in circular drive lawn at the end of their lifecycle

Photographic and documentary evidence from the period of significance indicate the tree species planted in the circular drive lawn were an American elm (*Ulmus americana*), a Scotch elm (*Ulmus glabra*) and a tulip poplar (*Liriodendron tulipifera*) (Figure 32 and see Figure 30). Visual characteristics from the photographs are supported by a 1911 map prepared by Hans Rude Jacobsen for improvements to paving and drainage at Sagamore Hill. Jacobsen's map identified two elms and a tulip poplar in the drive circle. A year later, a work order from Hick's Nurseries listed the Scotch elm as "near the front door."[57]

In 1949, less than a year after Edith Carow Roosevelt's death, A. J. Edwards and T. S. Prime prepared a survey focusing on approximately twenty acres around the Theodore Roosevelt Home. The survey confirms the three trees were extant at the end of the period of significance.[58] In 1950, photographs of the south facade and circular drive show only the American elm on the western portion of the lawn and by 1957, the elm was removed (Figure 33). That same year, Japanese Premier Nobusuke Kishi visited Sagamore Hill and with the Theodore Roosevelt Association, planted two cherry trees in the circular drive lawn to recognize Roosevelt's role in the Russo-Japanese War peace negotiations. The trees were

offspring of the 1912 trees planted at the Washington, D.C. tidal basin.[59] The cherry trees are still present in the circular lawn and are in good condition. When in bloom, the trees are visited by Japanese tourists and enjoyed by other visitors to the park (Figure 34).

The cherry trees are a commemorative planting and were not present during the period of significance. After the cherry trees have substantially declined and require removal, the circular drive lawn should be planted with the American elm, Scotch elm, tulip poplar identified by historic photographs and documents. The American elm should be located on the west side, the Scotch elm on the east side, and the tulip poplar on the south side of the circle (Figure 35).[60] Following their removal, the cherries should be replaced in kind in a location where there are plantings that post date the period of significance, such as the northern or southern perimeter of the visitor parking lot.

VG-4 Replace honey locust with American elm at southwest corner of Theodore Roosevelt Home

Historic photographs from the period of significance indicate that an elm tree anchored the southwest corner of the Theodore Roosevelt Home. The elm would have been seen by visitors approaching the home from the Carriage Road and this entry experience and view was one of the most significant features of Sagamore Hill's landscape. In addition, the elm was in close proximity to the veranda where Roosevelt delivered acceptance speeches for his nomination for Governor, Vice President, and President to audiences gathered on the West Lawn. Both speaker and members of the audience would have been in shade cast by the gracefully arching branches of the elm (Figure 36).

Volume 1 and 2 identified the historic elm as a "weeping elm" (*Ulmus* sp.) based on maintenance work orders from a local nursery.[61] Still images recently captured from the 1912 film *Roosevelt at Home* suggest that the elm was an American elm (*Ulmus americana*) and the "weeping" appearance is part of the tree's habit and not indicative of a weeping cultivar or variety (Figure 37).

Based on historic photographs, a thornless honey locust (*Gleditsia triacanthos* var. *inermis*) was planted after 1950 at the southwest corner of the home. The honey locust is extant and in good condition, however, it displays characteristics that are not consistent with the historic elm. Most notably, the canopy of the honey locust has a broader, more horizontal habitat. In contrast, elm branches form a "V" shape that is closer to the main trunk, then extend out in a more horizontal plane, and finally arch gently down toward the ground.

In order to provide visitors with the form and characteristics of a highly visible tree that existed during the historic period, the existing honey locust should be removed and replaced with an American elm. American elms are susceptible to Dutch elm disease—a fungus brought to the tree by the Dutch elm beetle—and

many individual and group plantings of elms have been decimated by the disease. Current research recommends planting one of two cultivars. In field tests the American elm cultivar 'Valley Forge' showed the best resistance and the cultivar 'Princeton' showed the most vigorous growth and very good resistance.[62] 'Valley Forge' should be selected for the southwest corner of the Theodore Roosevelt Home due to its better disease resistance and because its habit is more pendulous and in keeping with the historic images.

VG-5 Inspect and repair lightning protection for signature trees from the period of significance

Dating to the mid-eighteenth century, a white oak (*Quercus alba*) located near the Service Road was a substantial tree when Roosevelt purchased Sagamore Hill and commissioned the design and construction of the home. After construction was completed, other trees were immediately planted around the home and by the early 1890s, were well established (Figure 38).[63] One of these trees, a purple beech (*Fagus sylvatica* 'Purpurea'), was planted east of the porte-cochere and just south of the first floor library.[64] Both trees have an association with the property during the period of significance and were defining features in the landscape. Sagamore Hill's successive stewards have maintained these trees and as part of that process, lightning protection was added to both. Lightning protection was also added to an American elm (*Ulmus americana*) northwest of the North Room and a sugar maple (*Acer saccharum*) east of the North Room. Both trees have been identified as dating to the Roosevelt tenure.

Today at certain locations, the grounding cable is not secured to the trees. At other locations, the tree has grown around the cable (Figure 39). Since wood is a poorer conductor than metal, the cable's ability to ground charges has been reduced and it is not providing full protection. In addition, the air terminal of the protection system is no longer at a high location in the tree canopy where it can be most effective.

To continue preserving signature trees from the period of significance, a certified arborist should be contracted to inspect and repair the lightning protection system. Due to the oak's proximity to the Gardener's Shed and the purple beech, American elm, and sugar maple's proximity to the Theodore Roosevelt Home, a lighting strike to the trees could also result in damage to nearby historic structures. Therefore, inspecting and repairing the protection systems would be beneficial to multiple resources.

At the Theodore Roosevelt Home, lighting protection is being upgraded as part of the building's pending exterior repairs and inspecting and repairing the protection for the trees should be coordinated with that effort. In addition, a certified arborist should routinely monitor the four trees for any signs of damage or disease and recommend and perform necessary treatments.[65] Many other

existing trees at Sagamore Hill date to the Roosevelt tenure, however, these trees are not likely candidates for new lightning protection systems. Unless a tree is immediately adjacent to an historic structure, the initial cost of a protection system and required routine maintenance can be excessive given the low probability of a lightning strike.

VG-6 Remove non-historic shrubs at the Ice House

Shortly after the completion of the Theodore Roosevelt Home in 1885, the Ice House was constructed about twenty feet east of the kitchen wing. Ice would be collected or cut from nearby ponds and placed in a below ground storage area enclosed by a brick, octagonal structure (Figure 40). Areas around the Theodore Roosevelt Home, including the Ice House, featured trees in open lawn and were distinct from the open West Lawn and agricultural spaces.

During the Theodore Roosevelt Association stewardship of the property, the Ice House was renovated to provide public restrooms. Non-historic, ornamental shrubs including pieris, leucothoe, and forsythia were added in the lawn area between the circular drive and Ice House (Figure 41). Shrubs were interspersed in lawn, placed at the foundation of the Ice House, and aligned along the edges of a new brick walkway that connected the circular drive and Ice House. The restrooms were closed in 1956 with the completion of the visitor contact station, however, the shrub planting and brick walkway remain largely intact and create a more formal setting for a utilitarian outbuilding.

The non-historic shrubs at the Ice House should be removed (Figure 42). The large trees to the east of the Ice House and the vertical yews should remain and be protected during any work on or near the structure. Removal of the non-historic shrubs should be coordinated with planned exterior repairs to the Theodore Roosevelt Home. Finally, shrub removal should be coordinated with a rehabilitation of the Ice House walkway discussed under the Circulation section (CR-3).

VG-7 Replace shrub and vine planting at rehabilitated Pet Cemetery arbor

During the Roosevelt tenure, an arched arbor was located east of the Pet Cemetery and framed a pedestrian path from the Service Road to the Theodore Roosevelt Home. On the west and east sides of the arbor, wood benches and plant material created a symmetrical composition based on the centerline of the pedestrian path. The benches were placed under the arbor on lawn located on either side of the path. Two large deciduous shrubs or small trees were planted on the north side of the arbor. The two separate plants were equally spaced on the west and east side of the structure and reinforced the central axis of the path. In an historic photograph looking north, rambler roses (*Rosa* sp.) are visible

growing on both sides of the arbor, climbing toward the top of the curved supports (see Figure 8).

At present, roses are not growing on the arbor and the symmetrically place deciduous shrubs are absent. The existing trees located north of the arbor, particularly the dense foliage of the Norway maples, cast heavy shade on the location and make sustaining some plant material difficult.

In addition to rehabilitating the arbor structure and benches, shrubs and vines should be replaced to create a compatible ensemble of features that were present during the period of significance. Prior to new vine and shrub planting, several of the Norway maples should be removed to increase the amount of light in this area. Following those removals, two nannyberry viburnums (*Viburnum lentago*) should be planted on the north side of the arbor in line with the west and east arbor posts. The nannyberry viburnums are compatible in size, form, and texture with the deciduous shrubs visible in the historic photographs. In addition, nannyberry viburnums will be more tolerant of shade cast by nearby trees than other deciduous shrub species.

Photographic analysis from Volume 1 identified the rambler roses growing on the arbor.[66] Even with the proposed tree removal there may not be sufficient light to maintain climbing roses. Two possible shade tolerant species include 'Ghislaine de Feligonde,' a hybrid multiflora introduced in 1916 and 'Cornelia,' a hybrid musk introduced in the 1920s.[67] If establishing climbing roses is not successful, a vine species that can handle moderate shade, like a white flowering clematis (*Clematis* 'Henryi'), should be planted along the west and east supports of the arbor and encouraged to twine up the metal structure. The lawn flanking the path in the historic photographs will be difficult to establish given the amount of shade and potential for visitor foot traffic. Therefore, the crushed-stone surfacing should remain under the entire arbor structure (see Figure 10).

VG-8 Remove woody vegetation from the Service Road trace roadbed and banks

Theodore Roosevelt purchased the Sagamore Hill property in 1880 and around that time, prepared a sketch that identified the property's existing agricultural uses, circulation, and natural features. In the northwest corner of the property, Roosevelt recorded a road that originated from the western property line, continued north, and wrapped east around two fields containing grass stubble and buckwheat (Figure 43). As Sagamore Hill was developed with the construction of the home, Stable and Lodge, and other outbuildings, this road became a Service Road that provided access to the working agricultural areas as opposed to the main entry route to the home. The Service Road had a compacted soil surface and while arguably wide enough to accommodate a carriage or farm equipment, its width during the Roosevelt tenure is not

documented.[68] After heading east past the Pet Cemetery, the Service Road turned south and terminated at the Carriage Road that connected the main house with the Stable and Lodge.[69]

In 1953, as part of the Theodore Roosevelt Association plan to open Sagamore Hill to the public, a new county road was constructed primarily over the historic route of the Service Road.[70] A portion of the historic Service Road, north of the Pet Cemetery and heading in a west to east direction, was not overlaid by the new county road (Figure 44). No longer utilized, the remaining Service Road became obscured in woodland vegetation.

Today, the Service Road is visible as a trace surrounded by woodland vegetation. The former roadbed is at a lower elevation than the surrounding grades with earth banks providing a transition from the north and south sides of the bed to the higher grades. The depressed bed and sloping banks clearly read as a landform that define the route for the Service Road. The bed is maintained free of vegetation and is currently surfaced with a thick layer of wood chips. Trees at the top of each bank help to reinforce the edges of the Service Road.

In order to preserve the Service Road trace, woody vegetation should be removed from the roadbed and banks. The wood chip surfacing should be replenished annually to discourage woody and herbaceous vegetation. Wood chips should come from the park or locally verified sources that will not introduce pathogens and insects such as the Asian longhorn beetle. In addition to the wood chip surfacing, any emerging vegetation on the roadbed should be mown or cut with monofilament trimmers. Trees should be selectively removed from the banks to prevent toppling during storm events and damage to the earthwork. Trees immediately beyond the banks may be candidates for removal as well, especially if there are signs of disease and damage. Following removal, the steep slopes of the banks should be planted with Virginia creeper (*Parthenocissus quinquefolia*) to stabilize the earth. Although information has not been discovered on groundcover planting along the Service Road during the Roosevelt tenure, Virginia creeper is an appropriate choice. Virginia creeper is a vine native to the eastern United States that will spread along the bank, limit potential erosion, and can tolerate the shade cast by other trees in the area.[71] After the Virginia creeper has established, the banks should be inspected once every year and the vines pruned back if they are approaching or climbing tree trunks. An additional discussion of compatible surface treatments for the Service Road is presented under the Circulation section (CR-4).

VG-9 Rehabilitate West Lawn

Situated on one of the highest points on the Cove Neck peninsula, the Theodore Roosevelt Home offered family and visitors alike a view west from the veranda to

Oyster Bay. Similarly, anyone traveling to the property on the Service Road had a view east of the home perched atop Sagamore Hill. Both of these views were enabled by an expansive lawn area, approximately five acres, immediately west of the main house. Referred to presently as the West Lawn, the area was divided into two distinct vegetation types during the Roosevelt tenure. In the vicinity of the main house, the lawn was cut shorter and more frequently than in other parts of the working agricultural landscape. About thirty-five feet from the west facade of the house, the maintained lawn transitioned to a meadow that continued west to the Service Road. Historic photographs show that the meadow was maintained at approximately eighteen to twenty-four inches and that oxeye daisies were the dominant flowering plant in the late spring and early summer. Prompted by the abundance of the white flowers, Roosevelt family members referred to the area as the "Daisy Meadow" (Figure 45).

Similar to other open, agricultural spaces at Sagamore Hill, the West Lawn was not frequently maintained during the Theodore Roosevelt Association's stewardship of the property. Successional woody vegetation can be seen in a 1950 aerial photograph and was left unchecked (Figure 46). By the late 1990s, the open and expensive character of the West Lawn was severely compromised by large trees and shrubs.

In the past decade, a large portion of the West Lawn was cleared. The cleared area is currently a mixture of perennial rye grass, tall red fescue, oxeye daisies, broad-leaf weeds, and woody invasives like Japanese honeysuckle (*Lonicera japonica*) and multiflora rose (*Rosa multiflora*). South of the cleared area, a section of the West Lawn remains in forested cover with major species that include red oak (*Quercus rubra*), yellow birch (*Betula alleghaniensis*), and Norway maple (*Acer platanoides*).

Non-historic successional vegetation should be removed from nine tenths of an acre immediately south of the West Lawn's existing cleared area. A non-selective herbicide should be applied across the existing cleared area that will kill both the woody invasive plants and the existing grasses and herbaceous material. The park should continue to work with the Northeast Exotic Plant Management Team to manage the invasives in the West Lawn. After the removal of successional vegetation and treatment of invasives, the West Lawn should be seeded with a mixture of native warm season grasses and forbs.

Since daisies were the dominant flowering plant in the West Lawn, extra measures need to be taken to ensure they are reestablished after the clearing and invasive treatment. Oxeye daisies are originally a European species and it will be difficult to find a seed mix or supplier that incorporates oxeye daisies with native warm season grasses.[72] In order to establish daisies, their seeds should be purchased independently from the main mix and applied by a mechanical or

hand-operated spreader. The daisy seeds should be applied after the main mix has been planted by a seed drill because the daisy seeds, and any other ground debris, can clog the drill mechanism. If the main mix is applied by hydro-seeding, the daisy seeds should be spread first before the wood fiber mulch, a component of hydro-seeding, covers the ground. Once the grass, forb, and daisy seeds have established, the West Lawn should be mown to encourage daisy flowering and the character of the lawn seen in historic photographs. A proposed mowing plan detailed in task VG-13 will provide further information on heights, frequency, and seasons for mowing.

VG-10 Rehabilitate Southeast, South, and North Fields

During the Roosevelt tenure at Sagamore Hill, four agriculture spaces were maintained in an area east of the main home and west of the orchard. The eastern most area was a pasture that research indicates was referred to as the Cow Pasture. Research has not revealed if the three other spaces were known by individual names. Since the existing conditions of the Cow Pasture are markedly different compared to the other three agriculture spaces, treatment recommendations for the Cow Pasture are addressed separately.

To avoid confusion in discussing the other three agricultural spaces, this updated treatment plan refers to them as the Southeast, South, and North Fields (see Figure 46). The four spaces were distinct during the historic period and their edges were defined by fence lines, vegetation, and circulation features.

The Southeast Field, located southeast of the main house and immediately east of the Windmill, was a cultivated field where corn and timothy were grown (Figure 47). The field was roughly triangular in shape with the south side defined by Sagamore Hill's property line. On the west side of the field, the Carriage Road and later the Macadam Road served as boundaries. On the east side, a fence line ran perpendicular to the property line and proceeded north to form a point near the Stable and Lodge.

East of the Southeast Field were two rectangular spaces now referred to as the North Field and the South Field. The North Field was the larger of the two areas and was bounded by the Southeast Field to the west, the flower and vegetable garden to the north, and the Cow Pasture to the east. The southern boundary was a fence line that separated the North and South Fields. The South Field was divided by a forested ravine that emerged from woodlands on the field's southern and eastern boundaries. Both fields were used for grazing and hay production and most likely had alternating crops of alfalfa and timothy (Figure 48).

The agricultural spaces present during the Roosevelt years at Sagamore Hill were not rigorously maintained when the Theodore Roosevelt Association began their stewardship of the property following Edith Carow Roosevelt's death in 1948.

An aerial photograph from 1950 shows successional forest growth emerging in parts of the Southeast and South Fields (see Figure 46). The succession process was allowed to continue and larger deciduous trees replaced smaller pioneer species. Today, the clear definition of these three agricultural spaces is lost. All three fields are moderately to heavily wooded and contain large numbers Norway maples (*Acer platanoides*), black cherries (*Prunus serotina*) and tulip poplars (*Liriodendron tulipifera*). In addition, the understory contains invasive non-native species including Asiatic bittersweet (*Celastrus orbiculatus*) and multiflora rose (*Rosa multiflora*). The northern portion of the Southeast Field, closest to the Windmill and Stable and Lodge site, is maintained as regularly mown lawn. This area also contains an asphalt path that provides pedestrian circulation from the visitor contact station to the Theodore Roosevelt Home. Deciduous trees are interspersed along both sides of the path and are accompanied by benches, trash receptacles, and waysides. Another circulation change dramatically affects the North Field. Installed in 1954, a visitor parking lot occupies roughly two-thirds of the historic field.[73]

In order to convey the agricultural character of Sagamore Hill during the period of significance, the Southeast, South, and North Fields should be rehabilitated. The rehabilitation process should start with treatment of invasive non-native species that are present in the wooded areas. The park should also move the composting and material storage areas from the Southeast Field to the proposed maintenance facility located near Gray Cottage.

Following these two steps, the non-historic woodland vegetation should be removed. The neighbors south of the park expressed concerns about views to their properties once successional vegetation had been cleared. Historically, the fields were maintained up to the southern fence lines that defined their boundaries. To minimize non-historic views, clearing should not extend all the way to the fence lines. The exact limit of clearing needs to be reviewed and determined in the field because specifying a buffer distance, for example twenty feet, may work in one location but only leave one existing tree in another. To improve visual screening between the park and neighboring properties, native evergreen trees such as eastern white pine (*Pinus strobus*) and American holly (*Ilex opaca*) should be planted in strategic locations.

After the fields have been cleared, they should be seeded with a mixture of native warm season grasses and forbs. Growing corn, cultivating other crops, or actively haying the fields would be appropriate treatments, however, their successfully implementation would require routine and intensive maintenance that the park may not have the staffing to sustain. In addition, it is unlikely a local farmer would be interested in managing Sagamore Hill's fields for hay. For visual compatibility, warm season grasses in the proposed mixture should not exceed three feet in height as timothy, alfalfa, and other species used in grazing and hay

production are not excessively tall. Forbs should comprise ten percent or less of the seed mixture as the fields were agricultural and not wildflower meadows. After the newly seeded fields establish, the heights, frequency, and seasons for mowing should follow the recommendations in task VG-13.

VG-11 Rehabilitate Cow Pasture

In addition to the Southeast, North, and South Fields, a fourth agricultural space existed in the historic core of Sagamore Hill. Interviews with Ethel Roosevelt Derby, Theodore and Edith's daughter, identified the open space immediately west of the orchard as a Cow Pasture that contained daisies and clover.[74] The Cow Pasture was a rectangular space defined by fences on all sides. In addition to the fence lines, the pasture's area was further reinforced by distinct, adjacent spaces. The orchard bounded the east side of the pasture and woodlands bounded the north and south sides of the space. West of the pasture was the North Field and vegetation along the fence line between these two spaces strengthened their demarcation.[75]

The fence lines that historically defined the four edges of the pasture are present today and are in good condition. Approximately five years ago, the park installed a stonedust path to provide access between the visitor parking lot and Old Orchard complex. The path divides the pasture into roughly equal north and south halves. The north half is relatively flat with the topography sloping slightly from north to south. In the southern half, the grade begins to slope steeply starting about 130 feet south of the path and continuing toward the woodlands. The maximum slope of the southern half approaches twenty percent (5:1 ratio).

Due to a recent equipment failure, the southern portion has not been consistently mown and is predominantly wood invasive species (Figure 49). The rest of the pasture is composed of a mixture of grass species, including perennial rye grass, creeping red fescue, and clover. An individual plant of giant ironweed (*Vernonia gigantea*) has been identified in the northeast corner of the pasture and as a New York State endangered plant species, marked with a stake so it is not mown.[76]

The southern portion of the Cow Pasture should be rehabilitated and both halves maintained to present a consistent agricultural space from the historic period. Continuing to work with the Northeast Exotic Plant Management Team, the park should develop specific treatments to manage the woody invasive plants in the south portion of the pasture. After the invasives have been successfully removed, the area should be seeded with a mixture of native warm season grasses and forbs. This mixture will be visually compatible with orchard grass, timothy, and other common pasture species while introducing native food and habitat opportunities for wildlife.

Although noted as a plant in the pasture during the historic period, daisies should not be planted or encouraged. Grazing animals find daisies irritating to walk through and less palatable than other species.[77] In contemporary animal husbandry, daisies are often associated with poor grazing and pasture management. Keeping daisies out of the Cow Pasture rehabilitation will avoid this negative connotation and aid in conveying the historic intent of this agricultural space. After the newly seeded southern half establishes, consistent mowing should be scheduled according to the recommendations in task VG-13. The existing ironweed should be preserved and mown only if determined to be a best management practice by a plant biologist.

VG-12 Rehabilitate orchard

When Theodore Roosevelt purchased Sagamore Hill in 1880, an orchard existed on the eastern edge of the developed, agricultural land. The orchard was a rectangular space bounded by a fence line shared with the Cow Pasture on the west and woodlands on the remaining three sides. In April 1916, correspondence between Roosevelt and Hicks Nursery regarding spraying the "apple orchard" reinforces that this space was actively maintained during Theodore Roosevelt's tenure.[78]

Photographs and written documentation that describe the scale, arrangement, and species composition of the orchard during the Roosevelt period have not been discovered. Seven years after Theodore Roosevelt passed away, an aerial photograph provides valuable information on the orchard's scale and arrangement. Based on the 1926 aerial, there were fifty-three mature orchard trees present east of an access road that paralleled the fence line between the orchard and Cow Pasture. Another eight trees were located between the fence line and access road. It is difficult to determine if these were fruit trees or other deciduous trees that simply reinforced the fence line (Figure 50).

The grid orientation shown in the 1926 aerial was rotated forty-five degrees from cardinal directions and aligned in a southwest to northeast and northwest to southeast axes. The grid arrangement averaged 30-feet between trees for the column spacing (southwest to northeast) and 33-feet for the row spacing (northwest to southeast).[79] The geometry and consistency of the grid would have been easily recognized in the landscape, however, the trees recorded in 1926 did not form a large, rectangular block as depicted in the 1963 *Historical Base Map* (Figure 51).

When the Old Orchard home was completed in 1938, the buildings and circulation system were not aligned parallel and perpendicular to the existing orchard. Aerial photographs from 1940 and later show a reduced number of trees and a less consistent arrangement resulting from Old Orchard's

construction, loss due to natural factors, and in general, a decline in the intensity of agricultural production. In addition to trees being removed for Old Orchard's construction, more trees were lost due to a circa 1940 ice storm (Figure 52). Several trees were also added following Old Orchard's construction and are seen in aerial photographs aligned on either side of the entry drive (Figure 53).

Today, the orchard contains twenty-seven trees in an area north of the Old Orchard home and south and west of the Foreman's Cottage and Garage. The orchard is divided into a western and eastern portion by the drive to Old Orchard. Sixteen trees, all apple varieties, are located in the large western portion. Three of these apples have been recently planted and are small compared to surrounding trees (Figure 54). The east side of the drive contains eleven trees divided into eight pears, two apples, and one peach tree. Three of the pears and the peach tree are recent additions or replacements. The park works with a local tree company to regularly prune the trees but even with this maintenance, an apple tree dating to the period of significance was recently lost due to old age and internal decay (Figure 55).

The orchard should be rehabilitated to convey the character of a feature in the Roosevelts' working agricultural landscape. A grid arrangement of trees should be established north of the Old Orchard home in the two areas separated by the estate's entry drive. Both sides of the entry drive should be planted with a row of trees that parallels the drive. The trees should be equidistantly spaced along the drive and not aligned with the grid.

In order to layout the rehabilitation plan, an appropriate starting point, definition for the axes, and grid spacing for the new planting is described below and is based on historic documents. In addition to aerial photographs, the 1995 Historic Plant Inventory was reviewed. The inventory recorded forty-nine trees in the orchard and recorded their location based on field verification of a plan prepared from an aerial survey. When overlaid, trees from the Historic Plant Inventory and the aerial photographs are in close proximity, but do not line up. Since the aerial photographs have a relatively low resolution and are not geo-referenced, the tree locations in the Historic Plant Inventory are used for the rehabilitation layout.

To determine a starting point for the rehabilitation layout, trees most likely present during the period of significance were identified from the forty-nine recorded in the Historic Plant Inventory (Drawing 11). According to the inventory, seven were identified in an age range from 1895–1920 and an additional seven were identified in an age range from 1915–1935. Three trees were identified in an age range from 1925–1945 along with seven trees in an age range from 1935–1955 and a single tree identified in an age range from 1935–1965.[80]

The grid layout for the rehabilitation was set using trees with the identification numbers 6-1-24, 6-1-26, and 6-1-28 to align the columns and 6-1-20 and 6-1-26 to align the rows. All four of these trees have an identified age range from 1895–1920. A 30-foot by 30-foot grid should be used to aid in a consistent layout of the orchard and to promote healthy development of the trees. The proposed grid will avoid confusion in future orchard maintenance and potential replacements and will maintain a geometric form that is an important feature for visitors to read in the landscape. With a grid layout established, ten trees from the historic period should be preserved, seventeen trees that do not align with the gird should be removed, and forty-six new trees should be planted on the proposed alignment (Drawings 12–13).

The forty-six new trees should be grafted on standard size rootstock to match the form of the historic orchard.[81] Additionally, a contemporary, standard size rootstock called Novole™ should be used because it will naturally repel orchard voles and increase the likelihood of successful new tree establishment. The varieties for the new orchard trees should be the following:

- 12 Baldwin apples
- 10 Roxbury Russett apples
- 10 Tompkins King apples
- 10 Winesap apples
- 4 Seckel pears

The four apple varieties selected would have been commonly available to Theodore Roosevelt during his tenure at Sagamore Hill. In addition, the Historic Plant Inventory identified a Baldwin apple in the orchard with an age range from 1915–1935.[82] All four had been in commercial production since 1829 and are included in a list with six others that by 1910, accounted for seventy-five percent of all commercially grown apples in the United States.[83] Similar to the apple varieties, Seckel pears appeared in commercial production during the early nineteenth century. In order to reduce maintenance requirements, disease resistance and low fruit production are desired characteristics of the proposed plants. Roxbury Russett is noted for resistance to cedar apple rust, scab, and mildew and Tompkins King is noted for lower fruit production. Seckel pears exhibit resistance to scab and fireblight. All of the proposed varieties are cited for their vigorous growth.[84] Although strong growth characteristics do not make the varieties immune to disease, they are less susceptible to death or decline from scab, rust, and other common apple afflictions. In addition to the new plantings, the ten existing trees from the historic period should be propagated and

preserved. The longevity of these plants attests to their hardiness and their unique characteristics should be maintained.[85]

As part of the rehabilitation of the orchard, an existing circulation feature should be reconfigured, a contemporary fence should be removed, and encroaching woody vegetation should be removed along the eastern edge of the orchard. An existing stonedust path, installed between 2005 and 2006, connects the visitor parking lot with Old Orchard and conflicts with the proposed orchard planting. As a component of improving this pedestrian path, the existing portion that crosses the orchard should be removed so it does not impede the tree layout. After the trees are in place, a new path should be installed that runs in an east-west direction and connects with the current path at the Cow Pasture. The new path should be centered between the trees in the grid and then curve to rejoin the existing path (Drawing 13). Further information on improving the pedestrian path from the parking lot to Old Orchard is presented under the Circulation section of the treatment tasks (CR-8).

In order to protect an existing leaching system in the eastern half of the orchard, the park installed a contemporary split-rail fence paralleling the eastern edge of the Old Orchard drive. There is no evidence of a fence within the orchard during the period of significance and after the proposed orchard planting has matured, the non-historic fence should be removed (Drawing 12). Based on a review of historic aerial photographs, the eastern perimeter of the orchard was distinct from the woodland vegetation in the outer acreage. The boundary between the orchard and the woodlands ran approximately parallel to the fence between the orchard and Cow Pasture and created a rectilinear space (see Figure 53). Presently, woody vegetation is encroaching into the orchard and obscuring the linear definition of the orchard's eastern perimeter. Existing woody vegetation should be removed to reestablish a more linear eastern boundary and this edge between the orchard and woodlands should be maintained (Drawing 13). Fencing should not be added along the orchard's eastern boundary and a further discussion concerning fencing is presented under the Small-Scale Features section of the treatment tasks (SSF-6).

VG-13 Implement mowing plan to preserve historic landscape character

Sagamore Hill's historic core contained several open spaces that functioned as a rustic lawn and agricultural fields for pasturing and crop production during the Roosevelt tenure. These open spaces were distinct from the surrounding woodlands and utilized as part of Sagamore Hill's daily operation as a working farm. In addition to the detailed recommendations presented to enhance the areas around the Theodore Roosevelt Home and agricultural spaces, a mowing plan should be implemented to preserve historic landscape character. The mowing plan should maintain the vigorous growth of grass and forb species and

incorporate scheduling to protect wildlife. The park should implement the mowing plan after newly seeded areas have established. During the establishment of new grass and forb species, the park should follow recommendations for mowing and maintenance provided by the seeding contractor.

- **Theodore Roosevelt Home**

  The lawn immediately surrounding the Theodore Roosevelt Home was regularly mown and punctuated by random groupings of deciduous and evergreen trees. The lawn should continue to be regularly mown throughout the growing season to serve as a uniform ground plane for the trees. The lawn should be cut to a height of two to four inches. The area to be regularly mown should extend fifty feet from the west facade of the house and include a regularly mown area around the Quentin Roosevelt Memorial and flagpole. After the non-historic memorial and flagpole are removed and relocated, the regularly mown area should be reduced to a distance of thirty-five feet from the west facade of the house (see treatment task SSF-1). To the south and the east, the regularly mown area is bounded by the Macadam Road. The area continues north from the house to the woodlands north of the Pet Cemetery (Figure 56). The former Stable and Lodge area, the flower and vegetable garden, and the lawn islands in the visitor parking lot should be mown in the same manner and on the same schedule as the Theodore Roosevelt Home. A new mowing treatment should be determined for the flower and vegetable garden after a rehabilitation plan is prepared for the garden based on current research materials and upcoming archeological investigations (see treatment task VG-14). In order to support park programming needs, the northern section of the Southeast Field, east of the Pump House and Windmill, and an area around the Old Orchard home, Foreman's Cottage, and Garage should be mown in the same manner and on the same schedule as the Theodore Roosevelt Home.

- **West Lawn**

  During the historic period, an approximately five-acre open space sloped gently down from the high point west of the house and met woodlands along the western property line. In contrast to regularly mown lawn immediately surrounding the home, the area to the west was infrequently cut and due to this practice can be described as rustic lawn. The area maintained as rustic lawn also featured oxeye daisies as the dominant flowering plant and today is referred to as the West Lawn (see Figure 45).

  To maintain the appearance of a rough or rustic lawn and perpetuate the oxeye daisies, the West Lawn should not be mown from late March through July. The grasses, forbs, and daisies should be allowed to grow through July

and the first mowing to a height of eight inches should occur in early August. This schedule will protect reptiles and birds and allow the oxeye daisies to develop and disperse seeds. For the remainder of the growing season, the West Lawn should be mown once a month to a height of eight inches that maintains the rustic appearance. The last cut will likely be in late September or early October, but could be as late as November depending on the weather. Alternatively, if the last cut to a height of eight inches is missed in the fall, it may be carried out in early March.

The eastern boundary of the West Lawn mowing area begins fifty feet from the west facade of the Theodore Roosevelt Home and is immediately west of the Quentin Roosevelt Memorial and flagpole. After the non-historic memorial and flagpole are removed and relocated, the West Lawn mowing area should increase so that the boundary is thirty-five feet from the west facade of the house.

- **Agricultural Fields and Cow Pasture**

  During the historic period, the agricultural fields and Cow Pasture served as open areas for crop production such as corn as well as hay fields and pasturing lands. For hay fields and pastures, the objective in selecting mowing and grazing times is to balance the quantity of hay with the quality of available protein in the hay. Allowing a field to grow past a certain point increases the quantity of hay, but reduces the quality (Figure 57).[86]

  In order to create a compatible appearance with the historic agricultural use, Sagamore Hill's fields and pasture should be mown once during the growing season.[87] Similar to the West Lawn, the agricultural fields and Cow Pasture should not be mown between late March and July. The edges of pedestrian routes, particularly the path to Old Orchard, should have a four to six foot swath mown to a height of two to four inches and maintained at that height throughout the growing season. The exact width of the swath should match the width of a mower deck and be accomplished in a single pass. Mowing the fields to a height of eight inches should occur in late August or early September. Delaying mowing until after August 15 avoids the nesting season for grassland birds.[88] To avoid injuring turtles, mowing should occur during the hottest part of the day when turtles are more likely to leave fields for the edges of woodlands. In addition, mowing should be performed at a slow speed and start in the center of a field. Concentric passes should be made from the center so the mower arrives at the transition between field and wooded area last (Figure 58). The slow speed and inside to outside pattern allows time for turtles to react and leave an area to be mown.[89]

- **Orchard**

  The agricultural character of the orchard was defined by the regularly spaced grid pattern of fruit trees. Rehabilitating that form requires successfully maintaining existing trees and introducing new ones. Routine mowing is a best management practice that is beneficial to healthy fruit trees and will therefore enhance the orchard's historic appearance. The orchard should be mown one to two times per month during the growing season to a height of three to five inches. This height will decrease the possibility of vole damage to the fruit trees. In addition, the lower height will make it easier to pick up fallen apples, branches, and leaves. Removing debris from the ground is an important step in reducing the spread of potential pests and diseases in an orchard.[90]

VG-14 Rehabilitate portion of the flower and vegetable garden

During the Roosevelt family's tenure at Sagamore Hill, a large flower and vegetable garden was located west of the Stable and Lodge and north of the Chicken House. The garden was rectangular in shape and approximately 3.2 acres in size.[91] The entry drive for the current visitor parking lot, constructed in 1953, bisected the flower and vegetable garden and left a fragmented piece to the west and east of the drive.

A path along the western edge of the garden and a portion of the central path currently remain. Bordering the paths, a Kwanzan cherry (*Prunus serrulata* 'Kwanzan') and crabapple (*Malus baccata*) are present and were identified in the Historic Plant Inventory as dating to the period of significance.[92] The western portion also contains the Lincoln boxwood, established from cuttings Theodore Roosevelt took at the Lincoln Birthplace, and other shrubs along the fence line. The section of the flower and vegetable garden east of the entry drive is bounded by the visitor parking lot on the south, the access road to Old Orchard on the north, and a narrow pedestrian path on the east. Planted in conjunction with construction of the parking lot, ornamental cherry trees further define the boundary between the flower and vegetable garden and the parking lot to the south. Vegetation in the eastern section of the flower and vegetable garden consists of an assortment of fruit trees and a large eastern red cedar (*Juniperus virginiana*) emerging from a maintained lawn ground plane.

To help interpret Sagamore Hill as a family home and working agriculture landscape, the park should rehabilitate of the flower and vegetable garden. Paths, beds, plant material, fence lines, and structures should all be incorporated in a comprehensive rehabilitation plan. In addition to photographs and other documentary evidence, an archeological survey should be conducted to identify the original foot print of the garden, garden paths, and fence lines.[93] The existing

Kwanzan cherry (*Prunus serrulata* 'Kwanzan'), crabapple (*Malus baccata*), three quinces (*Cydonia oblonga*), and an apple (*Malus pumila*) are identified in the Historic Plant Inventory as dating to the period of significance and should be preserved (Figure 59).[94]

VG-15 Remove non-historic plant material at the visitor contact station and replace red maple in the chicken yard

Located south of the Chicken House and along the western edge of the North Field, the Roosevelt family and staff maintained a chicken yard from circa 1900 until the end of the period of significance. The chicken yard was defined by a fenced area approximately thirty by fifty feet and was surrounded by cultivated vegetation in the North and Southeast Fields that was primarily grown for grazing and hay production.

Based on a review of several historic aerial photographs, two vegetation features associated with the chicken yard can be discerned at the end of the period of significance. First, trees were located west of the chicken yard and south of the Chicken House along a fence line that separated the Southeast and North Fields. This unknown number of trees extended for approximately seventy-five feet south along the fence. Second, a tree was located within the fenced chicken yard (see Figure 46).

In 1956, the Theodore Roosevelt Association constructed a visitor contact station on the western edge of the North Field and by that time had removed the chicken yard. The L-shaped contact station was not oriented parallel or perpendicular to the Chicken House but rotated so the vertex of the building's two legs faced the parking lot and could receive visitors walking from their cars toward the Theodore Roosevelt Home. In front of the contact station's northeast and southeast facades, the Theodore Roosevelt Association planted a variety of ornamental shrubs.

Presently, a total of five trees are located along the west side of the fence separating the Southeast and North Field. The trees consist of a mixture of maple varieties that include two Norway maples (*Acer platanoides*), two sugar maples (*Acer saccharum*), and a sycamore maple (*Acer pseudoplatanus*). In 2005, the park removed a large red maple (*Acer rubrum*) from a picnic area located to the west of visitor contact station. The shrubs and ornamental plantings along the visitor contact station's foundations are extant.

In conjunction with removing the 1956 visitor contact station, the park should enhance the agricultural character of the chicken yard, fields, and farm outbuildings by removing non-historic, ornamental plantings along the visitor contact station's foundations and nearby walkways. Additionally, a Norway maple (*Acer platanoides*) and a sycamore maple (*Acer pseudoplatanus*) paralleling

the fence between the Southeast and North Fields should be removed along with a contemporary crabapple (*Malus* 'Adams'). These three trees combine to form an overhead canopy that does not appear on either the 1940 or the 1950 aerial photograph. The remaining trees along the fence line should be preserved and if removed due to damage, disease, or decline, replaced in kind with commercial nursery stock. Finally, a red maple, identified in the 1995 Historic Plant Inventory as dating to pre-1895, should be replaced in kind in the chicken yard. The red maple should be planted centered on the east section of fence and four feet into the chicken yard (see Figure 14). A plethora of red maple cultivars are available in the commercial nursery trade and if possible the straight species *Acer rubrum* should be selected. Red maple cultivars with incompatible characteristics such as fastigiate or columnar growth should be avoided.

VG-16 Replace two black locust at eastern end of parking lot

In his autobiography, Roosevelt described the bloom sequence of trees and flowers at Sagamore Hill and noted, "…and so flowers follow flowers until the springtime splendor closes with the laurel and the evanescent, honey-sweet locust bloom."[95] Both honey locust (*Gleditsia triacanthos*) and black locust (*Robinia pseudoacacia*) have common names that can be easily connected to the tree Roosevelt observed. Comparing the two species, the black locust is noted for its extremely fragrant flowers and was likely the tree Roosevelt described.

During the Roosevelt years at Sagamore Hill, two black locusts were present in the northeast corner of the North Field. The trees were located immediately west of a fence line that separated the North Field and Cow Pasture. In the 1995 Historic Plant Inventory, both trees were identified in an age range from before 1895 and may have been present in 1880 when Roosevelt purchased the property.

The majority of the present North Field is consumed by the visitor parking lot, however, there is still space between the eastern edge of the lot and the existing trees along the fence line. Due to declining health and potential safety issues, the two black locusts were recently removed. Oaks, a maple, and a hickory are still present along the fence line and provide additional separation between the North Field and Pasture.

The two black locusts should be replaced in kind. The new black locusts will reinforce the spatial organization of the historic agricultural landscape. It will be difficult to find black locusts commercially available in the nursery trade and cultivars with incompatible characteristics like unusual foliage effects or flower colors should be avoided.[96] Replacement trees may be obtained by identifying black locusts in other locations at Sagamore Hill, particularly areas like Cold Spring Harbor beach where seedlings have established, and transplanting those trees to the historic location. An existing red oak (*Quercus rubra*) that does not

date to the period of significance should be removed to reduce competition for one of the locusts (Drawing 7).

VG-17 Remove yew at Woodpile Pond

Northeast of the flower and vegetable garden, a triangular portion of the Sagamore Hill property slopes down to a kettle pond called Woodpile Pond. Theodore Roosevelt Jr. recalled the pond as a location to find countless turtles and "a noisome bit of stagnant water and black mud into which the pig-sty drained."[97] During the period of significance, Woodpile Pond was a natural feature in close proximity to components of the Roosevelt's working agricultural landscape. The pond was not screened by or embellished with vegetation of any kind.

Today, only the foundation of the pig sty remains and the pond's water level is maintained by precipitation and natural drainage. Additional water comes from the visitor parking lot and is collected in a vegetated swale at the lot's eastern end. The swale changes to stone rip-rap as it descends grade and approaches Woodpile Pond. On the south side of the pond, a large yew (*Taxus* sp.) blocks any views from the visitor lot. As part of the park's larger efforts to remove ornamental, non-historic shrubs, the yew should be removed from the south side of Woodpile Pond (Drawing 7).

VG-18 Replace Cousin's Beech in historic location

The Cousin's Beech was not a lone specimen stationed on a grassy plinth, but a remarkably large beech in the wooded outer acreage of Sagamore Hill. The orchard marked the eastern edge of the property's historic core and as one continued east, the ground began a steep descent toward Cold Spring Harbor. A woodland area occupied the land between the orchard and maritime complex at Cold Spring Harbor and the Cousin's Beech was situated among a mixture of oaks, tulip poplars, and understory plant material in the northwest corner of the woodland. The beech was near the northern property line of Sagamore Hill that divided Theodore Roosevelt's land from a large parcel owned by his cousin, William Emlen Roosevelt. According to an interview with Roosevelt's daughter, Ethel Roosevelt Derby, Emlen's children named the tree the "Cousin's Beech."[98]

On the 1995 Historic Plant Inventory plan, the Cousin's Beech is shown about 275 feet east of the Old Orchard garage. Its size is listed on the plan as 57 inches diameter at breast height, which is comparable in size to the purple beech near the library. A wind storm during the winter of 2005–2006 toppled the Cousin's Beech. A clone of the original tree was presented to the park by the Bartlett Tree Experts and planted near the fence line between the North and South Fields.[99]

Protected by a metal wire enclosure, the Cousin's Beech is approximately eighteen inches tall (Figure 60).

The metal enclosure should continue to guard the Cousin's Beech and extra protective measures should be implemented when rehabilitation work commences on the North and South Fields. The existing tree should be vegetatively propagated so reserve propagules can be grown and planted in case of disease or damage. The new propagules should be container grown to make the transplanting process easier and lessen the shock to the young tree.

After reserve propagules have been established, the Cousin's Beech should be transplanted to its historic location in the woodlands. Transplanting should be done while the tree is relatively small and has a correspondingly smaller root system to move. The surrounding canopy at the historic location should be thinned to allow adequate light and the beech should be trained to develop a strong, central leader.

VG-19 Manage invasive species at Lower Lake (Heron Pond)

On a circa 1880 sketch of Sagamore Hill, Theodore Roosevelt recorded agricultural uses, vegetation types, and several natural features. One of the natural features identified was a pond in the southeast portion of the property. No further description of the pond is provided on the sketch (see Figure 43).

Based on 1963 National Park Service interviews with Roosevelt's surviving children, the pond was called Lower Lake during the period of significance. In another interview with National Park Service staff, Robert Gillespie, son of one of Sagamore Hill's caretakers, identified the water body as Heron Pond.[100] Both names have been used in recent publications to describe the feature and no evidence has emerged to indicate if one of the names was the preferred name. For consistency, this report uses Lower Lake to identify this feature. In the 1963 interviews, Roosevelt's children provided detailed information on vegetation features located throughout Sagamore Hill. They did not indicate any vegetation features associated with the Lower Lake and arguably this water feature remained an undisturbed natural resource in the woodlands during the Roosevelt tenure.

Lower Lake is located approximately 900 feet west from the Cold Spring Harbor shoreline and within the eastern woodlands that comprised a part of the outer acreage. The water body is a spring-fed vernal pool with fluctuating water levels that are at their highest in early spring and almost dry out during the hottest weeks of summer. At high water level, the roughly oval-shaped water body is approximately 130 feet long by 50 feet wide and is an important resource for amphibian, reptile, and insect species that require multiple habitats. The area surrounding the lake supports understory shrub species, like winterberry (*Ilex*

verticillata), that are not found in other locations in the woodlands. In addition, invasive non-native species like multiflora rose (*Rosa multiflora*) and Asiatic bittersweet (*Celastrus orbiculatus*) are present in the vicinity of the lake as is a contiguous swath of vinca (*Vinca minor*) along the lake's western edge (Figure 61).

In order to encourage plant species diversity and the natural hydraulic function of the water body, as it was during the period of significance, invasive non-native species should be managed at Lower Lake. The park should continue to work with the Northeast Exotic Plant Management Team on specific treatments for individual invasive species.

VG-20 Remove Phragmites (*Phragmites* sp.) along Eel Creek and creek tidal marsh

Located between the woodlands to the west and Cold Spring Harbor beach to the east, the Roosevelt property contained a tidal marsh drained by a water course known as Eel Creek. Eel Creek roughly paralleled the shoreline of the harbor and meandered through the low area with fluctuating water levels linked to the Cold Spring Harbor and Long Island Sound tides. With the exception of constructing a wooden bridge to cross the creek and marsh, the Roosevelts did not develop the area.

Today, Eel Creek and the tidal marsh provide a unique habitat between the beach and woodlands. The creek potentially serves as a nursery for marine and estuarine fish species and the tidal marsh provides a feeding area for wading birds like heron and egrets, and habitat and food opportunities for migratory birds.[101] The southern portion of the creek and marsh area is currently dominated by a stand of phragmites (*Phragmites* sp.) (Figure 62). The invasive qualities of phragmites can increase sedimentation in the marsh, alter the flow of the creek, and reduce plant species diversity that contributes to a variety of wildlife. In addition to impacting natural resources, the phragmites blocks views across Cold Spring Harbor and is inconsistent with the low-growing grasses that occupied the area during the Roosevelt tenure (Figure 63).

The phragmites along Eel Creek and the tidal marsh should be removed. Best management practices for removing the phragmites are being developed with the Northeast Exotic Plant Management Team.

VG-21 Manage invasive species at Cold Spring Harbor beach

East of Eel Creek and the tidal marsh, the Roosevelt property ended at approximately 800 feet of beach frontage along Cold Spring Harbor. During the period of significance, Roosevelt and his family used his area for recreation and constructed bathhouses and a boathouse on the beach to support their activities (Figure 64). Historic photographs indicate that vegetation on the beach consisted

of predominantly low-growing species adapted to the sandy soils. In contrast to the woodlands just west of the beach and tidal marsh, the beach was historically an open area.

Presently, the beach is still dominated by low-growing grass and shrub species including American beachgrass (*Ammophila breviligulata*) and northern bayberry (*Myrica pensylvanica*). The area is also interspersed with black locust (*Robinia pseudoacacia*) and this is the only deciduous tree species present.

In order to maintain the historic open character of the beach, the park should manage woody invasive species like black locust (Robinia pseudoacacia). In addition, herbaceous invasive species should also be monitored and managed so the plant composition along the beach is not detrimentally altered. A 2005 natural resources inventory identified the beach as part of a larger area along Cold Spring Harbor and Oyster Bay that supports one of the larger diamondback terrapin (*Malaclemys terrapin*) populations in New York.[102] Changes to the plant composition along the beach can have affects on food resources and habitat.

The park should continue working with the Northeast Exotic Plant Management Team on developing and implementing best management practices for invasive species at the beach.

CIRCULATION

During the Roosevelt tenure at Sagamore Hill, circulation features were hierarchically organized according to transportation mode and use. Primary vehicular circulation consisted of the route to the Theodore Roosevelt Home. Secondary circulation features provided routes used in the daily operation of the farm and pedestrian routes and trails formed a third level of circulation that connected locations within the site. Both vehicular and pedestrian routes were made of compacted soil until the Macadam Road was completed in 1912. The Theodore Roosevelt Association altered the circulation within the historic core when the site opened as a public park in 1953. They constructed a new vehicular route and consequently, no longer maintained historic routes which today appear as traces in the landscape. The Theodore Roosevelt Association and later the National Park Service installed new surface treatments that offered a durable finish for increased traffic, but presented a more formal appearance than the historic materials. The following treatment tasks will address replacing in kind deteriorated features, an accessible route from the visitor parking lot to the Theodore Roosevelt Home, and surface treatments for features that are compatible with historic materials.

CR-1 Replace brick paving in kind at porte-cochere

Until completion of the Macadam Road in 1912, compacted soil was the surfacing for vehicular circulation routes at Sagamore Hill. A noted exception was a square area of paving under the porte-cochere where the Roosevelt family and guests would have stopped and departed their vehicles to enter the main house. A 1901 photograph shows that under the porte-cochere, bricks were laid on edge in a herringbone pattern (Figure 65). In addition to the photograph, a written account of installing the Macadam Road and paving at the circular drive noted that Roosevelt got angry, "…when the steam roller had rolled over and broken a few bricks in the pavement under the porte-cochere of his house."[103]

Information has not been discovered on the maintenance of the brick paving during the Roosevelt tenure or subsequent periods. At an undetermined time, the brick paving was paved over with asphalt. During repaving work in 2008, park staff requested that the paving contractor carefully remove asphalt to see if the brick was present beneath it. Three to four inches of asphalt were removed under the supervision of park curatorial staff and a regional archeologist and the brick paving was exposed.

The exposed brick paving is laid on edge in a herringbone pattern. Where the paving meets the east and west sides of the circular drive and along the porte-cochere stone wall, a border course is set with brick on edge (Figure 66). The condition of individual bricks varies with some in good condition and others brittle, crumbling, and in poor condition. The overall surface of the bricks is uneven and provides an inconsistent surface for visitors entering the Theodore Roosevelt Home. Furthermore, at approximately three inches lower than the surrounding asphalt, the transition to the brick paving represents a potential tripping hazard.

In order to retain a unique paving feature from the Roosevelt tenure and provide for a safe visitor experience, the brick paving should be replaced in kind. The existing brick should be matched in size, color, texture, and finish. A representative sample of the existing brick should be removed and preserved as part of the park's museum collections. Following these steps, the remaining brick should be removed and an aggregate base and setting bed added to eliminate the elevation difference between the new brick paving and adjacent asphalt. The new brick should be installed on edge for the border courses and herringbone field (Figure 67).

CR-2 Construct accessible route from the parking lot to the Theodore Roosevelt Home

Constructed in 1885, the Theodore Roosevelt Home does not have an entrance that provides universal access for all visitors. In fact, all of the entrances

negotiate approximately three feet of elevation change with a combination of steps and landings. In order to provide a positive visitor experience, the approved General Management Plan lists a management objective that the structures, grounds, and facilities at Sagamore Hill will be universally accessible to the greatest degree possible.[104]

At the Theodore Roosevelt Home, design professionals and resource management advisors determined that universal access could be provided at the northwest corner of the veranda with minimal impacts to the architectural fabric, views, and cultural landscape. An accessible pedestrian route needs to be determined to connect visitors from their major arrival point in the parking lot to the northwest corner of the veranda. The following information on an accessible route is based on existing topography generated from a 1992 aerial survey. This survey does not include grades in a ten to fifteen foot area around the home. In order to refine this discussion and improve the efficiency of designing, approving, and constructing an accessible route, Sagamore Hill needs an accurate ground survey by a licensed land surveyor.

Two existing asphalt walks lead west from the parking lot toward the home. South of the visitor contact station, one walk cuts across the Southeast Field and merges with the Macadam Road near the circular drive. As this walk approaches the Macadam Road, existing slopes range from six to ten percent. The steep pitch of the existing walk would require the installation of handrails to provide assistance for all visitors. Alternatively, the walk could be regraded by adding large quantities of fill material to reduce the steep slopes. Both installing handrails and adding fill material would alter a portion of the Southeast Field and circular drive and negatively impact the character of the historic agricultural landscape.

The second walk, located north of the Farm Shed, maintains a one and a half percent slope from the parking lot to its junction with the Macadam Road. Due to its favorable grades, the northern asphalt walk should be the starting point for an accessible route. As this asphalt walk approaches the south side of the Stable and Lodge site, a new walk should be installed that follows an existing V-shaped privet hedge and proceeds northwest to connect with the Macadam Road. A circulation feature south the Stable and Lodge site is consist with photographs from the period of significance showing an angled path along the south facade (Figure 68).

Visitors would next cross the Macadam Road and continue on a new walk west toward the Pet Cemetery path. A metal grate should be installed over an existing concrete gutter on the west side of the Macadam Road. The gutter was installed as part of paving and drainage improvements in 1912 and placing a grate over the gutter will minimize impacts and allow for removal in the future if deemed

necessary. The new accessible walk should continue west of the Macadam Road and gently curve to avoid trees that date to the Roosevelt tenure. The layout of the walk should remain outside the drip line of tree canopies to minimize damage to their root systems (Figure 69). The new walk will terminate at the Pet Cemetery path and along its proposed length, the average slope will be three and a half percent.

From the new accessible walk, visitors should proceed south on the Pet Cemetery path toward the veranda. The existing grade along the Pet Cemetery path is slightly over three percent and it is surfaced with crushed stone. At the North Room, a bluestone walkway edged with brick meets the crushed stone and continues south to the veranda. As a component of constructing an accessible route, the bluestone and crushed stone should be removed and a consistent surface treatment installed that is compatible with the historic, compacted earth surfaces present during the period of significance. More information is provided on soil polymers and chipseal surfacing in subsequent circulation treatment tasks.

CR-3 Rehabilitate circulation at the Ice House

Shortly after the completion of the Theodore Roosevelt Home in 1885, the Ice House was constructed about twenty feet east of the kitchen wing. Ice would be collected or cut from nearby ponds and placed in a below ground storage area enclosed by a brick, octagonal structure (see Figure 40). The interior of the Ice House was later converted to hold two storage tanks that provided a reserve water supply. During the Theodore Roosevelt Association stewardship of the property, the Ice House was renovated to provide public restrooms.

To accommodate a new function for the Ice House during the Theodore Roosevelt Association stewardship, circulation patterns were altered and new brick paving was introduced (see Figure 41). The restrooms were closed in 1984 with the completion of new restrooms in the visitor contact station and the interior of the Ice House has been used for storage since that time.[105] However, the changes to the landscape implemented during the Theodore Roosevelt Association stewardship remain largely intact around the Ice House and create a more formal setting for a utilitarian outbuilding.

Visitors access the Ice House along a four-foot wide brick walkway that extends parallel from the east facade of the home and connects the circular drive to the south with the oval drive to the north. About 50-feet from the circular drive, a fork branches off from the main walkway to the northeast and leads to the Ice House. At the fork, a wayside is placed to offer visitors more information on the Ice House. A sixteen-inch high metal post-and-chain fence flank both the walkway and the fork to the Ice House.

Circulation at the Ice House should be rehabilitated to present the character of the historic compacted soil paths and remove more formal elements added in the 1950s. The brick paving and post-and-chain fence should be removed since both of these elements are non-historic. An elevated concrete landing and metal guardrail on the north side of the Ice House should also be removed. After the removals, the width of the walk should be reduced to three feet in order to appear more like a path than a major route linking to the Ice House. The alignment of the path should be changed slightly to meet the circular drive at a right angle and the surface should be finished with crushed stone matching the finish of the Pet Cemetery path. On the north side of the Ice House, the crushed stone should be installed to match the surrounding, existing grades. Installing the crushed stone in this manner eliminates the need for a guardrail that was necessitated by the elevated concrete landing. Rehabilitation of the circulation at the Ice House should take place after exterior repairs to the Theodore Roosevelt Home have been completed (see Figure 42).

CR-4 Rehabilitate Service Road trace surface treatment

On a circa 1880 sketch of the property, Theodore Roosevelt recorded a road in northwest corner of Sagamore Hill (see Figure 43). As the site was developed with the construction of the home, Stable and Lodge, and other outbuildings, the road became a Service Road that provided access to the working agricultural areas as opposed to the main entry route to the home. The Service Road had a compacted soil surface and roughly paralleled the western property boundary before turning east in the direction of the Stable and Lodge.[106]

In 1953, as part of the Theodore Roosevelt Association plan to open Sagamore Hill to the public, a new county road was constructed primarily over the historic route of the Service Road.[107] A portion of the Service Road, north of the Pet Cemetery and heading in a west to east direction, remained as a trace (see Figure 44). The trace is still visible today with the former roadbed at a lower elevation than the surrounding grades. The trace is maintained free of vegetation and is currently surfaced with a thick layer of wood chips.

The Service Road trace surface should be rehabilitated with a finish that is more compatible with the historic, compacted earth surface. The wood chips should be removed and the existing soil should be compacted and have a soil polymer added to create a more durable surface. With either the new surface treatment or the current wood chips, the Service Road should be incorporated as part of a trail that circles the western end of the property. The trail will be discussed further under task CR-7.

CR-5 Rehabilitate Carriage Road surface treatment

Prior to 1912, family and visitors entered Sagamore Hill and arrived at the home via the Carriage Road. After traveling along a road that roughly paralleled the shoreline of Oyster Bay, family and guests turned onto the Carriage Road in the wooded, southwest corner of the property. The road was variable in width and had a compacted soil surface. From the southwest corner, the road wound up a steep slope. Writing about the ascent one visitor noted, "...it becomes so steep that the hill must be traversed almost horizontally."[108] As the road turned out of the last switchback, it emerged from the woodlands and offered travelers a view of the south facade of the home (Figure 70).[109] The Carriage Road continued to the northeast and then turned north to be perpendicular with the south facade. Approximately 110 feet from the house, the road terminated in a circular drive that looped under the porte-cochere. By 1905, an extension was constructed from the east end of the circular drive that wrapped around the east facade of the house, headed past the Windmill and Pump House, and continued north to connect with the Service Road (Figure 71).

As automobiles become more prevalent, Roosevelt addressed the tight switchbacks of the Carriage Road with construction of a new road in 1912.[110] The new entry route, referred to as the Macadam Road because of its surface, avoided the property's steep topography and the lower portion of the Carriage Road was abandoned. This piece of the Carriage Road is visible today as a trace and winds through a heavily wooded area (Figure 72). The Carriage Road bed is maintained free of trees and is currently surfaced with a layer of wood chips.

The Carriage Road should be rehabilitated to be more compatible with the historic, compacted earth surface. The trace should be maintained free of vegetation and the crown increased so that the feature is more visible in the landscape. Another option is to add a soil polymer to the existing soil. With this application, the polymer fills void spaces in the soil structure and creates a hard, durable surface.

CR-6 Rehabilitate Macadam Road surface treatment

After completion in 1912, the Macadam Road replaced the Carriage Road as the primary route to Sagamore Hill. Travelers heading north along the shoreline of Oyster Bay arrived at the Macadam Road before the Carriage Road and turned onto property owned by Roosevelt's cousin, William Emlen Roosevelt.[111] Continuing on the cousin's property for approximately 500 feet, the Macadam Road avoided steep topography in the southwest corner of Sagamore Hill. Past the sharp topography changes, the Macadam Road turned northeast to cross into Sagamore Hill and then following the same route as the Carriage Road, proceeded on a moderate climb up to the main house. A fork off of the Macadam Road entered the circular drive on the southeast and the road continued north

past the Windmill and Pump House to the Stable and Lodge. Immediately north of the Stable and Lodge, the Macadam Road transitioned to the compacted soil Service Road (see Figure 72). The Macadam Road, the only paved surfaced during the Roosevelt tenure, remained the primary entry route until 1953 when Sagamore Hill Road was completed. No longer in use, the southern portion of the Macadam Road's paving deteriorated and numerous fissures and breaks appeared.

In 2008, the park resurfaced the Macadam Road and circular drive through a Federal Highway Administration project (Figure 73). The park specified an asphalt mix for the project that used larger stone aggregate since selecting macadam or other historically compatible paving materials were not options under Federal Highway Administration parameters. The resurfacing project corrected the poor condition of the Macadam Road and the surface is presently in excellent condition.

The smooth finish of the Macadam Road's contemporary asphalt does not match the rougher texture of the historic paving and the surface should be rehabilitated in one of two ways. First, an adhesive layer could be skimmed over the existing asphalt and a chipseal surfacing applied. The stone size used in chipseal is compatible with the rougher texture of historic macadam and light gray stone mixtures should be selected for compatible color (Figure 74). As an alternative, the Macadam Road could be resurfaced with an open graded friction course. Open graded friction course describes an asphalt wearing surface that is rougher, contains void space, and is more compatible with the appearance of historic macadam. Resurfacing could occur when the current paving has exceeded its lifespan or sooner if the current paving is planed down. For any surfacing options, the finish paving grades should match the historic crown of the Macadam Road and should in no way extend into or cover the concrete gutters (see Figure 19).

CR-7 Designate new loop trail

The Roosevelts' activities at Sagamore Hill included extensive use of the landscape for farming, entertainment, and recreation. Located near the southwest corner of the property, a compacted soil Tennis Court provided recreation opportunities for the family, but today is seldom visited. The park would like to designate a trail that utilizes existing circulation routes and adds two new connecting sections to form a loop among sites, including the Tennis Court, in the historic core. The route would begin at the front entrance of the home and head southwest down the Macadam Road to the intersection with the Carriage Road. Turning on to the Carriage Road trace, visitors would proceed down the switchbacks to the Tennis Court. From the Tennis Court the trail would head north onto the sidewalk just before the Sagamore Hill rock and state

historic site marker along Sagamore Hill Road. A new connecting trail would be required between the sidewalk and the Service Road trace (Drawing 7). Visitors would continue east on the Service Road to the Pet Cemetery and take a new trail from the end of the Service Road that connects to the Macadam Road (Drawing 7). Once on the Macadam Road, visitors could access the Stable and Lodge site and head south to return to the main house.

The two new connecting trails should be six feet wide to allow users traveling in opposite directions to comfortably pass. The proposed six-foot trail width is narrower than the Service Road trace and will help distinguish the connecting trails as contemporary additions. Surfacing for the trails should be compatible with the compacted soil seen on pedestrian routes at Sagamore Hill during the historic period. Since both new trails connect to the Service Road trace, the trail surface should match the selected treatment installed on the Service Road. Providing a clearly defined loop trail would eliminate the current social trail across the West Lawn. Visitors presently walk down the Macadam Road and Carriage Road to the Tennis Court. Rather than retrace their route, they walk straight up the West Lawn. A loop trail that extends north from the Tennis Court and then continues east would incorporate additional site features and could include interpretive waysides (Drawing 7).[112]

CR-8 Improve pedestrian access to Old Orchard

The main house of Old Orchard currently serves as a museum for the park and therefore, visitor access is extremely important. Prior to 2000, visitors walked to Old Orchard along a paved utility road from the parking lot. While traffic on this road is limited to park, staff, handicap visitor, and delivery vehicles, this situation did not provide the best solution in terms of visitor safety. Treatment recommendations from Volume 2 called for the addition of a designated pedestrian path to provide access to Old Orchard. The path was intended to satisfy safety issues but at the same time, not detract from Sagamore Hill's historic character. The least intrusive option advocated by the Volume 2 report was to construct a path within the existing Cow Pasture, parallel to the road, but on the pasture side of the fence. The report specified that the path could be constructed with crushed stone, asphalt, or simply denoted in the existing pasture by mowing a swath at a consistently lower height.[113]

Between 2005 and 2006, the park installed a pedestrian path that cut directly across the middle of the Cow Pasture in order to shorten the distance between the parking lot and Old Orchard. As a component of repaving the visitor parking lot in 2007, an additional path was constructed parallel to the southern edge of the lot that connected to the path crossing the Cow Pasture. Both paths were constructed with stonedust bordered on either side by steel edging (Figure 75). With sufficient compaction, the stonedust surfacing has become nearly

impervious. Initially water drained from the parking lot down the path, creating a washed out gully. However, the park added a trench drain and berm and redirected the water away from the path. The surface of the path now needs additional material to reestablish a crown above the top of the steel edging. This will prevent the build up of water and ice on the path.

In order to improve the condition of the path, material should be added to create a cross slope from north to south or from a raised centerline to either side. In either instance, the entire crown of the path should be above the top of the steel edging (Figure 76). As this is a non-historic path, the surface treatment should harmonize with the Cow Pasture and orchard, and also be compatible with other pedestrian paths.

VIEWS AND VISTAS

During the historic period many scenic views existed, both within the site and of the surrounding landscape. They included views from the main house across the farm, views of the house from the Carriage Road, and various views from Sagamore Hill to the water bodies surrounding Cove Neck. Views have changed substantially due to successional woodland growth in the former agricultural spaces and woodland growth surrounding the property.[114] Historically significant views are addressed in the following treatment tasks with references to vegetation treatment and management discussed in the Vegetation section.

VV-1 Restore and maintain views from the Carriage Road and veranda

Historically, the most prominent views on the site were those of the main house from the Carriage Road across the West Lawn and from the veranda of the main house looking back out over the West Lawn (Figure 77). The view from the Carriage Road to the main house has changed drastically. Once the initial view or image of Sagamore Hill for anyone approaching, it is now obscured by vegetation growth. In the past decade, the view from the veranda has been enhanced by the removal of woody vegetation from the West Lawn. A wooded area is still present in the southern portion of the West Lawn and this vegetation limits the full expanse of the historic view. Both views should be restored by clearing invasive vegetation on the West Lawn and removing non-historic woodland growth. This clearing is specifically detailed in the Vegetation section of this document as treatment for the West Lawn (VG-9). No additional vegetative growth or future development should be allowed to block these views.[115]

VV-2 Restore and maintain views associated with historic agricultural spaces

During the historic period, the open character of the fields and pasture resulted in unobstructed views within these spaces. Additionally, views across multiple

fields existed where wood fencing defined the boundaries and the fence height and open rail construction did not block views (see Figure 48).

During the 1950s, successional woody vegetation began to emerge in the agricultural spaces. The age and density of the vegetation has increased and today, the open character and views associated with the historic agricultural spaces has been lost. The park should restore these views through the steps outlined in greater detail under the Vegetation section of this report (VG-10 and VG-11). After the views are restored, vegetation must be managed to preserve the restored views.[116]

VV-3 Interpret views from the Theodore Roosevelt Home to surrounding water bodies

In addition to views of the Theodore Roosevelt Home and within the property, locating the main house on one of the high points on the Cove Neck peninsula afforded views to the surrounding water bodies. Visiting Sagamore Hill in 1900, a reporter for the *New York Tribune* described, "…a beautiful view in every direction, especially to the north and east where the waters of the Sound and Cold Spring Harbor are seen."[117] In his autobiography, Roosevelt wrote of a view to the west when he recounted, "On the evening of the first day I sat in my rocking-chair on the broad verandah, looking across the Sound towards the glory of the sunset…"[118]

The views from the house to the surrounding water bodies are currently blocked by woodland growth. However, the woodlands blocking these views are mostly off-site and are out of park control. The surrounding area, once agricultural land, is now residential. No longer farmed, the open space not maintained as lawn has been allowed to become wooded and other areas may have been intentionally planted.[119] Views to surrounding water bodies were a character defining feature during the historic period. The park should interpret with historic photographs how the open landscape contributed to views of water during Roosevelt's tenure.

SMALL-SCALE FEATURES

During the Roosevelt tenure at Sagamore Hill, small-scale features included fences, stone markers, benches, and other features associated with the active use of the property. Fences made up the greatest quantity of small-scale features and defined the boundaries of the agricultural spaces. Since opening as a public park, the historic fence lines have been obscured and are deteriorating due to successional woodland growth. Non-historic features have been added that create a commemorative feeling for the historic working farm property. Ornamental features from the historic period have been removed or relocated and features associated with the family's recreation may only exist as archeological evidence. The following treatment tasks will address removing and

relocating non-historic features to enhance landscape character, preserving, relocating, and restoring ornamental features from the historic period, rehabilitating fence lines to define agricultural spaces, and interpreting features associated with the family's recreation.

SSF-1 Remove non-historic Quentin Roosevelt Memorial and replace flagpole in new location

During the Roosevelt tenure, a flagpole may have stood southeast of the main house. In the 1912 film *Roosevelt at Home*, the former President returns from chopping a tree on the property and walks toward the main house on the Macadam Road. East of the road, a wood pole is visible that is approximately fifteen feet high. The pole's function cannot be accurately discerned and today, the pole is no longer extant (Figure 78). In 1953 the Boy Scouts of America, Inc. installed a metal flagpole, approximately fifty feet tall, off the southwest corner of the Theodore Roosevelt Home.[120]

Quentin Roosevelt, the family's youngest son, was killed in service during World War I and laid to rest at Chamery, France. In 1955, Quentin's body was moved from Chamery to San Laurent, France and placed next to the grave of his brother Theodore Jr. who died a decade earlier during World War II. The Theodore Roosevelt Association sought to honor Quentin by transporting his marble grave marker from the cemetery in Chamery to Sagamore Hill and installing it immediately east of the flagpole's base. The Theodore Roosevelt Association formally dedicated the marble grave marker at a Memorial Day service on May 30, 1956. In July 1959, a foundation and a bronze memorial plaque were installed at the western end of the marble grave marker and bluestone was set to form narrow walks on the north and south sides of the marker and bronze plaque.[121]

The flagpole, marble grave marker, and bronze plaque have not moved from their 1950s location. Presently, the flagpole is encircled by irregular-shaped bluestone paving. Two paths of bluestone paving branch off from the circle and extend parallel along the length of the marble grave marker. To discourage visitors from disrupting the memorial, a sixteen inch high metal post-and-chain fence is installed around the marble grave marker. On the north side of the flagpole, the park has placed a wayside to aid in interpretation. The size and location of the flagpole, the Quentin Memorial, and the associated paving and fencing combine to create a formal element in the landscape when historically the area simply transitioned from maintained to rustic lawn. In addition, the non-historic elements are completely within or on the periphery of significant views during the Roosevelts' years at Sagamore Hill (Figure 79).

The Quentin Roosevelt Memorial should be removed and the flagpole replaced in a new location to eliminate non-historic obstructions in significant views and aid in communicating the working agricultural landscape that was present during

the Roosevelt tenure. The park should begin by removing the post-and-chain fence, bluestone paving, and wayside from these two features. The fence, paving, and wayside only serve to call more attention to non-historic features. The metal flagpole should be removed and a new, shorter flagpole should be installed east of the Macadam Road near where the road turns northwest toward the circular drive (Drawing 7). Installing the flagpole on the east side of the road and shortening its height will reduce intrusions on views from the Macadam Road to the Theodore Roosevelt Home.

Additional details for a new flagpole that would be compatible with one from the historic period can be gleaned from the 1912 film *Roosevelt at Home* (see Figure 78). The replacement flagpole should be a wood post approximately fifteen feet high. The post should be unfinished and left to weather naturally or treated with a clear finish. After removing the metal flagpole, the Quentin Memorial should be removed and offered to descendants of the Roosevelt family with a recommendation to place the memorial in a cemetery or museum.[122]

SSF-2 Preserve Pet Cemetery stone

During the Roosevelt stewardship of the property, a granite stone was located approximately 250 feet north of the main house and immediately south of the Service Road. Near the top of an inclined face, block letters were carved into the stone to form the heading "Faithful Friends." Below the heading were engraved the names of the Roosevelt family's deceased pets. Based on the earliest engraved date, 1898, the stone was erected that year or shortly after and continued to have names added until 1917. The Pet Cemetery stone remains in its original location north of the main house and should be preserved in this location.[123] There is not a sharp contrast between the engraved letters and their granite background and as a result, some descriptions are difficult to read. The stone has been continuously exposed to natural weathering and atmospheric containments and should be reviewed by a conservation specialist. Recommended treatments from the conservation specialist should be implemented to preserve the Pet Cemetery stone.

SSF-3 Preserve Sagamore Hill rock

Based on a circa 1919 photograph, Volume 1 of the Cultural Landscape Report identified an elongated stone marker with the words "Sagamore Hill" carved into it. The carved letters were painted white and the location of the rock was not determined (Figure 80).[124] Film likely recorded for but not incorporated into the 1912 film *Roosevelt at Home* shows the rock at the entrance to the Macadam Road (Figure 81). The fencing in the image and gutter on the right side of the road confirm the rock was placed at the entrance to the Macadam Road. Broken stone and concrete drainage gutters were a component of the Macadam Road's design.

Additionally, the fence is described by the road's designer, Hans Rude Jacobsen, who detailed that the completed road was, "…winding through the woods of tall trees with several stretches of rustic wooden fences…"[125] Before completion of the Macadam Road, the Sagamore Hill rock probably occupied a similar location at the entry to the Carriage Road to welcome the Roosevelt family and guests.

Today, the Sagamore Hill rock is in good condition and located along Sagamore Hill Road near the southwest corner of the property. The rock is visible to visitors approaching the park by vehicle or walking along the sidewalk that parallels Sagamore Hill Road. Since the historic intent of the rock was to mark an entry and greet visitors arriving by vehicle, the Sagamore Hill rock should be preserved in its present location.[126] Returning the rock to the Macadam Road entry is not a viable option. The Macadam Road entry is not located within National Park Service property and vehicular traffic no longer enters Sagamore Hill from this point.

SSF-4 Restore border of white painted rocks around circular drive

Historic photographs indicate that during the Roosevelt tenure, white painted rocks were added along the inside and outside perimeters of the circular drive. Images from shortly after construction of the main house and also from the 1890s do not show the rocks lining the drive (Figure 82 and see Figure 38). In 1912, when footage was recorded for the film *Roosevelt at Home*, the rocks can be seen lining the inside and outside perimeters of the circular drive near the porte-cochere (Figure 83). The rocks were placed on the drive surface at the edge of the drive and lawn. In addition to the rocks placed by the porte-cochere, a circa 1918 photograph shows the rocks along the south and northeastern portions of the circular drive (see Figure 30). Additional documentation on the rocks has not been discovered, however, the combination of images strongly argues that the white painted rocks were placed around the entire circular drive. A 1950 photograph shows several rocks on the inside perimeter of the circular drive (see Figure 33). Although the quantity of rocks has been reduced compared to earlier images, the 1950 photograph confirms the presence of this feature throughout the period of significance

The border of white painted rocks around the drive is no longer extant. Unpainted rocks are present near the porte-cochere, however, they are placed end-to-end, are smaller than the ones seen in historic images, and do not wrap around the entire circular drive perimeter. The rock border should be replaced using mostly round rocks with smooth edges that are approximately eight to twelve inches in diameter. They should be spaced approximately five feet on-center along both sides of the circular portion of the drive.[127]

SSF-5 Preserve white marble bench

The Roosevelts received a white marble bench as a gift from Oscar Straus and during their tenure, placed the bench in various locations around the main house.[128] By the early 1920s, the bench was set at a permanent location near the northwest corner of the North Room. Historic photographs from circa 1922 and the 1930s record the bench set at an angle to the intersection of the North Room's west facade and a projecting bay (Figure 84 and see Figure 26).

Today, the bench remains at the same location along the North Room's west facade (Figure 85). The bench should be preserved, remain in its current location, and if necessary moved slightly away from the corner to accommodate vine replacement on the main house and the installation of a trellis structure. During the vine replacement, the bench should be protected from construction activities and possibly moved to a safe, temporary storage location.

SSF-6 Replace missing fence lines to define historic agricultural spaces

The boundaries of the Southeast Field, North Field, South Field, and Cow Pasture were clearly delineated by wood post and rail fencing during the period of significance (see Figure 48). The main purpose of the fencing was to control livestock and separate pasture and grazing areas from crop producing fields.[129] A fence section was composed of posts, set at approximately ten feet on center, and four split rails that were equidistantly spaced (Figure 86). In addition to historic photographs, the 1963 *Historical Base Map* shows fencing around the fields, the Cow Pasture, and the west, south, and east perimeters of the orchard (see Figure 51). The fence lines illustrated on the *Historical Base Map* for the agricultural spaces are confirmed by a series of historic aerial photographs, however, a fence along the east perimeter of the orchard cannot be seen (see Figure 53).

There is an existing perimeter fence around the Cow Pasture and a fence line along the south perimeter of the orchard. The fence lines between the Southeast Field, North Field, and South Field are currently fragmented or non-existent. Successional woody vegetation in the open areas has concealed some remaining posts and rails. The heavy density of vegetation makes access for routine maintenance difficult and reduces light and air circulation that have accelerated wood rot (Figure 87).

The existing posts at the Cow Pasture are split, half round sections, approximately six inches in diameter. The two half rounds are set eight inches apart and with a metal support rod, create a pocket to set the rails in. The posts measured between 4'-6" and 4'-10" in height with an unknown portion buried below grade. The posts are spaced between ten and twelve feet on center. The rails are also split and taper to thinner sections at their ends. The overlap between the rails varies from six to twenty-four inches. Both the posts and rails

contain no sign of bark. Investigations by Bo Stein, Sagamore Hill's current maintenance mechanic, reveal that the extant fence members are chestnut.[130] Chestnut would have been an abundant hardwood species prior to the introduction of the chestnut blight fungus in the early twentieth century.

Following vegetation treatments to remove successional woody growth and establish native warm season grasses, the fence lines should be replaced to define the historic agricultural spaces at the Southeast Field, North Field, and South Field. A fence line should not be replaced at the eastern perimeter of the orchard since fencing in this location is not supported by aerial photographs from the period of significance. During the vegetation clearing process, extant posts should be left in place to guide the layout of the replacement fence lines. Posts that are in good condition with sound wood should remain.

The new fence sections should be constructed from wood that naturally resists rot and suitable species include black locust, northern white cedar, and white oak. Both the posts and rails should be split and not sawn to match the appearance seen in historic photographs and on extant pieces. The wood should not be treated and allowed to weather to a natural gray tone.

Although the historic fence sections are variable, milling and installing the pieces will be more efficient with consistent sizes. The posts should be set at a height 4'-8" above grade and at ten feet on center. At locations where the on center spacing does not work out evenly, one section or more should be increased to greater than ten feet on center. The rails should be 11'-6" long for the ten foot on center spacing and maintain a minimum of six inches of overlap for longer sections (Figure 88).

SSF-7 Locate Target and Rifle Pit and preserve in place

Roosevelt enjoyed a variety of outdoor activities and took advantage of the recreation opportunities at Sagamore Hill. One of his favorite pastimes was target shooting. Historic information on the Target and Rifle Pit comes from an informal interview with Roosevelt's daughter, Ethel Roosevelt Derby. Mrs. Derby was contacted and corresponded with the National Park Service in 1963 during the production of an historic base map for the property. Based on that dialogue, a target and rifle pit were located on the west facing slope of a ravine that divided the South Field. The shooters were located about one hundred yards west on the fence that divided the Southeast and South Fields. The ravine acted as a backstop for their shots rising up twenty-five feet in elevation from its low point.[131] Due to the steep topography, the ravine was never cultivated and had a forested cover. At the top of the ravine's west slope, an access road provided vehicular circulation to Gray Cottage (see Figure 46). It is unclear

whether the target and rifle pit were located at the base of the slope in an open area or further east and up on the slope under the wooded canopy.

The Target and Rifle Pit have not been located or identified in the current landscape. The South Field is presently a heavily wooded area and is not accessible to visitors. In addition to the wooded canopy, the area is covered with Asiatic bittersweet (*Celastrus orbiculatus*) and summer grape (*Vitis aestivalis*) vines that make traversing the area difficult. The Target and Rifle Pit should be located and preserved so this landscape feature can be clearly interpreted. Since only a general location is known, archeological investigations along the west slope of the ravine are essential in refining and determining where this activity took place. Inventorying the park's archeological resources and defining the boundaries of archeological sites are actions identified in the General Management Plan for the park to continue studying and managing its resources.[132]

After the location of the Target and Rifle Pit has been identified, associated trees that date to the historic period should be identified and preserved. If necessary, a certified arborist should be consulted to recommend treatments for damaged or diseased trees. Working in coordination with archeological field work and protecting potential resources, management of non-native, invasive woody plants like Asiatic bittersweet should commence in the South Field. In concert with the invasive management, aggressive native species like summer grape should also be treated to reduce negative impacts on surrounding vegetation. Any invasive management that involves removing large canopy trees, for example Norway maple (*Acer platanoides*), should include a proposed replacement planting in order to reduce erosion and opportunities for new invasive species to get established.

SSF-8 Install wayside on Eel Creek bridge to interpret bathhouses and boathouse at Cold Spring Harbor beach

As early as 1888, two or more bathhouses were located at the Cold Spring Harbor beach. In August of that year, Roosevelt sent a letter to his sister describing how a storm took the roof off the "bathing houses."[133] In 1900, a reporter from the *New York Tribune* listed that Roosevelt had a boathouse and bathing house on Oyster Bay. Since Roosevelt did not own property along Oyster Bay at the time of the article, it can be inferred that these structures were located at Cold Spring Harbor beach.[134] In addition to written records, photographs from the early 1900s verify that a bathhouse was constructed on the beach (see Figure 63). An aerial photograph from 1950 confirms that one or more structures were present throughout the family's tenure at Sagamore Hill.

Although the beach is not as heavily visited as Sagamore Hill's historic core, Roosevelt and his family did use this area for recreation during the period of

significance (Figure 89). No structures, signage, or other indications currently inform visitors that structures existed on the beach to support swimming and boating.

A wayside should be installed along the Eel Creek Bridge to interpret an area that Roosevelt and his family actively used. The wayside should be strategically located to draw attention to the northeast corner of the beach—the general area where the structures historically stood. The Cold Spring Harbor beach is within a Natural Area management zone defined by the General Management Plan and adding appropriate interpretive media is consistent with the objectives for this zone.[135]

TABLE 1: SUMMARY OF TREATMENT RECOMMENDATIONS, SAGAMORE HILL NATIONAL HISTORIC SITE

Rehabilitation Task	Notes	Priority for Action 1 – high priority 2 – medium priority 3 – low priority, but requires ongoing monitoring 4 – no action
BUILDINGS AND STRUCTURES		
BL-1. Minimize landscape impact of rehabilitating and expanding the New Barn to serve as a visitor contact station	Coordinate with Line Item Construction (LIC) facility planning funding when it is approved	1 – high priority for action
BL-2. Rehabilitate Pet Cemetery arbor		1 – high priority for action
BL-3. Remove non-historic wood gazebo in the flower and vegetable garden	Coordinate with restoration plans for portion of the flower and vegetable garden (VG-14)	2 – plan for future action
BL-4. Remove non-historic Visitor Contact Station and rehabilitate chicken yard	Coordinate with Line Item Construction (LIC) facility planning funding when it is approved	1 – high priority for action
BL-5. Minimize landscape impact of new maintenance facility near Gray Cottage	Coordinate with Line Item Construction (LIC) facility planning funding when it is approved	1 – high priority for action
BL-6. Minimize landscape impact of addition for curatorial, research, and educational functions at Old Orchard	Coordinate with Line Item Construction (LIC) facility planning funding when it is approved	1 – high priority for action
BL-7. Replace Eel Creek Bridge in historic location		3 – requires ongoing monitoring of condition
BL-8. Preserve culvert, retaining walls, and drainage gutter		3 – requires ongoing monitoring of condition
VEGETATION		
VG-1. Replace vine planting on Theodore Roosevelt Home	Coordinate with exterior repairs to the Theodore Roosevelt Home	2 – plan for future action
VG-2. Replace shrub planting near porte-cochere	Coordinate with exterior repairs to the Theodore Roosevelt Home	2 – plan for future action
VG-3. Replace cherry trees in circular drive lawn at the end of their lifecycle		3 – requires ongoing monitoring of condition
VG-4. Replace honey locust with American elm at southwest corner of Theodore Roosevelt Home	Coordinate with exterior repairs to the Theodore Roosevelt Home	2 – plan for future action
VG-5. Inspect and repair lightning protection for signature trees from the period of significance	Coordinate with exterior repairs to the Theodore Roosevelt Home. A certified arborist should upgrade the lightning protection for the trees.	1 – high priority for action
VG-6. Remove non-historic shrubs at the Ice House	Coordinate with exterior repairs to the Theodore Roosevelt Home and rehabilitation of circulation features (CR-3)	2 – plan for future action

Rehabilitation Task	Notes	Priority for Action 1 – high priority 2 – medium priority 3 – low priority, but requires ongoing monitoring 4 – no action
VG-7. Replace shrub and vine planting at rehabilitated Pet Cemetery arbor	Coordinate with rehabilitation of arbor (BL-5)	1 – high priority for action
VG-8. Remove woody vegetation from the Service Road trace roadbed and banks		1 – high priority for action
VG-9. Rehabilitate West Lawn		1 – high priority for action
VG-10. Rehabilitate Southeast, South, and North Fields		1 – high priority for action
VG-11. Rehabilitate Cow Pasture		1 – high priority for action
VG-12. Rehabilitate orchard		1 – high priority for action
VG-13. Implement mowing plan to preserve historic landscape character		1 – high priority for action
VG-14. Restore portion of the flower and vegetable garden	Perform archeological survey to identify original foot print of the garden, garden paths, and fence lines.	2 – plan for future action
VG-15. Remove non-historic plant material at the visitor contact station and replace red maple in the chicken yard	Coordinate with removing non-historic visitor contact station and rehabilitating chicken yard (BL-4)	2 – plan for future action
VG-16. Replace two black locust at eastern end of parking lot	One black locust has been replaced. A non-historic red oak should be removed and a second black locust planted in its place.	1 – high priority for action
VG-17. Remove yew at Woodpile Pond		3 – requires ongoing monitoring of condition
VG-18. Replace Cousin's Beech in historic location		2 – plan for future action
VG-19. Manage invasive species at Lower Lake (Heron Pond)		1 – high priority for action
VG-20. Remove Phragmites (*Phragmites* sp.) along Eel Creek and creek tidal marsh		1 – high priority for action
VG-21. Manage invasive species at Cold Spring Harbor beach		1 – high priority for action
CIRCULATION		
CR-1. Replace brick paving in kind at porte-cochere		Completed
CR-2. Construct accessible route from the parking lot to the Theodore Roosevelt Home	Contract for accurate ground survey and coordinate with exterior repairs to the Theodore Roosevelt Home	1 – high priority for action
CR-3. Rehabilitate circulation at the Ice House	Coordinate with exterior repairs to the Theodore Roosevelt Home	2 – plan for future action
CR-4. Rehabilitate Service Road trace surface treatment		3 – requires ongoing monitoring of condition
CR-5. Rehabilitate Carriage Road surface treatment		3 – requires ongoing monitoring of condition
CR-6. Rehabilitate Macadam Road surface treatment		3 – requires ongoing monitoring of condition

Rehabilitation Task	Notes	Priority for Action 1 – high priority 2 – medium priority 3 – low priority, but requires ongoing monitoring 4 – no action
CR-7. Designate new loop trail		2 – plan for future action
CR-8. Improve pedestrian access to Old Orchard	Coordinate with rehabilitation of the orchard (VG-12)	1 – high priority for action
VIEWS AND VISTAS		
VV-1. Restore and maintain views from the Carriage Road and veranda	Coordinate with rehabilitation of West Lawn (VG-9)	1 – high priority for action
VV-2. Restore and maintain views associated with historic agricultural spaces	Coordinate with rehabilitation of fields and pasture (VG-10 and VG-11)	1 – high priority for action
VV-3. Interpret views from the Theodore Roosevelt Home to surrounding water bodies		2 – plan for future action
SMALL-SCALE FEATURES		
SSF-1. Remove non-historic Quentin Roosevelt Memorial and relocate flagpole		1 – high priority for action
SSF-2. Preserve Pet Cemetery stone		1 – high priority for action
SSF-3. Preserve Sagamore Hill rock		3 – requires ongoing monitoring of condition
SSF-4. Restore border of white painted rocks around circular drive	Coordinate with exterior repairs to the Theodore Roosevelt Home	2 – plan for future action
SSF-5. Preserve white marble bench	Coordinate with exterior repairs to the Theodore Roosevelt Home	2 – plan for future action
SSF-6. Replace missing fence lines to define historic agricultural spaces	Coordinate with West Lawn, fields, and pasture rehabilitation (VG-9 through VG-11)	2 – plan for future action
SSF-7. Locate Target and Rifle Pit and preserve in place		3 – requires ongoing monitoring of condition
SSF-8. Install wayside on Eel Creek bridge to interpret bathhouses and boathouse at Cold Spring Harbor beach		3 – requires ongoing monitoring of condition

ENDNOTES

[1] Marla Miller and Kristin Leahy, "National Register of Historic Places – Sagamore Hill National Historic Site" Draft, June 4, 2008, sect. 8, 15; *Sagamore Hill National Historic Site Final General Management Plan Final Environmental Impact Statement* (United States Department of the Interior, National Park Service, 2007), 1.13.

[2] In addition to the Volume 2 report, the Olmsted Center collaborated with the park and completed the *Landscape Preservation Maintenance Plan* in 1997 to address routine and cyclical maintenance tasks.

[3] For further information on the Library of Congress collection, please see http://memory.loc.gov/ammem/collections/troosevelt_film/index.html.

[4] The survey is projected in NAD 83, New York State Plane coordinate system, Long Island Zone, US Survey Feet. A copy of the survey file can be downloaded from the Denver Service Center's electronic Technical Information Center (eTIC) accessed at http://etic.nps.gov.

[5] Miller and Leahy, "National Register of Historic Places," sect. 8, 15.

[6] Referred to as the "Carriage Shed" and "Chicken Coop/Tool Shed" in previously publications, the agricultural outbuildings northwest of the New Barn are more appropriately named the Farm Shed and Chicken House respectively. The name Farm Shed is based on oral history and the building's multiple uses in support of farm activities. In addition, the Roosevelts' carriage was too large to fit in this structure and was garaged at the Stable and Lodge. For further information on the Farm Shed, please see James J. Lee III, *The Farm Buildings at Sagamore Hill Historic Structures Report* (United States Department of the Interior, National Park Service, 2007), 61-62. Chicken House is a name from the historic period and its use reflects upcoming changes to the National Register nomination and List of Classified Structures.

[7] *Final General Management Plan Final Environmental Impact Statement*, 2.8.

[8] Ibid., 1.5.

[9] *Master Plan for Sagamore Hill National Historic Site*, vol. 1, *Master Plan Narrative* (United States Department of the Interior, National Park Service, 1963), 6.

[10] Ibid.

[11] Regina M. Bellavia and George W. Curry, *Cultural Landscape Report for Sagamore Hill National Historic Site*, vol. 1, *Site History, Existing Conditions, and Analysis* (1995; reprint, United States Department of the Interior, National Park Service, 2003), 220-221.

[12] Ibid., 261.

[13] Regina M. Bellavia and David L. Uschold, *Cultural Landscape Report for Sagamore Hill National Historic Site*, vol. 2, *Treatment Recommendations and Implementation Plan* (United States Department of the Interior, National Park Service, 1998), 8.

[14] *Final General Management Plan Final Environmental Impact Statement*, 2.47.

[15] Ibid., 2.49.

[16] Ibid., 1.6-1.8.

[17] Ibid., 2.13.

[18] Ibid., 2.15.

[19] Ibid.

[20] For further information please see David Werier, *Sagamore Hill National Historic Site Invasive Non-native Plant Management Plan*, Technical Report NPS/NER/NRTR--2006/045 (United States Department of the Interior, National Park Service, July 2006).

[21] *Final General Management Plan Final Environmental Impact Statement*, 2.49.

[22] Miller and Leahy, "National Register of Historic Places," sect. 8, 15.

[23] Ibid., 21-22.

[24] Ibid., 22.

[25] Ibid., 25.

[26] Ibid., 15.

[27] Bellavia and Uschold, *Treatment Recommendations*, 11.

[28] Werier, *Invasive Non-native Plant Management Plan*, 53-54.

[29] Bellavia and Uschold, *Treatment Recommendations*, 11.

[30] Bellavia and Curry, *Cultural Landscape Report*, 12.

[31] James J. Lee III, *The New Barn: Historic Structure Report, Sagamore Hill National Historic Site* (United States Department of the Interior, National Park Service, 2005), 48.

[32] Ibid., 86-87.

[33] *Sagamore Hill National Historic Site General Management Plan* (United States Department of the Interior, National Park Service, 2008), 35-36.

[34] The color of the arbor is not known. In the historic black and white photograph, the tone of the arbor is between the lightest and darkest values in the image thereby eliminating a black or white finish. The arbor's tone is in a lighter value range best matched by a light gray finish.

[35] Bellavia and Curry, *Cultural Landscape Report*, 71.

[36] Photographic analysis presented in Volume 1 indicated the trees were not all the same species. One tree was identified as a flowering cherry (*Prunus* sp.) and the others were possibly different species of *Prunus*. For further information, please see Bellavia and Curry, *Cultural Landscape Report*, 72 and 273.

[37] Bellavia and Curry, *Cultural Landscape Report*, 75.

[38] Ibid., 142.

[39] Removing the gazebo is consistent with the approved General Management Plan that states non-historic structures within the historic core may be removed in support of resource management and interpretive objectives. For further information, please see *General Management Plan*, 36.

[40] James J. Lee III, *The Farm Buildings at Sagamore Hill: Historic Structures Report*, *Sagamore Hill National Historic Site* (United States Department of the Interior, National Park Service, 2007), 75.

[41] Ibid., 86.

[42] Great American Insurance Co. Inspection and Survey June 1950. TRA Materials, box 5, folder 2, SAHI Archives, as cited in Lee, *The Farm Buildings at Sagamore Hill*, 187.

[43] *General Management Plan*, 51.

[44] Ibid.

[45] Bellavia and Curry, *Cultural Landscape Report*, 112.

[46] *General Management Plan*, 36.

[47] Bellavia and Uschold, *Treatment Recommendations*, 21.

[48] It is difficult to determine from historic photographs and the existing conditions of the gutters if the broken stone wore away or was eliminated from the construction during the historic period.

[49] Bellavia and Uschold, *Treatment Recommendations*, 23.

[50] Theodore Roosevelt to Anna Roosevelt Cowles, 15 May 1911, as cited in Bellavia and Curry, *Cultural Landscape Report*, 65.

[51] Bellavia and Curry, *Cultural Landscape Report*, 118.

[52] Ibid., 189.

[53] Bellavia and Uschold, *Treatment Recommendations*, 28.

[54] Jamie Mcguane, e-mail message to author, March 30, 2009.

[55] Bellavia and Curry, *Cultural Landscape Report*, 64; Bellavia and Uschold, *Treatment Recommendations*, 28.

[56] Bellavia and Uschold, *Treatment Recommendations*, 26.

[57] Bellavia and Curry, *Cultural Landscape Report*, 336.

[58] Ibid., 118.

[59] Robert Alden, "Japanese Premier Opens Game at Yankee Stadium," *New York Times*, June 24, 1957.

[60] Removing the cherry trees is consistent with the General Management Plan's guidance to selectively remove non-historic ornamental trees and shrubs. For further information, please see *General Management Plan*, 34.

[61] Bellavia and Curry, *Cultural Landscape Report*, 62; Bellavia and Uschold, *Treatment Recommendations*, 25.

[62] A. M. Townsend, S. E. Bentz, and L. W. Douglass, "Evaluation of 19 American Elm Clones for Tolerance to Dutch Elm Disease," *Journal of Environmental Horticulture* (March 2005): 21-24.

[63] Bellavia and Curry, *Cultural Landscape Report*, 57.

[64] As part of the 1995 Historic Plant Inventory, the beech tree was identified by Dr. Stephen Spongberg, a horticultural taxonomist at the Arnold Arboretum. Dr. Spongberg identified the beech as *Fagus sylvatica* 'Purpurea' with the common name purple beech. For further information, please see Appendix 4 "Herbarium Specimens Collected" in Olmsted Center for Landscape Preservation, *Historic Plant Inventory for the Sagamore Hill National Historic Site* (United States Department of the Interior, National Park Service, December 1995).

[65] Both the purple beech and white oak should be propagated in preparation for future replacement as identified in the 1997 *Landscape Preservation Maintenance Plan*. The American elm has been propagated by Olmsted Center for Landscape Preservation staff and the sugar maple can be replaced, when necessary, with commercial nursery stock.

[66] Bellavia and Curry, *Cultural Landscape Report*, 65.

[67] Kent B. Krugh, "Growing Roses in Shade and Shade Tolerant Roses," http://woodlandrosegarden.com/rose/shade1.htm.

[68] Bellavia and Curry, *Cultural Landscape Report*, 89.

[69] The portion of the Carriage Road that connected the main house and Stable and Lodge was constructed circa 1905. In 1912, construction was completed on a paved road known as the Macadam Road that followed the same alignment as the Carriage Road between the house and Stable and Lodge.

[70] Bellavia and Curry, *Cultural Landscape Report*, 133.

[71] Rumika Chaudhry and Margie Coffin Brown, "Cultural Landscape Report Treatment Recommendations and Implementation Review Meeting" (trip report, Olmsted Center for Landscape Preservation, 2008), 6.

[72] In addition to the current emphasis on native plants in meadow seed mixtures, most literature on pasture management provides guidance on the eradication of oxeye daisies because they can produce an unwanted flavor in milk if eaten by dairy cows.

[73] Bellavia and Curry, *Cultural Landscape Report*, 153.

[74] Ibid., 273.

[75] Ibid., 78.

[76] For further information on giant ironweed, please see Werier, *Invasive Non-native Plant Management Plan*, 17-18.

[77] Donna Macknet and Wayne S. Johnson, *Identification and Management of Oxeye Daisy*, University of Nevada Cooperative Extension.

[78] Bellavia and Curry, *Cultural Landscape Report*, 341-342.

[79] An approximate 30-foot by 30-foot grid is consistent with orchard spacing for apple trees grown on standard rootstock. Standard trees, as opposed to trees grown on semi-dwarf or dwarf rootstock, require more area between each tree to develop healthy branching and fruits. Dwarfing rootstock and higher density orchard spacing developed in the United States following World War II. For further information, please see Susan A. Dolan, *Fruitful Legacy: A Historic Context of Orchards in the United States, with Technical Information on Registering Orchards in the National Register of Historic Places* (United States Department of the Interior, National Park Service, 2009), 115-116.

[80] All inventoried trees in the orchard were identified with a string of three numbers. The first number, 6 for all orchard trees, identified a zone at Sagamore Hill. The next number, 1 for all orchard trees, was the value assigned for a tree designation versus shrubs and herbaceous material. Finally, the string concluded with a unique number corresponding to each recorded specimen.

[81] Commercially available fruit trees are grafted on rootstock that produces a dwarf, semi-dwarf, or standard size tree. Only standard size trees should be selected for Sagamore Hill's orchard rehabilitation.

[82] The majority of apple trees in the Historic Plant Inventory were not identified to the variety level. Other named varieties dating to the historic period include Smokehouse and Stark. The four recommended apple varieties have better disease resistance than either Smokehouse or Stark.

[83] Dolan, *Fruitful Legacy*, 74-75.

[84] Ian A. Merwin, "Some Antique Apples for Modern Orchards," *New York Fruit Quarterly* 16, no. 4 (2008): 14; Olmsted Center for Landscape Preservation, *Orchard Management Plan for Wick Farm Orchard, Morristown National Historical Park* (United States Department of the Interior, National Park Service, September 2007), 47.

[85] Chaudhry and Brown, "Treatment Review Meeting," 15.

[86] Gene Towne and Paul D. Ohlenbusch, *Native Hay Meadow Management*, (Kansas State University Agricultural Experiment Station and Cooperative Extension Service, July 1992), 1.

[87] In addition to the park's current flail mower, a PTO-driven "brush hog" rotary mower is useful for mowing fields. Compared to a flail mower, a brush hog can better cut small, emerging woody vegetation.

[88] Bruce Peterjohn, *Conceptual Ecological Model for Management of Breeding Grassland Birds in the Mid-Atlantic Region*, Technical Report NPS/NER/NRTR--2006/005 (United States Department of the Interior, National Park Service, May 2006), 16.

[89] Natural Heritage and Endangered Species Program, *Mowing Advisory Guidelines in Rare Turtle Habitat: Pastures, Successional Fields, and Hayfields*, (Massachusetts Division of Fisheries and Wildlife, February 2009), 3.

[90] Olmsted Center for Landscape Preservation, *Orchard Management Plan for Wick Farm Orchard*, 53.

[91] Bellavia and Curry, *Cultural Landscape Report*, 71.

[92] Both trees are older than trees of the same species that are located in the visitor parking lot.

[93] Chaudhry and Brown, "Treatment Review Meeting," 8.

[94] The eastern red cedar (*Juniperus virginiana*) is also identified in the Historic Plant Inventory as dating to the period of significance, however, the tree cannot be seen on either the 1940 or 1950 aerial photograph. The eastern red cedar should be preserved but is a likely candidate for removal following the archeological investigations and completion of a rehabilitation plan for the flower and vegetable garden.

[95] *Theodore Roosevelt An Autobiography* (1913; reprint, New York: Da Capo Press, Inc., 1985), 330.

[96] For example, the purple flowering *Robinia pseudoacacia* 'Purple Robe' while commercially available should not be used as a replacement.

[97] Theodore Roosevelt Jr., *All in the Family* (New York: G. P. Putman's Sons, The Knickerbocker Press, 1929), 15-16.

[98] Bellavia and Curry, *Cultural Landscape Report*, 55.

[99] Chaudhry and Brown, "Treatment Review Meeting," 3.

[100] Bellavia and Curry, *Cultural Landscape Report*, 24.

[101] Dennis E. Skidds, *Preliminary Summary of Biological Inventories for Sagamore Hill National Historic Site*, Northeast Coastal and Barrier Network, University of Rhode Island, February 2005, 8.

[102] Ibid., 8-9.

[103] Hans Rude Jacobsen to Ethel Roosevelt Derby, undated, as cited in Francis Wilshin, *Historic Resource Study Historical Base Map Documentation* (United States Department of the Interior, National Park Service, 1972), 17.

[104] *General Management Plan*, 42.

[105] Lee, *The Farm Buildings at Sagamore Hill*, 118.

[106] Bellavia and Curry, *Cultural Landscape Report*, 89.

[107] Ibid., 133.

[108] Henry Beach Needham, "Theodore Roosevelt as a Country Gentleman," *The Country Calendar*, October 1905, 533.

[109] Bellavia and Curry, *Cultural Landscape Report*, 88.

[110] Ibid., 89.

[111] Ibid.

[112] Chaudhry and Brown, "Treatment Review Meeting," 15.

[113] Bellavia and Uschold, *Treatment Recommendations*, 39.

[114] Ibid.

[115] Ibid.

[116] Ibid.

[117] "Colonel Roosevelt's Home. The Much Talked About House at Oyster Bay and its' Occupants," *New York Tribune*, October 2, 1900.

[118] *Theodore Roosevelt An Autobiography*, 338.

[119] Bellavia and Uschold, *Treatment Recommendations*, 39-40.

[120] Bellavia and Curry, *Cultural Landscape Report*, 154.

[121] Ibid.

[122] Chaudhry and Brown, "Treatment Review Meeting," 7.

[123] Bellavia and Uschold, *Treatment Recommendations*, 44.

[124] Bellavia and Curry, *Cultural Landscape Report*, 98.

[125] Hans Rude Jacobsen to Ethel Roosevelt Derby, undated, as cited in Francis Wilshin, *Historic Resource Study Historical Base Map Documentation* (United States Department of the Interior, National Park Service, 1972), 18.

[126] Bellavia and Uschold, *Treatment Recommendations*, 44.

[127] Ibid.

[128] Bellavia and Curry, *Cultural Landscape Report*, 100.

[129] Ibid., 93.

[130] Thomas Ross, e-mail message to author, April 10, 2009.

[131] Bellavia and Curry, *Cultural Landscape Report*, 82.

[132] *General Management Plan*, 33.

[133] Bellavia and Curry, *Cultural Landscape Report*, 28.

[134] Ibid.

[135] *Final General Management Plan Final Environmental Impact Statement*, 2.4.

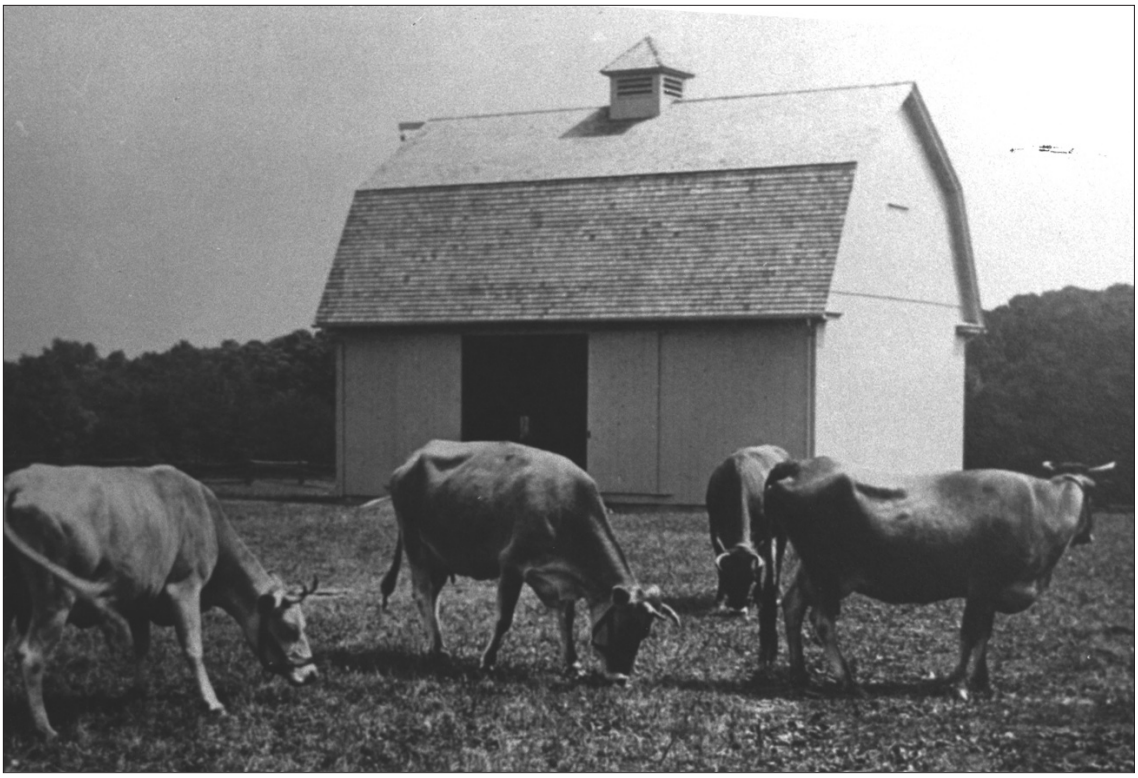


Figure 5. View looking southeast at the New Barn, 1907. Construction was completed on the New Barn in 1907 after the Farm Barn or Old Barn collapsed circa 1905. The new structure was located in the southwest corner of the North Field near the fence that divided the North and South Fields. Several sections of the fence can be seen to the left of the barn (Sagamore Hill National Historic Site, hereafter SAHI, no. 1113, Box 6).

Figure 6. View looking northwest at the New Barn. Between 1944 and 1948, the New Barn was altered to accommodate a residence and garage that presently serves as park staff housing. A proposed addition, called for in the General Management Plan, will occur over the paved parking area in the foreground (east side of the building) to expand the New Barn into a visitor contact station (Olmsted Center, January 2009).

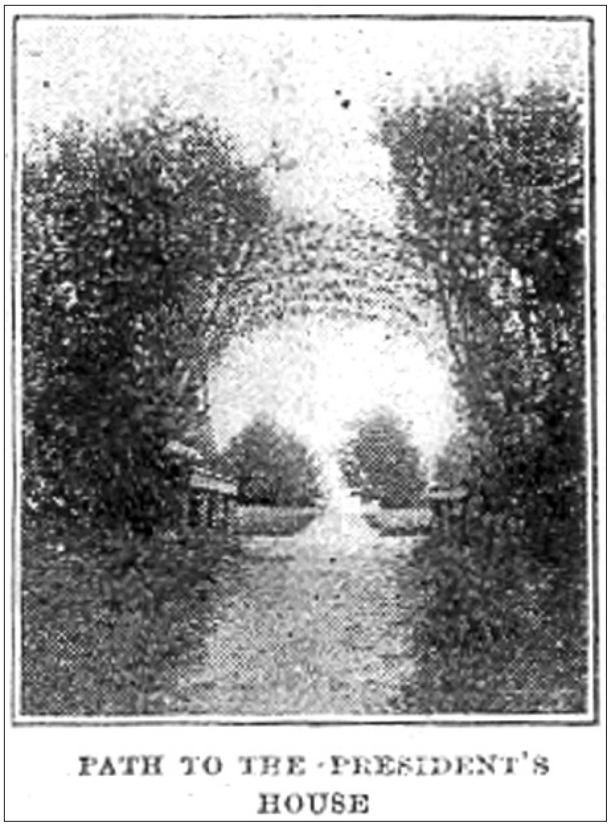


Figure 7. View looking south through the Pet Cemetery Arbor, 1906. The arched arbor, east of the Pet Cemetery, marked a pedestrian gateway from the Service Road to the Theodore Roosevelt Home (Walter E. Andrews, "Theodore Roosevelt as a Farmer," *Farm Journal*, December 1906).

Figure 8. Edith and Quentin Roosevelt in front of Pet Cemetery Arbor, circa 1901. The arched arbor is centered on a compacted soil path with wood benches placed on either side. Rambler roses are visible growing on both sides of the arbor and deciduous shrubs symmetrically flank the north side of the structure (SAHI, no. 1131, Box 6).

Figure 9. View looking north at the existing Pet Cemetery Arbor. In contrast to the historic arbor, the existing arbor has a rectangular shape with rounded corners, benches on three sides, and lacks the symmetrically placed deciduous shrubs (Olmsted Center, April 2009).

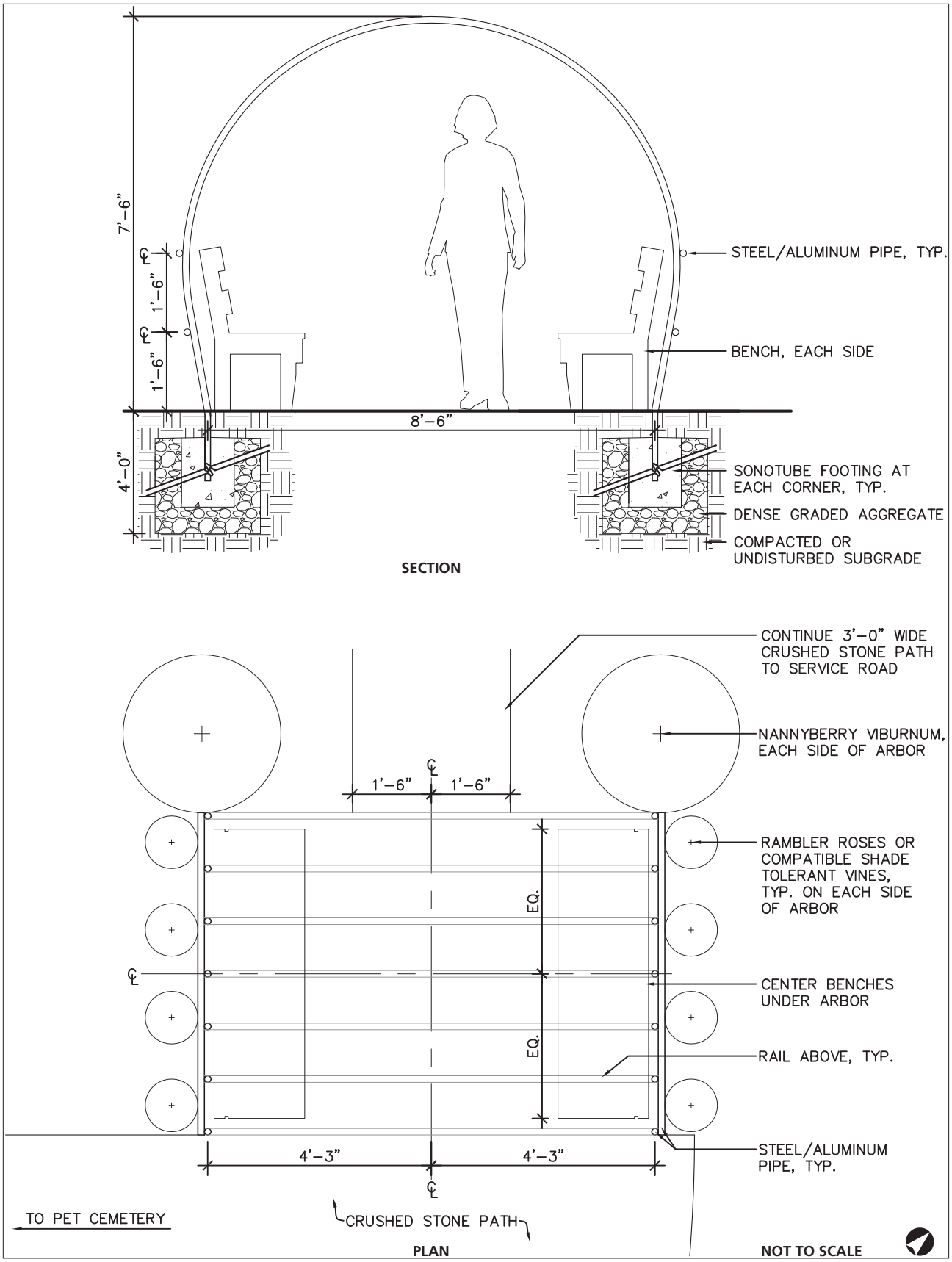


Figure 10. Plan and elevation for the proposed arbor, benches, and planting. Before installation of the arbor and benches, the crushed stone path should be graded to balance existing elevation differences on either side. The arbor should be aligned on center with the current path and symmetrical plantings added (Olmsted Center, 2009).

Figure 11. Richard Derby Jr. at the fenced chicken yard, circa 1918. Beginning in circa 1900 and continuing throughout their tenure, the Roosevelts maintained a chicken yard south of the Chicken House. Four-by-four posts, approximately seven feet in height and faced with hexagonal wire mesh, defined the boundaries of the chicken yard (SAHI no. 10097).

Figure 12. View looking east at the Cow Shed, Farm Shed, and Chicken House, circa 1920. Located furthest on the right in this image, the Chicken House featured a double-leaf gate off of its south facade. The gates provided access to a fenced chicken yard and swung away from the yard (Isabelle Wildt Photos, SAHI Archives).

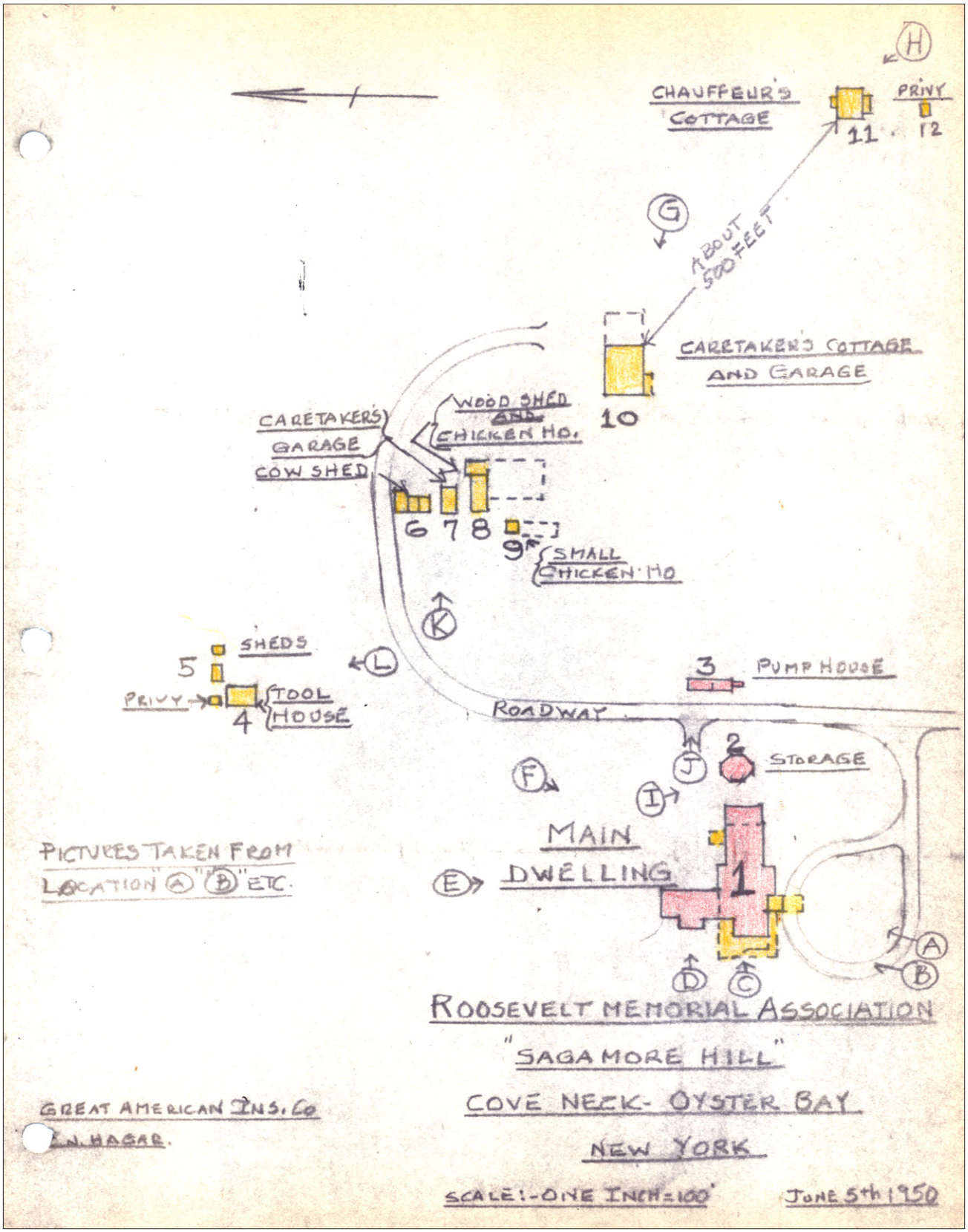


Figure 13. Great American Insurance Company Map, June 1950. Following Edith Roosevelt's death, an insurance survey recorded extant structures and their condition on the property. A diagram prepared for the survey shows the Chicken House, a second structure attached to its east facade, and a dashed line represented the chicken yard. Based on this diagram, the chicken yard measured approximately thirty by fifty feet with the longer dimension running south from the Chicken House (SAHI, Theodore Roosevelt Association Materials).

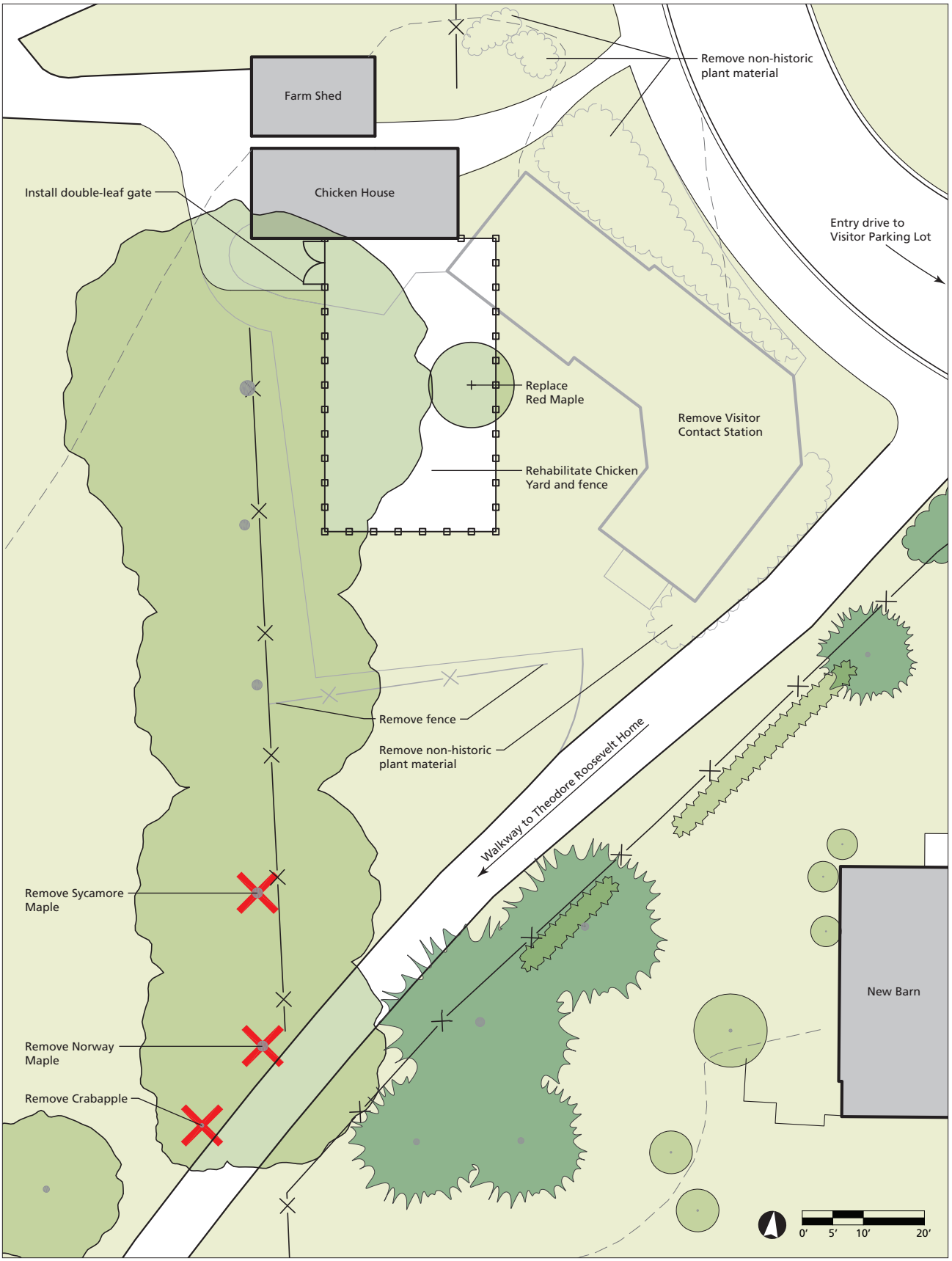


Figure 14. Diagrammatic plan of the proposed chicken yard. Following the removal of the 1956 visitor contact station, a chicken yard should be re-established south of the Chicken House. In addition, non-historic plant material associated with the visitor contact station should be removed and a red maple replaced in the chicken yard (Olmsted Center, 2009).

Figure 15. View looking northeast toward visitor parking lot. Due to the size of the current maintenance facility, the park has dispersed maintenance functions and storage to other locations. These recycling collection containers are located east of the New Barn and are easily seen by visitors arriving in the parking lot (Olmsted Center, April 2009).

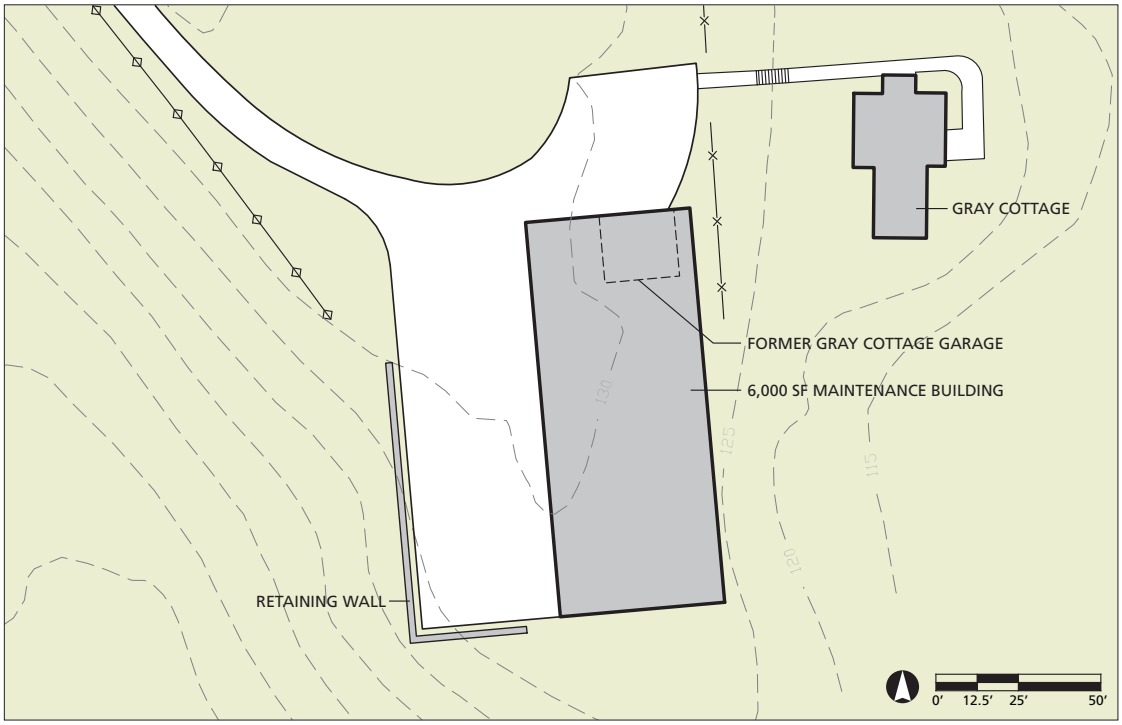


Figure 16. Diagrammatic plan of the proposed maintenance building. To minimize views of the proposed 6,000 square foot building, the long axis of the building should be oriented in a roughly north-south direction (Olmsted Center, 2009).

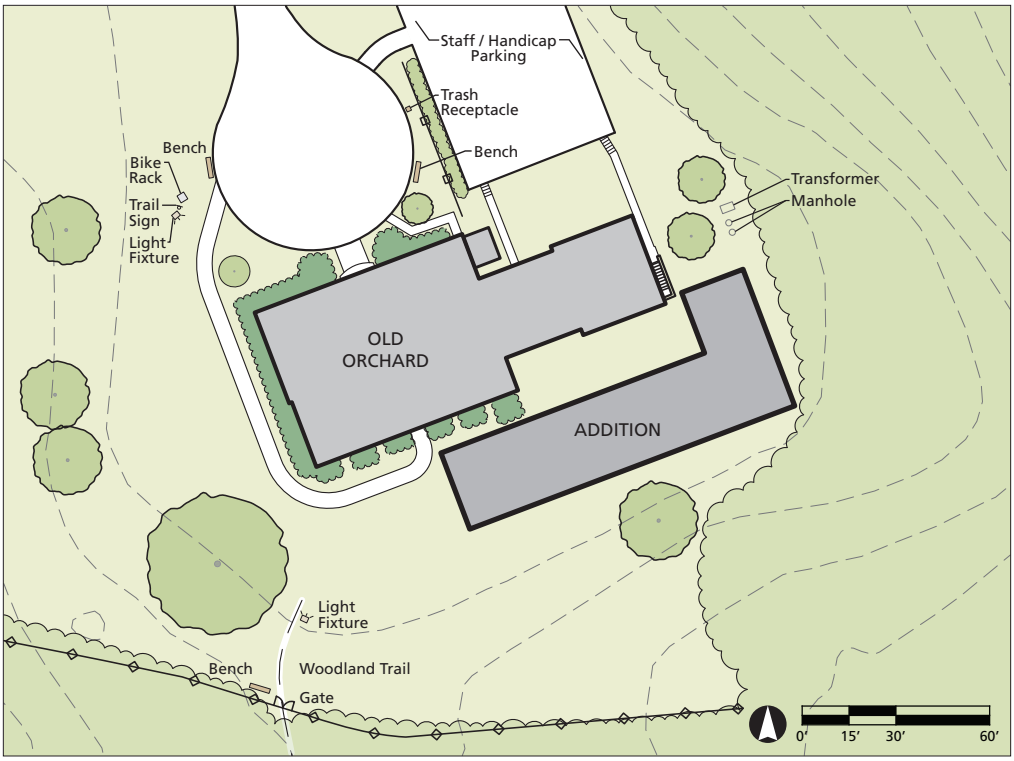


Figure 17. Diagrammatic plan of the proposed addition to Old Orchard. To address the needs for climate-controlled collection storage, researcher workspace, and educational programming, an addition is proposed to the southeast of the Old Orchard estate. This location will minimize intrusions on views from the west and avoid conflicts with the remaining trees in the historic orchard (*Sagamore Hill National Historic Site General Management Plan*, United States Department of the Interior, National Park Service, 2008 and Olmsted Center).

Figure 18. "Playing in the Sand," circa 1904. A simple wood bridge crossing Eel Creek to the beach along Cold Spring Harbor is visible in the background. When the current bridge needs to be replaced, a new design and location should be based on the details gleaned from this image and other historic documents (Courtesy of the Library of Congress).

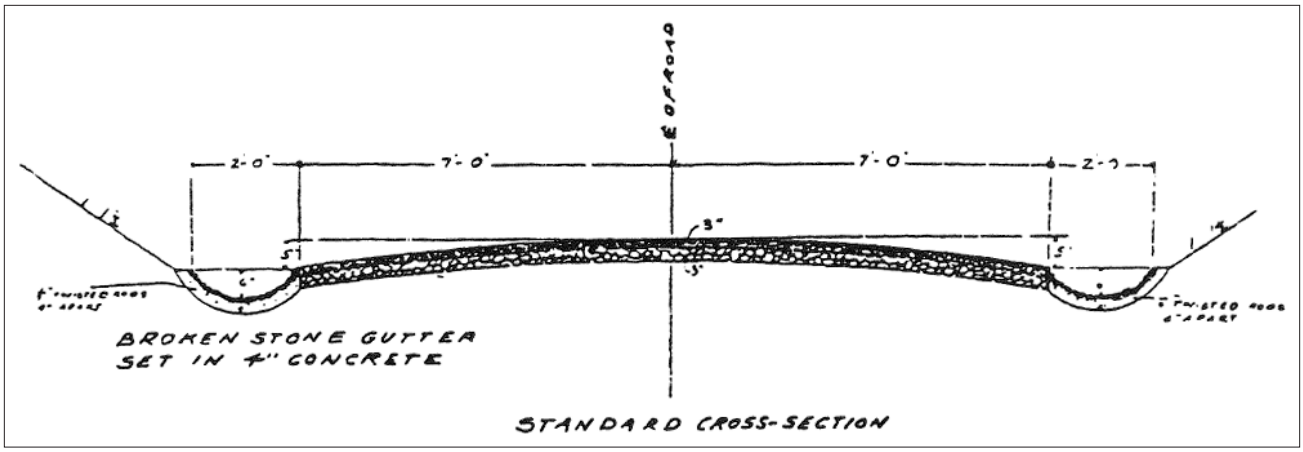


Figure 19. Macadam Road Cross Section. The section was redrawn from a 1911 original prepared by Hans Rude Jacobsen for Roosevelt's new Macadam Road. The finish grades of any future surfacing should match the historic crown of the Macadam Road and should not extend into or cover the historic concrete gutters on either side (Bellavia and Curry, *Cultural Landscape Report*, 54).

Figure 20. "Going to See Roosevelt," May 27, 1916. Approximately four years after the Macadam Road and concrete gutters were completed, a retaining wall constructed from vertical wood posts and horizontal wood slats marked the east side of the road. The wooden retaining wall was later removed and a dry-laid stone retaining wall added in its place (SAHI no. 13712).

Figure 21. View looking southwest at retaining wall along Macadam Road. The retaining wall is one of several site engineering elements that should be preserved. The wall was recently stabilized through a project that removed adjacent trees and reset the dry-laid stones (Olmsted Center, April 2009).

Figure 22. Roosevelt reading mail under the porte-cochere, 1912. The south columns of the porte-cochere, behind Roosevelt, were planted with wisteria (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

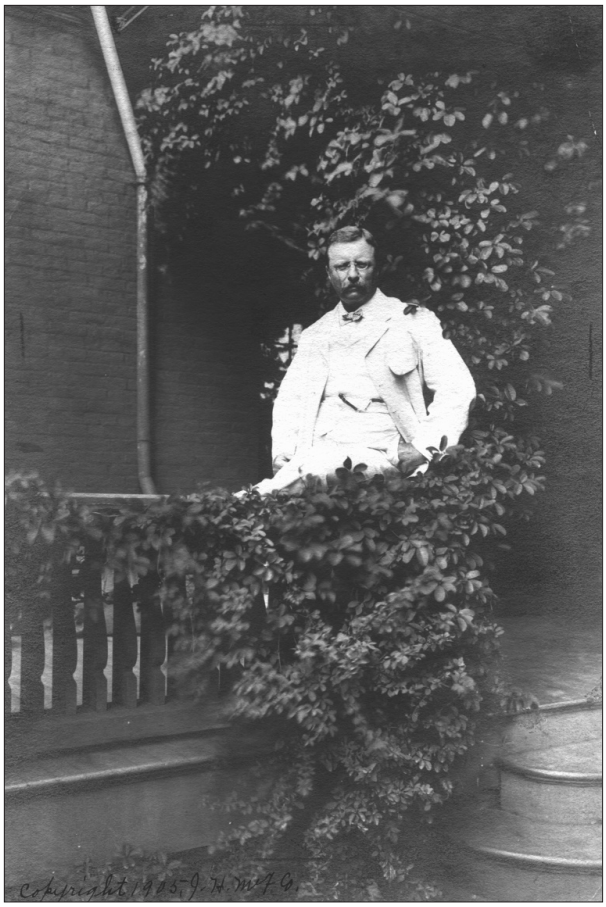


Figure 23. Roosevelt seated on balustrade of veranda, 1905. The end post of the balustrade and north columns of the porte-cochere were planted with fiveleaf akebia (SAHI no. 9185).

Figure 24. Roosevelt walking from porte-cochere, 1912. Note the difference in the appearance between the fiveleaf akebia, left of Roosevelt on the veranda, and wisteria, right of Roosevelt on the porte-cochere (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

Figure 25. View looking southeast at the North Room, circa 1905. Young wisteria vines can be seen planted at the base of the North Room shortly after construction was completed (SAHI no. 1124).

Figure 26. View looking southeast at the North Room, circa 1922. The wisteria vines were trained to surround the windows on the west and north facades of the North Room (SAHI no. 1149, Box 6).

Figure 27. Close-up of trellis support system, Frederick Law Olmsted National Historic Site. The bracket, eyebolt, snap hook, and cables promote vine growth away from the face of the historic structure where the vine could be damaging. The cables and snap hook can be detached from the eyebolt when building maintenance is necessary. A similar system should be installed at the Theodore Roosevelt Home as part of the vine replacement (Olmsted Center, 2000).

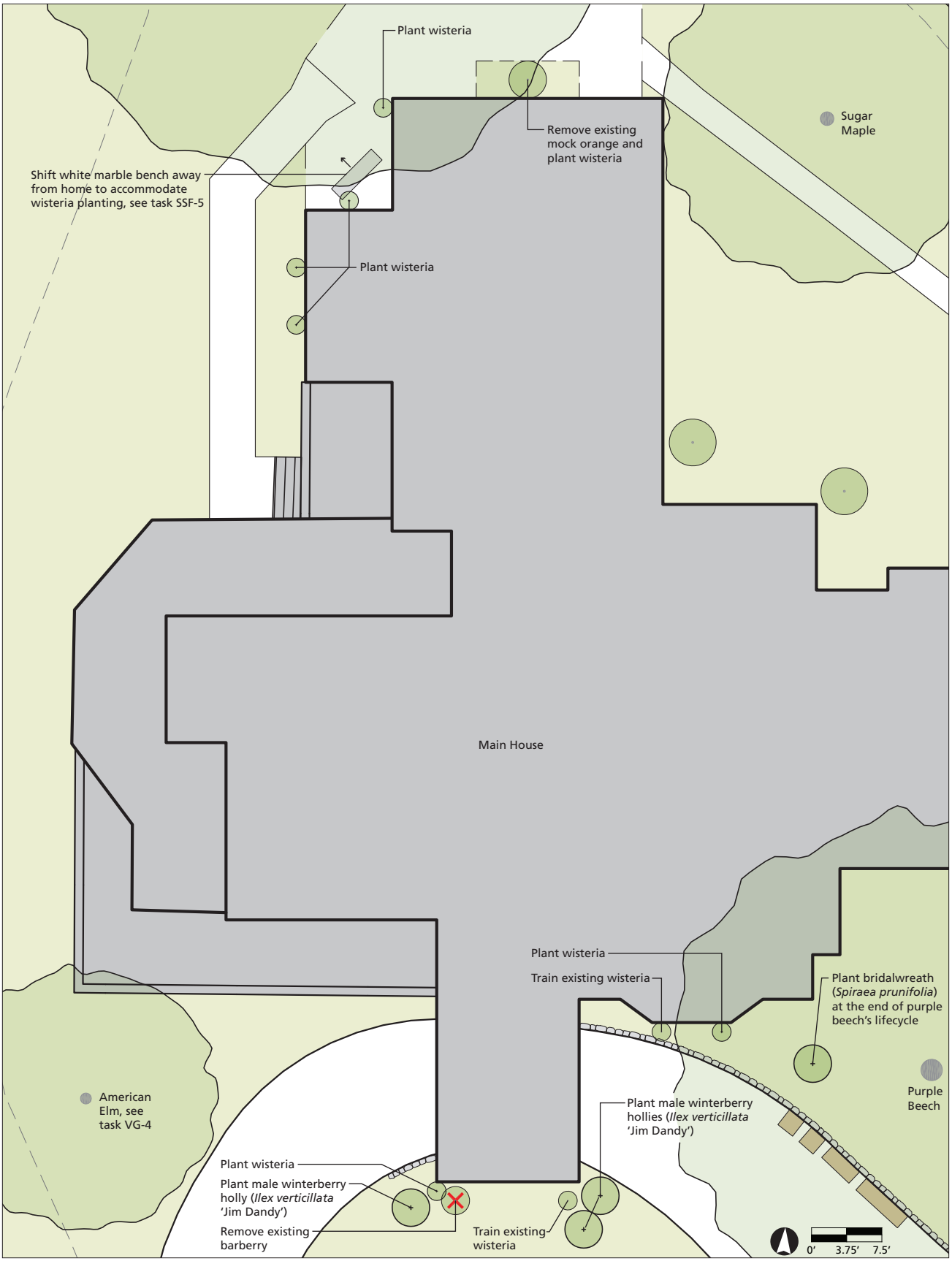


Figure 28. Diagrammatic shrub and vine planting plan for the Theodore Roosevelt Home. Shrubs and vines were an integral component of the historic landscape character at the main house and should be replaced (Olmsted Center, 2009).

Figure 29. View looking northwest at the porte-cochere, 1905. A bridalwreath (*Spiraea prunifolia*) was located along the circular drive south of the library's bay window. In addition, barberries (*Berberis* sp.) were present at the southwest and southeast corners of the porte-cochere along with a single yew (*Taxus* sp.) at the southwest corner (SAHI no. 1123A, Box 6).

Figure 30. Richard Derby Jr., left, and Edith Derby, in wagon, on circular drive, circa 1918. Looking north at the porte-cochere, a shrub can be seen near the southwest column of the structure. It is difficult to determine specific planting at the southeast corner. This photograph also shows the trunks of the tulip poplar, behind wagon, and Scotch elm, far right, in the circular drive lawn (Ethel Derby Family Album, SAHI no. 7644).

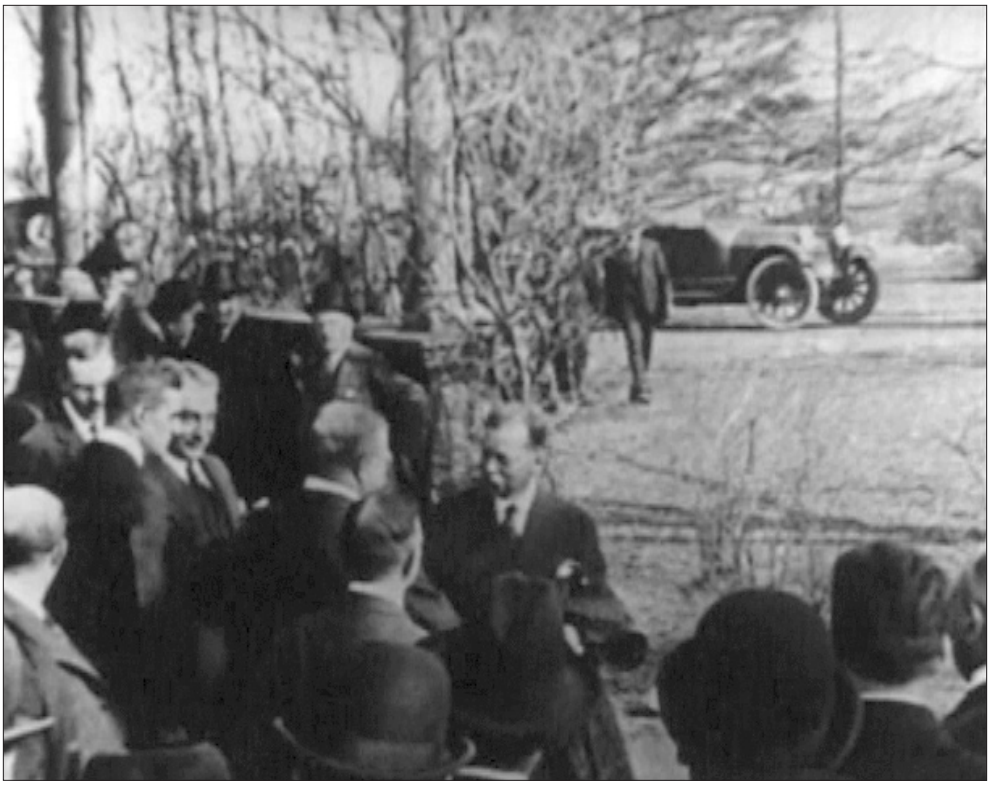


Figure 31. View looking southeast at Roosevelt greeting visitors, circa 1916–18. Looking over Roosevelt's back, a deciduous shrub can be seen near the southwest corner of the porte-cochere (Roosevelt Memorial Association, Inc.).

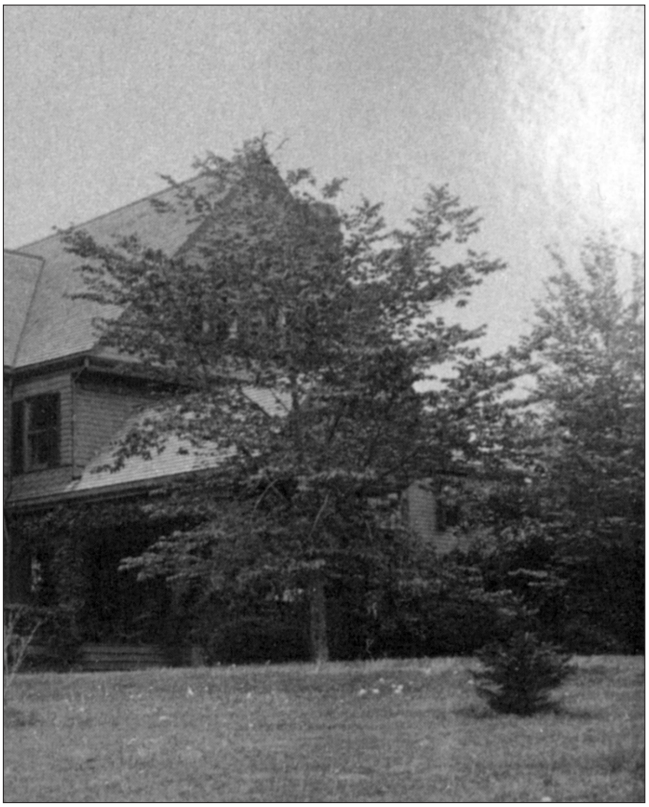


Figure 32. View looking northeast at the Theodore Roosevelt Home, 1905. In addition to maps and work orders from the period of significance, this photograph shows an American Elm, center, and a Scotch elm, right, in the circular drive lawn (SAHI no. 1117, Box 6).

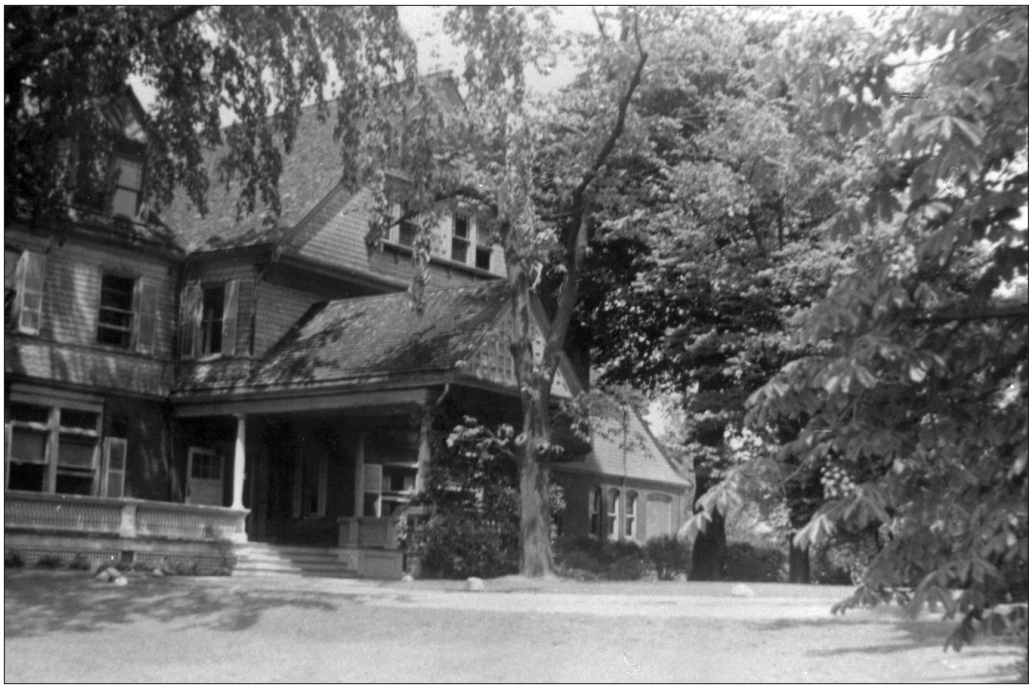


Figure 33. View looking northeast across circular drive, 1950. Of the three trees identified in the circular drive lawn during the Roosevelt tenure, only the American elm can be seen in this photograph (SAHI, Theodore Roosevelt Association Materials, Box 5, Folder 2, GAIC "A").

Figure 34. Visitor photographing cherry trees in the circular drive lawn. In 1957, two cherry trees were planted by Japanese Premier Nobusuke Kishi and the Theodore Roosevelt Association to recognize Roosevelt's role in the Russo-Japanese War peace negotiations (Olmsted Center, April 2009).

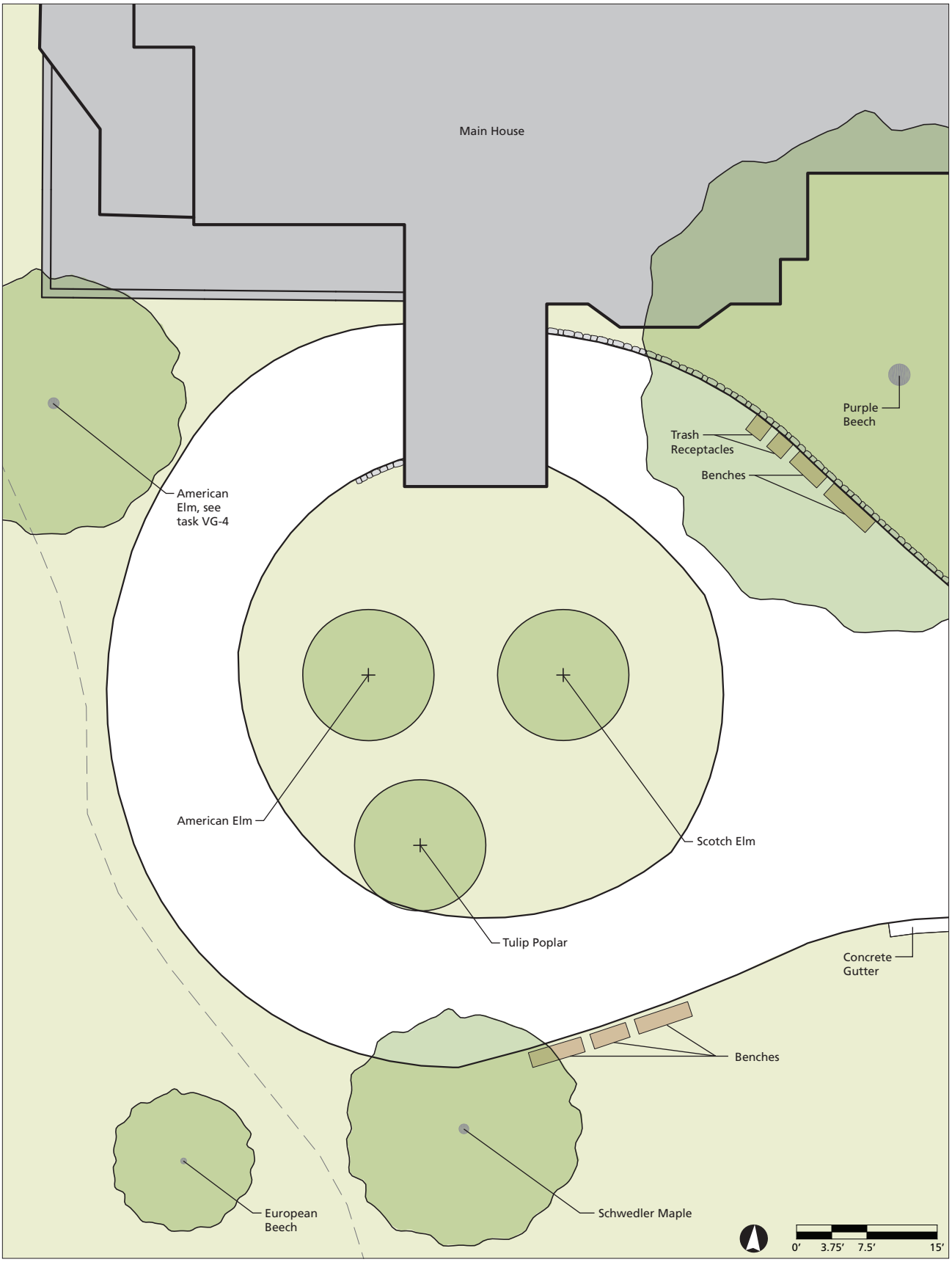


Figure 35. Diagrammatic plan for replacement planting at the circular drive lawn. After the existing cherries have substantially declined, require removal, and are replaced in kind elsewhere, the circular lawn should be planted with an American elm, a Scotch elm, and a tulip poplar as indicated by historic photographs and documents (Olmsted Center, 2009).

Figure 36. Roosevelt addressing a crowd from the veranda, 1916. The trunk of the elm and its gracefully arching branches can be seen in this image taken during a rally to support Roosevelt for the 1916 presidential nomination (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

Figure 37. View looking northeast at the elm and Theodore Roosevelt Home, 1912. Based on historic work orders from a local nursery, the elm at the southwest corner of the home has been identified as a "weeping elm." The elm is most likely an American elm (*Ulmus americana*) and the "weeping" appearance is part of the tree's habit and not indicative of a weeping cultivar or variety (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

Figure 38. Bob Fergusen holding Ethel Roosevelt, circa 1894. After construction on the home was completed, trees were immediately planted and by the early 1890s, were well established. The American elm at the southwest corner of the house can be seen on the left (SAHI, no. 5519, Box 10).

Figure 39. View looking east at white oak near Gardener's Shed. Although lightning protection has been installed on this historic tree, the grounding cable is not adequately secured and at other locations, the tree has grown around the cable. To continue preserving the tree, the lightning protection should be upgraded (Olmsted Center, March 2009).

Figure 40. Ice House behind Roosevelt standing in circular drive, 1912. During the period of significance the brick, octagonal structure stored ice collected or cut from nearby ponds (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

Figure 41. View looking northeast at the Ice House, circa 1960. During the Theodore Roosevelt Association's stewardship of the property, the Ice House was renovated to provide public restrooms for visitors. As part of the conversion, new circulation patterns, paving materials, and non-historic, ornamental plantings were added (SAHI Archives).

Figure 42. Diagrammatic plan for the Ice House. The brick paving and post-and-chain fence should be removed along with a concrete landing and metal guardrail on the north side of the structure. Ornamental shrubs added during the Theodore Roosevelt Administration stewardship should also be removed. A new three-foot wide walk should be installed that meets the circular drive at a right angle. The walk should be surfaced with crushed stone that matches the existing Pet Cemetery walk (Olmsted Center, 2009).

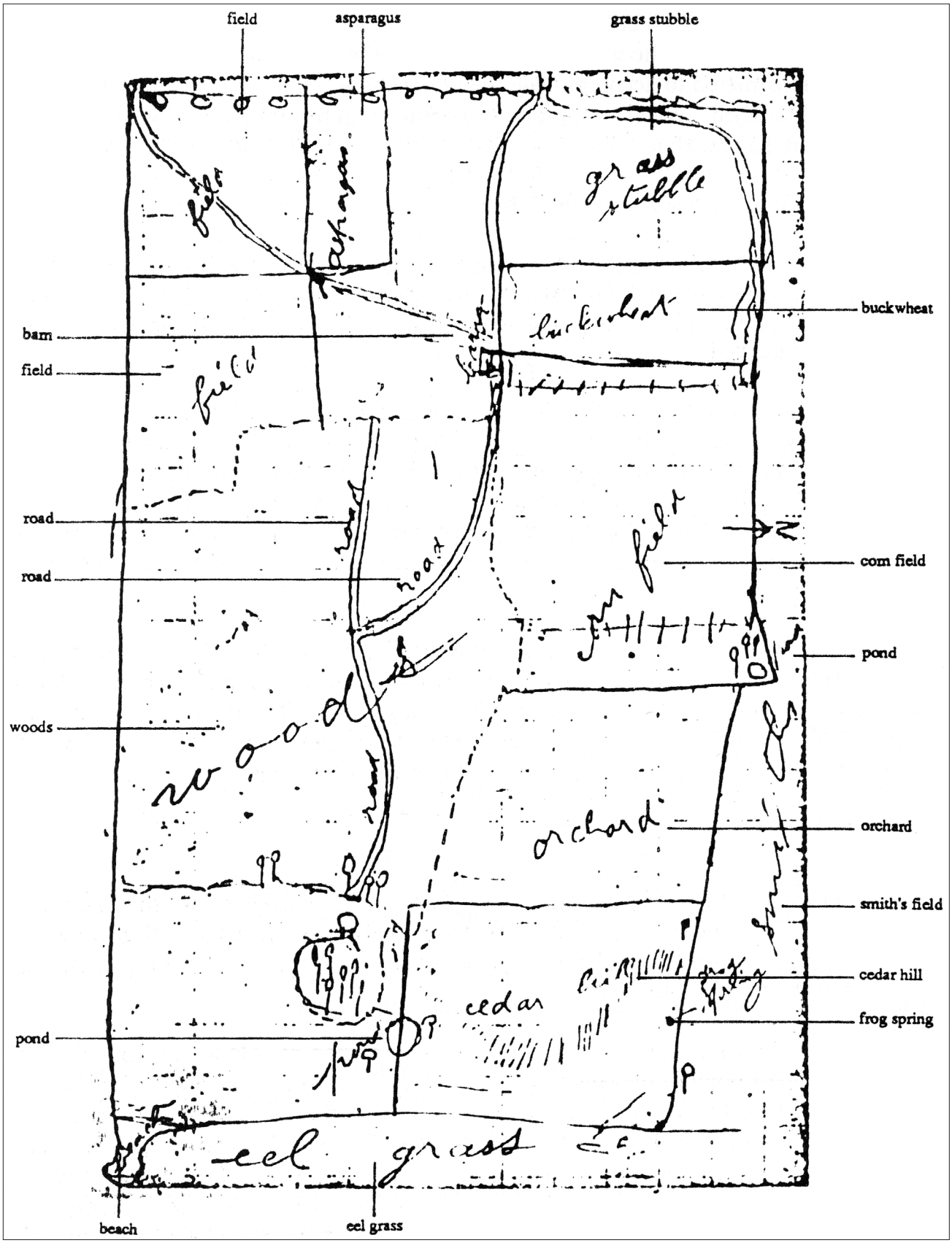


Figure 43. Theodore Roosevelt's sketch plan of Sagamore Hill, circa 1880. The sketch identifies the property's existing agricultural uses, circulation, and natural features including a pond in the southeast portion of the property (SAHI Archives).

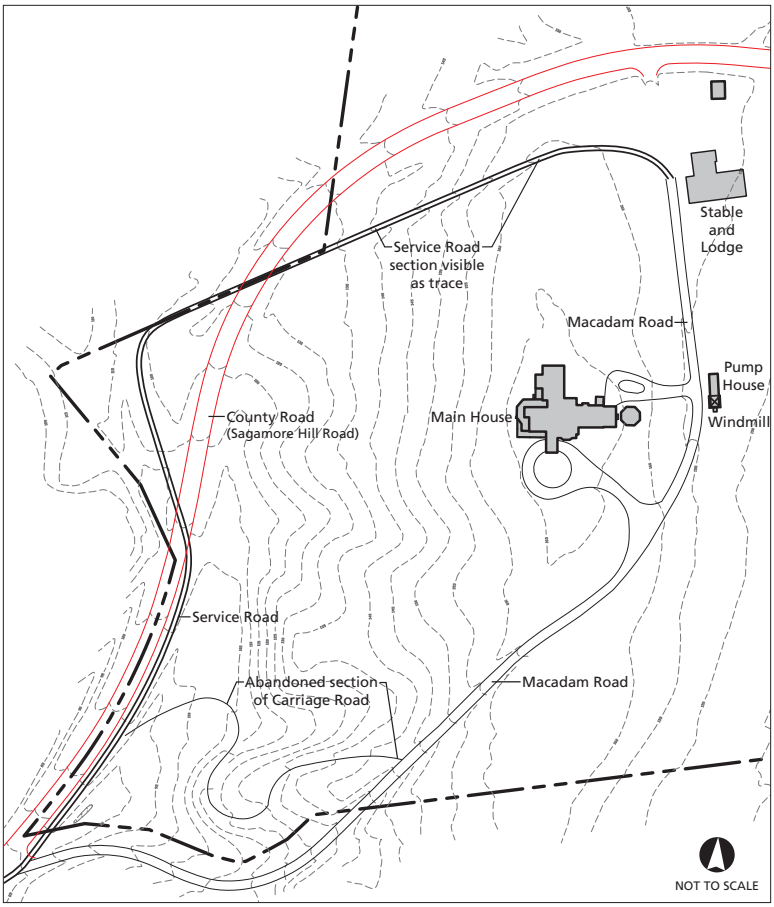


Figure 44. Vehicular circulation to the Theodore Roosevelt Home, 1953. A new county road, shown in red, was constructed in 1953 as part of plans to open Sagamore Hill to the public. No longer utilized, a northern section of the Service Road became obscured in woodland vegetation and today is visible as a trace (Olmsted Center, 2009).

Figure 45. "Across the Field, Sagamore Hill," circa 1904. This photograph shows a distinction between regularly maintained lawn near the home and a meadow to the west. Oxeye daisies were the dominant flowering plant and prompted Roosevelt family members to refer to the area as the "Daisy Meadow" (Courtesy of the Library of Congress).

Figure 46. Aerial photograph, 1950. The West Lawn has numerous dark blotches indicating successional woody vegetation is increasing. By the late 1990s, the open and expansive character of the West Lawn was severely compromised by large trees and shrubs (LKB, Inc., Syosset, New York, and Olmsted Center).

Figure 47. View looking southeast to the "Farm Barn," prior to 1904. The Southeast Field, located southeast of the main house and immediately east of the Windmill, was a cultivated field where corn and timothy were grown. Note the planted rows in this photograph (SAHI, no. 1132, Box 6).

Figure 48. View looking east from the Windmill of the Southeast, North, and South Fields, prior to 1907. East of the Southeast Field, foreground, were two rectangular spaces now referred to as the North Field, left, and the South Field, right. The North and South Fields were used for grazing and hay production and most likely had alternating crops of alfalfa and timothy (SAHI, no. 1135, Box 6).

Figure 49. View looking southwest across the Cow Pasture. Due to a recent equipment failure, the southern portion of the Cow Pasture has not been consistently mown and is overrun with woody invasive species (Olmsted Center, April 2009).

Figure 50. Aerial photograph, 1926. On the right of the photograph, fifty-three mature orchard trees are present east of an access road that paralleled a fence line between the orchard and Cow Pasture. Another eight trees are located between the fence line and access road (Nassau County DPW-Drainage Section, Mineola, New York and Olmsted Center).

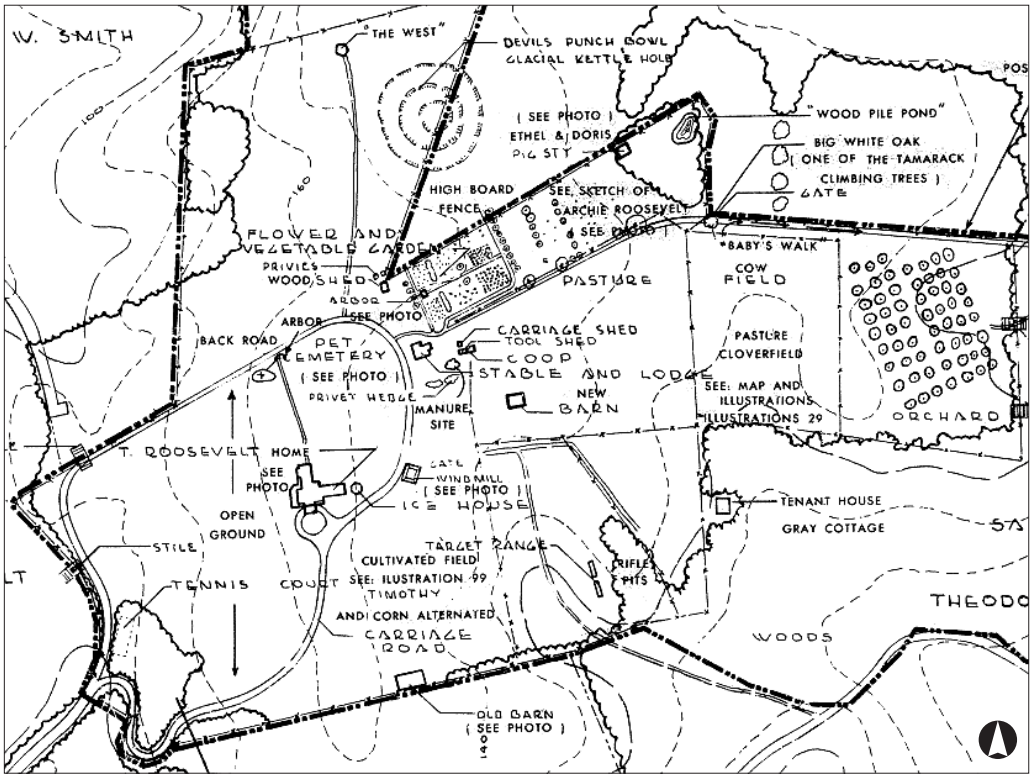


Figure 51. *Historical Base Map*, 1963. The geometry and consistency of the orchard's grid would have been easily recognized in the landscape, however, the trees recorded on the 1926 aerial did not form a large, rectangular block as depicted in the *Historical Base Map* (National Park Service).

Figure 52. Ice storm damage in the orchard, circa 1940. The construction of the Old Orchard estate in 1938 and an ice storm several years later destroyed many trees that were present during Theodore Roosevelt's life (Courtesy of the Library of Congress).

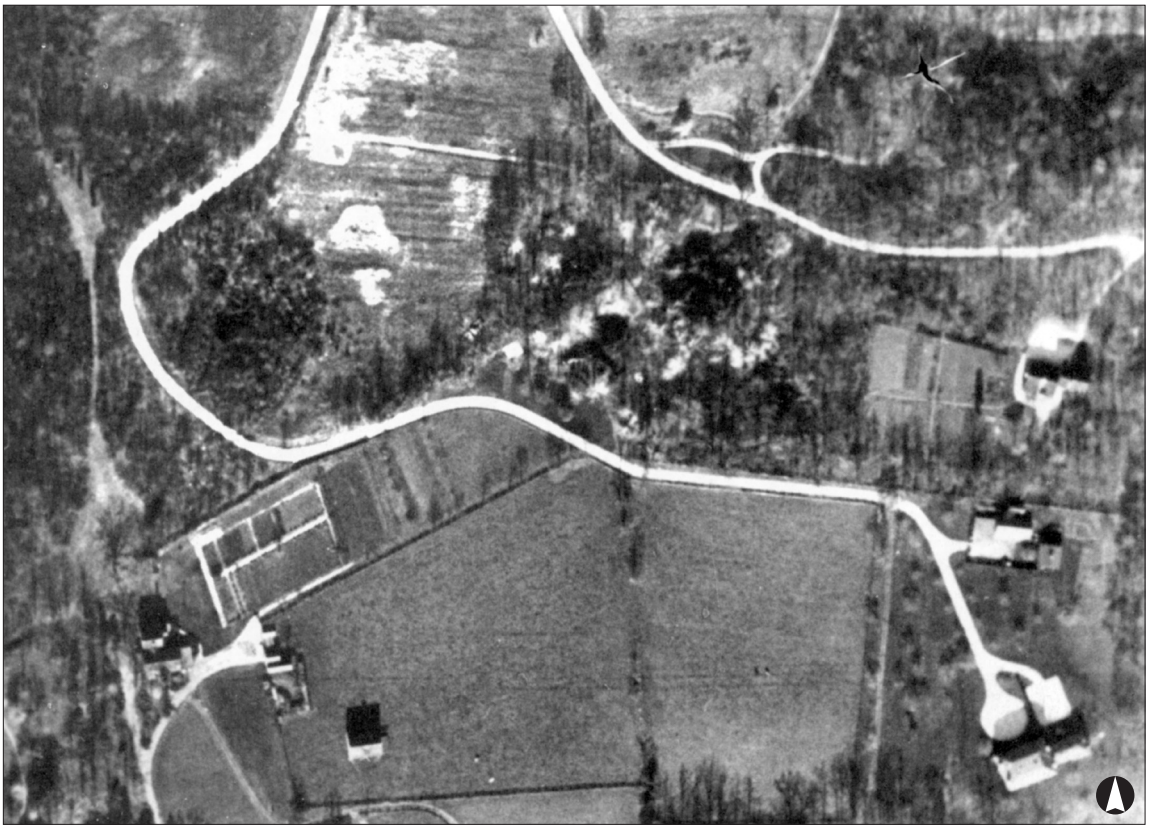


Figure 53. Aerial photograph, 1940. The Old Orchard estate is seen in the lower right of the photograph. On either side of the entry drive, several trees were added parallel to the drive following the estate's construction (SAHI Archives).

Figure 54. View looking southwest at young apple tree. In the western portion of the orchard, three of the sixteen existing trees have been recently planted and are small compared to surrounding specimens (Olmsted Center, March 2009).

Figure 55. View looking southeast in the orchard. Even with regular maintenance, an apple tree dating to the period of significance was recently lost (Olmsted Center, April 2009).

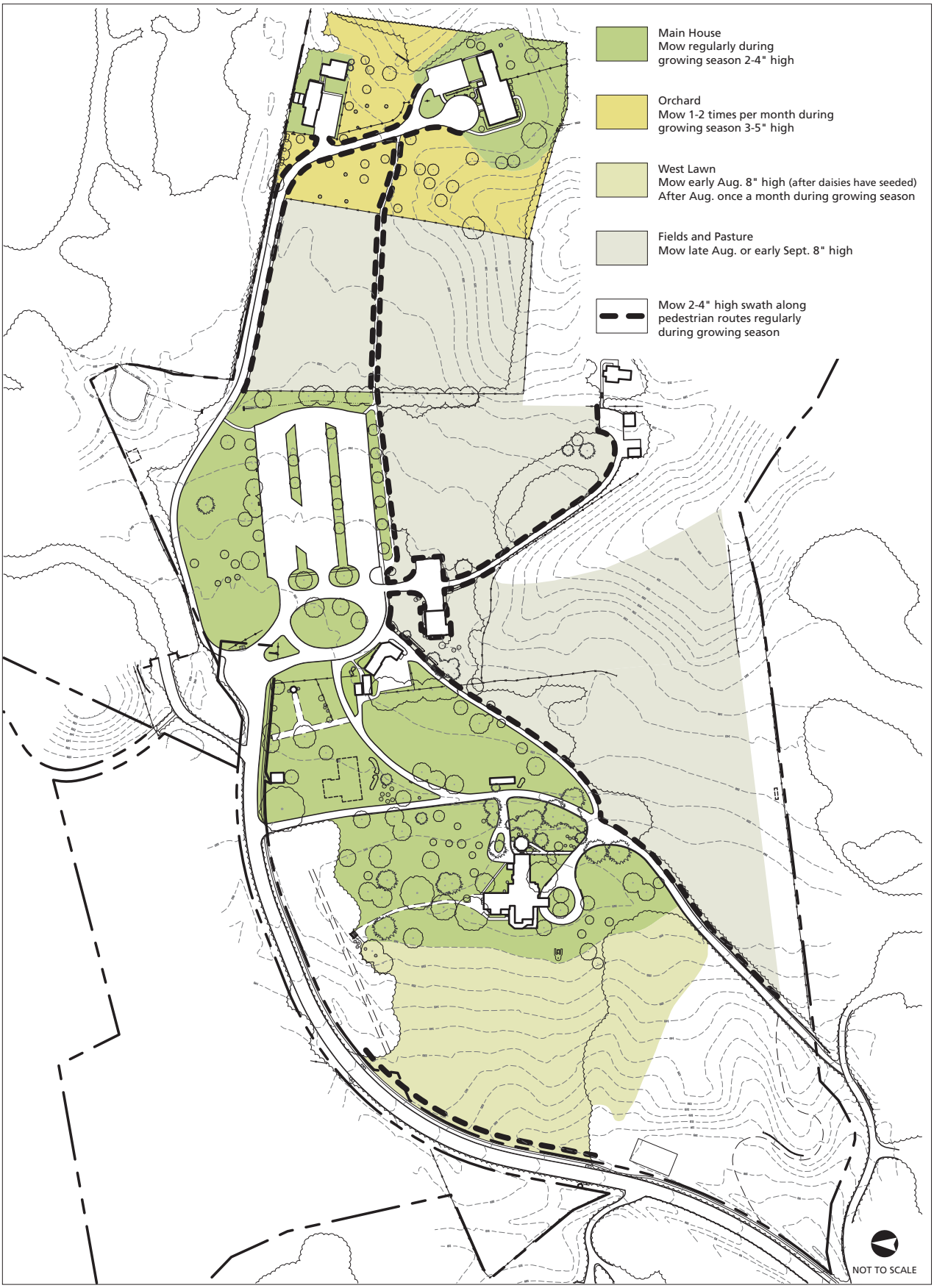


Figure 56. Diagrammatic mowing plan to preserve the historic landscape character of Sagamore Hill's open spaces. The plan indicates the area, frequency, height, and season for mowing (Olmsted Center, 2009).

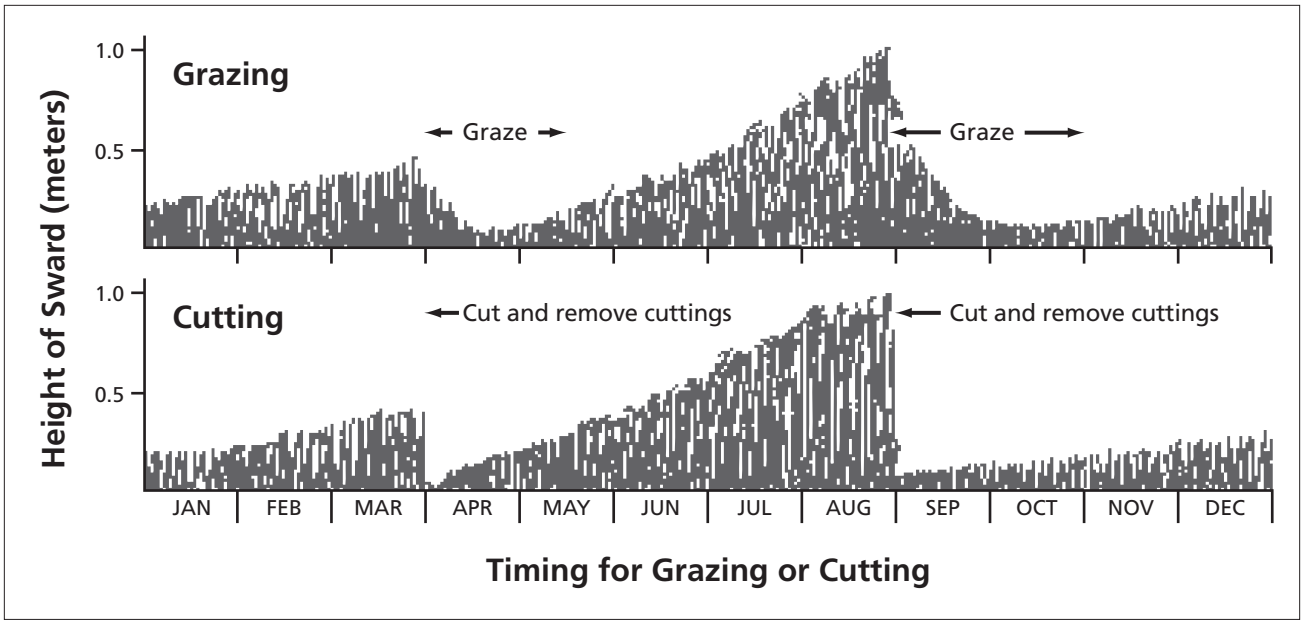


Figure 57. Pasture grazing and haying diagram showing the best times to graze or cut fields to optimize the quantity and nutritional quality of the available material. Similar to this diagram, Sagamore Hill's fields and pasture should be mown in late August or early September to create a compatible appearance with the historic agricultural use (Olmsted Center, 2009).

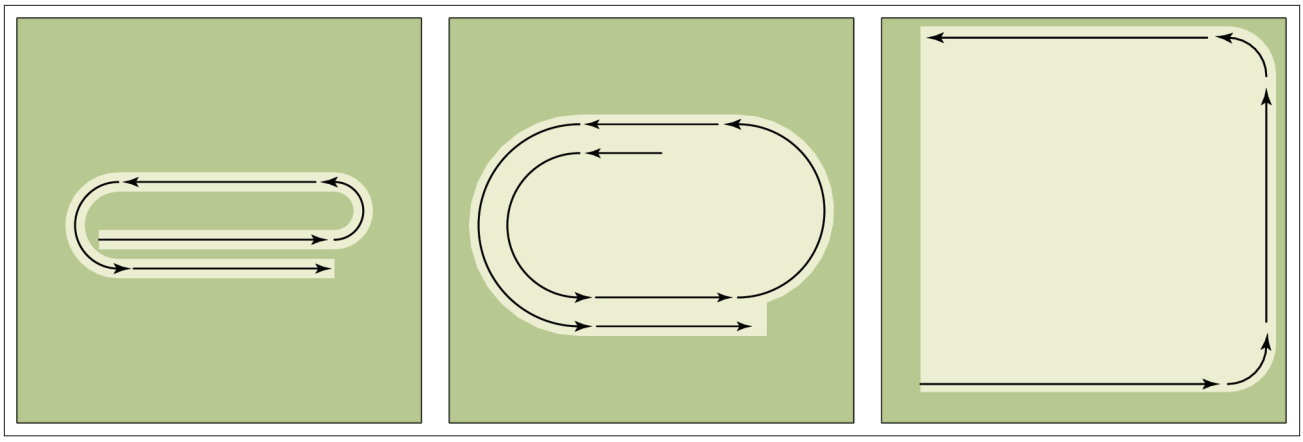


Figure 58. Diagrammatic mowing route to minimize potential wildlife impacts. Mowing should be performed at a slow speed and start in the center of a field. Concentric passes should be made from the center so the mower arrives at the edge of a field last. Slow speeds combined with an inside to outside pattern allows time for animals to react and leave an area to be mown (Olmsted Center, 2009).

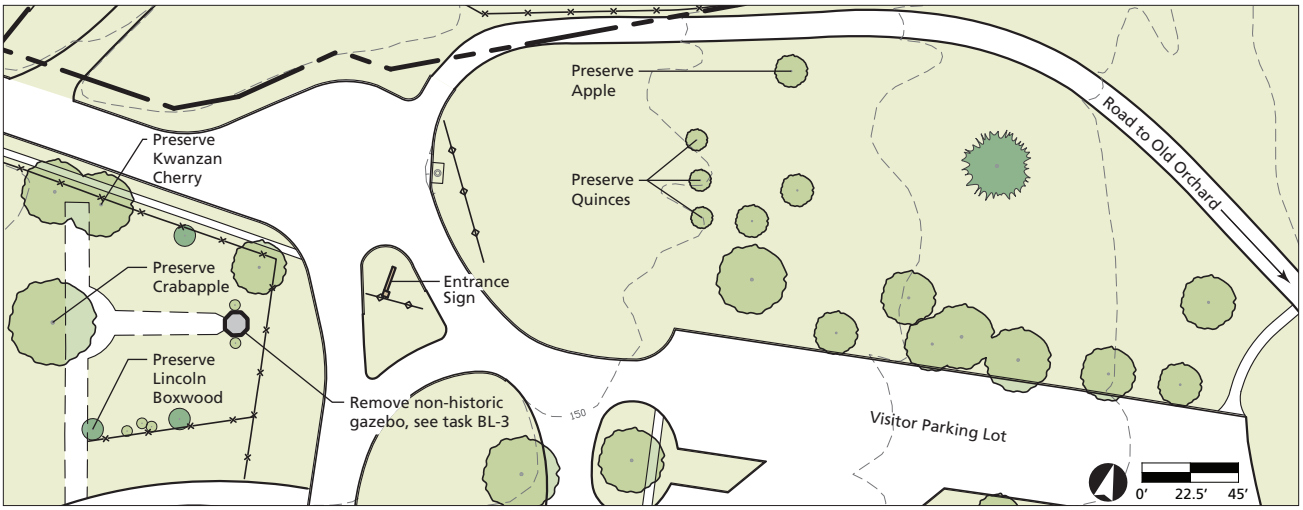


Figure 59. Detail plan of existing conditions at the flower and vegetable garden. In preparation for rehabilitating portions of the flower and vegetable garden, an archeological survey should be conducted to identify the original foot print of the garden, garden paths, and fence lines. An existing Kwanzan cherry, crabapple, three quinces, an apple, and the Lincoln boxwood are identified in the Historic Plant Inventory as dating to the period of significance and should be preserved (Olmsted Center, 2009).

Figure 60. Park staff securing the protective wire enclosure around the Cousin's Beech. After a wind storm toppled the original tree, a clone was gifted to the park and planted near the fence line between the North and South Fields (Olmsted Center, January 2009).

Figure 61. View looking southwest at Lower Lake and Woodland Trail. West of the lake, a contiguous swath of vinca (*Vinca minor*) stands out as an evergreen carpet in contrast to the leaf litter and forest debris. During the Roosevelt tenure, Lower Lake did not have ornamental plantings and was left as a natural feature. The vinca should be removed to preserve the appearance of the area during the period of significance (Olmsted Center, March 2009).

Figure 62. View looking southeast at Eel Creek and tidal marsh. The southern portion of the creek and marsh is currently dominated by a stand of phragmites (*Phragmites* sp.) seen in this photograph with seed tassels at the top of their tall reeds (Olmsted Center, March 2009).

Figure 63. Bathhouse at Cold Spring Harbor beach, circa 1917. Vegetation on the beach and marsh consisted of predominantly low-growing species adapted to the sandy soils. The phragmites currently in the southern portion of the marsh is inconsistent with the low-growing material that occupied the area during the Roosevelt tenure (SAHI, Family Photo Album no. 7644).

Figure 64. "Pony Grant - C.S.H. Beach," no date. The Roosevelt family constructed bathhouses and a boathouse on Cold Spring Harbor beach to support recreation activities. Note the lack of any tall vegetation in proximity to the structure (SAHI no. 5537).

Figure 65. Archie Roosevelt on wagon under porte-cochere, 1901. A square area under the porte-cochere was paved with bricks laid on edge in a herringbone pattern (SAHI, Family Photo Album no. 7638).

Figure 66. Uncovered brick paving along porte-cochere stone wall. After carefully removing several inches of asphalt, a field of bricks laid on edge in a herringbone pattern was revealed under the porte-cochere. Along the porte-cochere stone wall, a border course can be seen with bricks set on edge (Olmsted Center, March 2009).

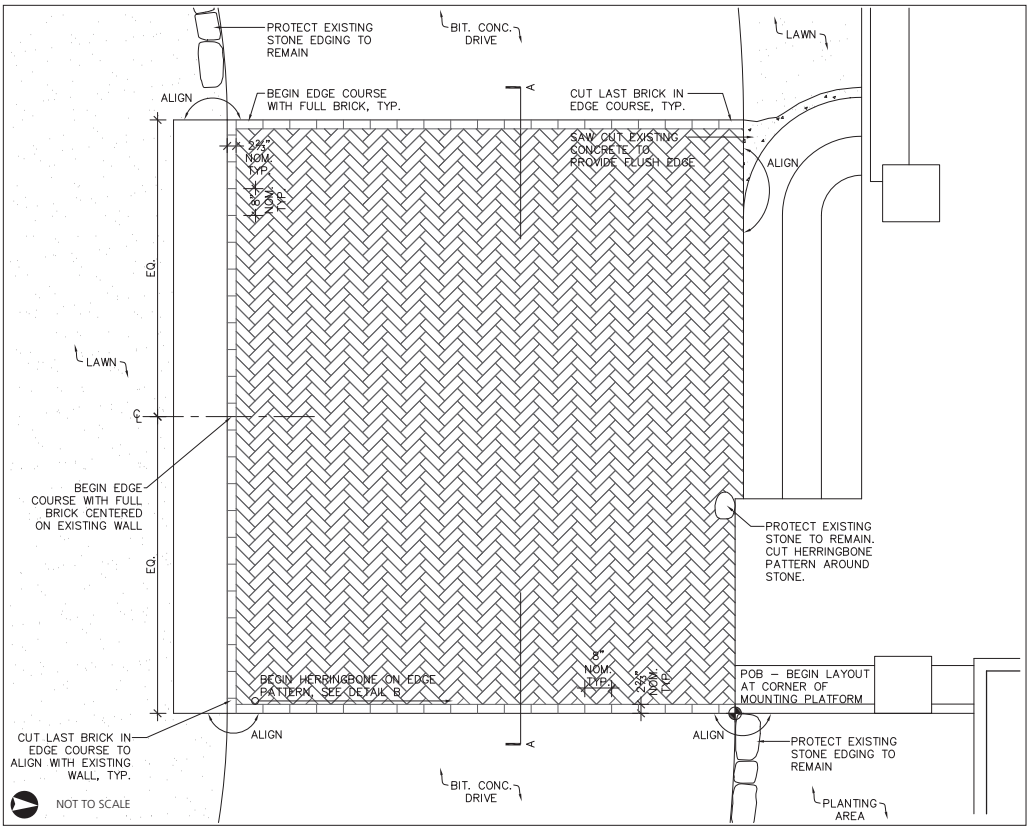


Figure 67. Plan to replace brick paving in kind at porte-cochere. In order to retain a unique paving feature from the Roosevelt tenure and provide for a safe visitor experience, new brick paving should be installed that matches the existing in size, color, texture, and finish. The brick should be installed on edge for the border courses and herringbone field (Olmsted Center, 2009).

Figure 68. West facade of the Stable and Lodge, 1905. A path is visible on the right side of the photograph south of the Stable and Lodge. As part of a proposed accessible route from the parking lot to the Theodore Roosevelt Home, a new walk should be installed south of the Stable and Lodge site (SAHI, no. 1112, Box 6).

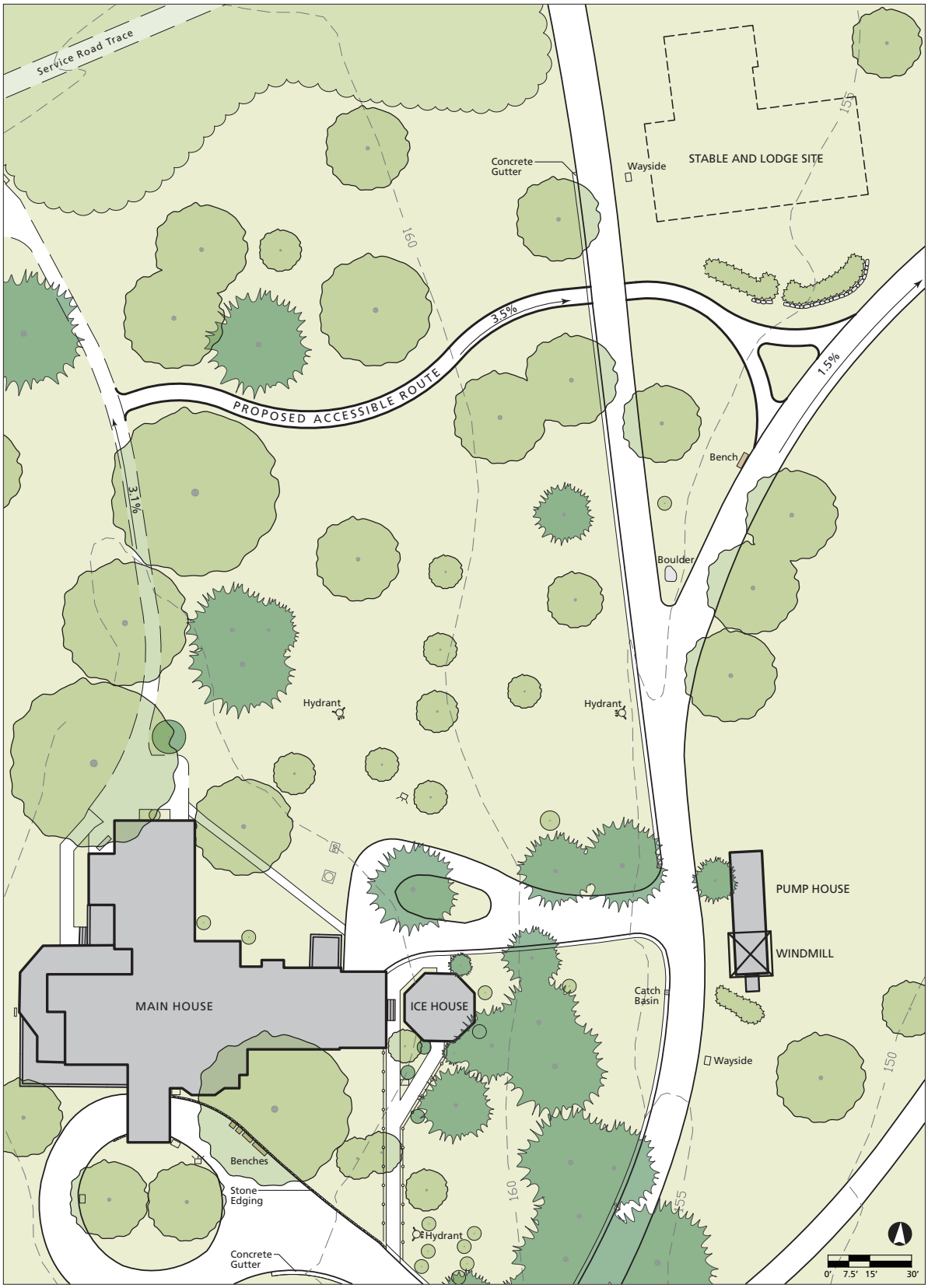


Figure 69. Diagrammatic plan of the proposed accessible route to the Theodore Roosevelt Home. The accessible route should use the existing walk north of the Farm Shed and then branch to the northwest on a new walk near the Stable and Lodge site. After crossing the drive, the route should continue west avoiding trees that date to the Roosevelt tenure. The route then proceeds south on the Pet Cemetery path toward an accessible entrance at the northwest corner of the veranda (Olmsted Center, 2009).

Figure 70. View of the Theodore Roosevelt Home from the Carriage Road, 1905. From the southwest corner property, the Carriage Road climbed steep inclines and emerged from the woodlands to offer the Roosevelts and visitors a view of the south facade of the home (SAHI, no. 1071, Box 5).

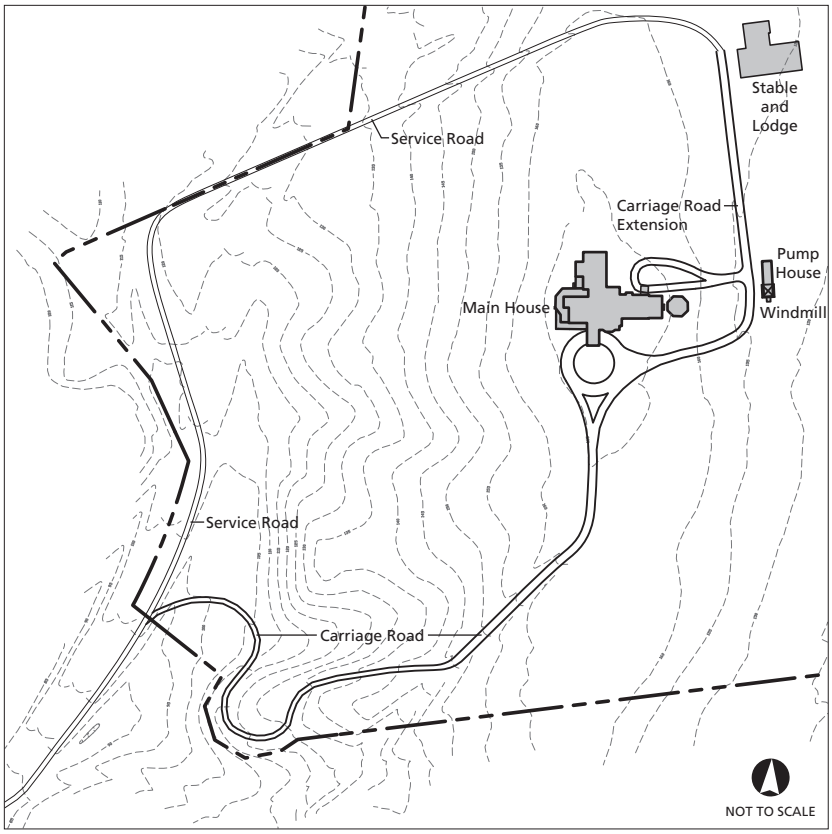


Figure 71. Vehicular circulation to the Theodore Roosevelt Home, circa 1905. The Carriage Road started in the southwest corner of the property and wound up a steep hill. By 1905, an extension was constructed north of the main house that connected to the Service Road (Olmsted Center, 2009).

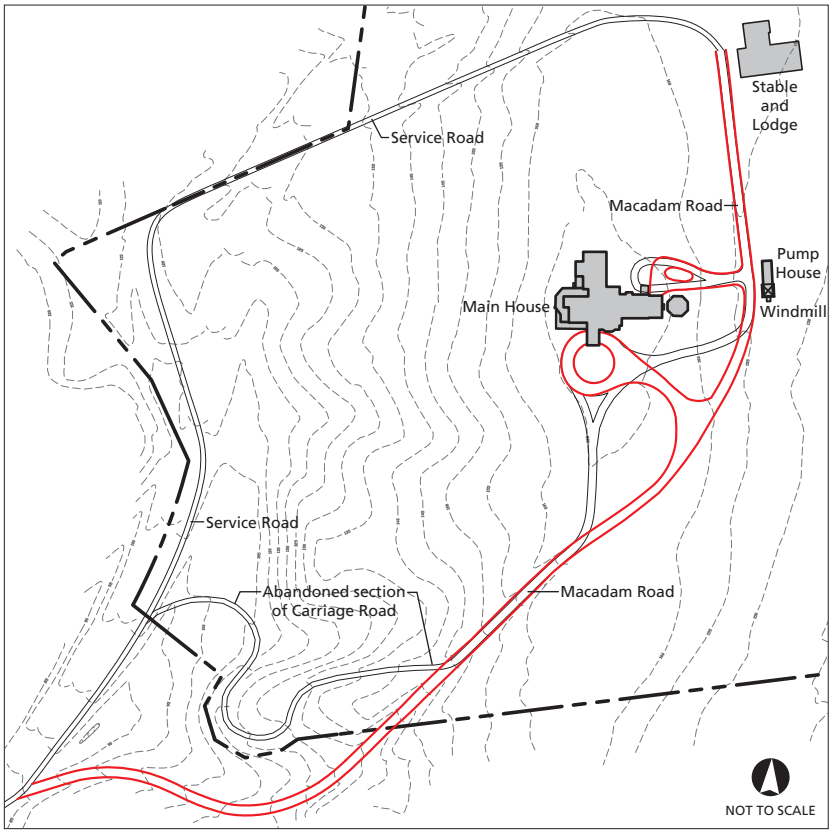


Figure 72. Vehicular circulation to the Theodore Roosevelt Home, 1912. Construction was completed on the Macadam Road, shown in red, in 1912. Automobiles had difficulty climbing the switchbacks of the Carriage Road and the Macadam Road's route avoided the property's steep topography. The southern portion of the Carriage Road was abandoned and is visible today as a trace (Olmsted Center, 2009).

Figure 73. View looking northeast across the Macadam Road. The Macadam Road was recently resurfaced as part of a larger paving project at Sagamore Hill. Although the Macadam Road was the only paved surfaced during the Roosevelt tenure, the smooth finish of contemporary asphalt does not match the rougher texture of the historic surface (Olmsted Center, April 2009).

Figure 74. Chipseal surfacing. One possible surface treatment for the Macadam Road is chipseal or rolled stone surfacing. This type of paving is very durable and can be installed over an asphalt base (Olmsted Center, 2009).

Figure 75. View looking west at the pedestrian access path from Old Orchard to the visitor parking lot. The path was constructed with stonedust bordered on either side by steel edging. The loss of a crown and raised steel edging have resulted in water ponding on the path (Olmsted Center, March 2009).

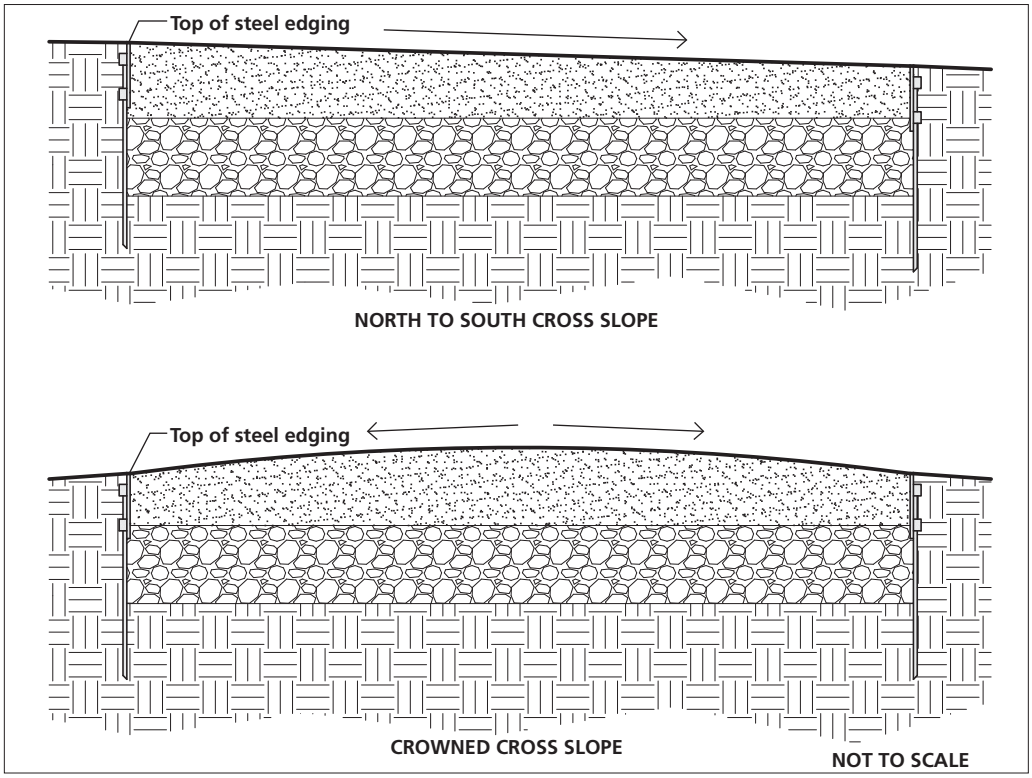


Figure 76. Sections showing cross slope options on pedestrian access path to Old Orchard. Material should be added to the pedestrian access path to create a cross slope from north to south or from a raised centerline to either side. For either option, the entire crown of the path should be above the top of the steel edging. (Olmsted Center, 2009).

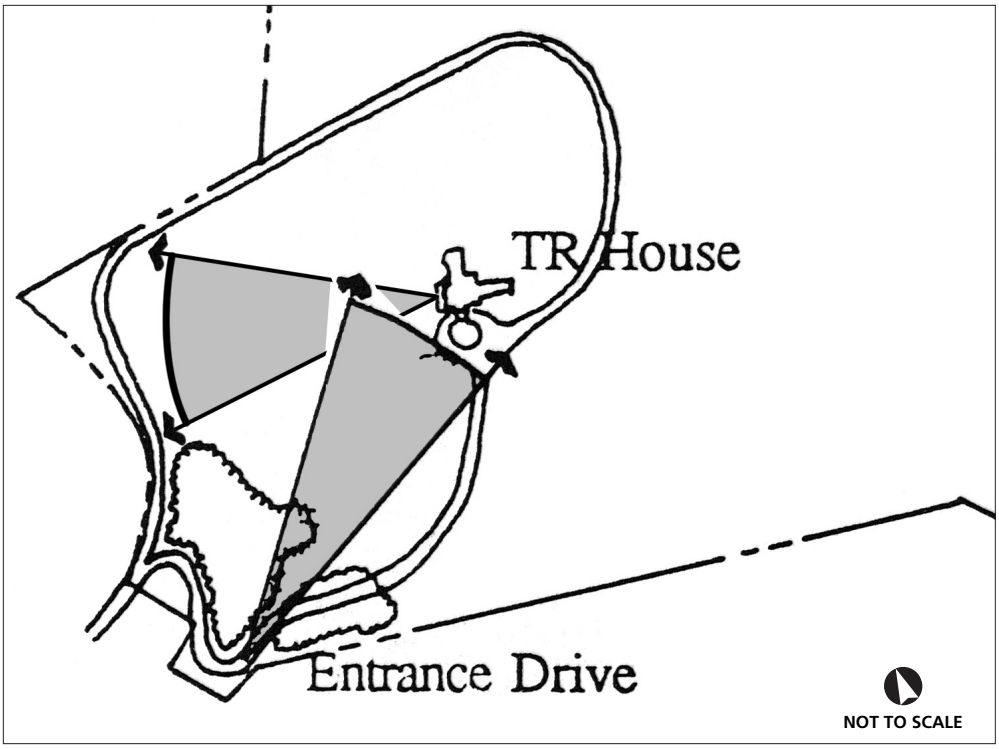


Figure 77. Diagram showing viewsheds from the entrance drive to the Theodore Roosevelt Home and from the veranda to the West Lawn (Bellavia and Curry, *Cultural Landscape Report*, 86).

Figure 78. Roosevelt and wood pole at edge of entry drive, 1912. Although the function of the pole cannot be identified, its location east of the drive, scale, material, and finish should inform the selection of a compatible replacement for the flagpole at the Quentin Roosevelt Memorial (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

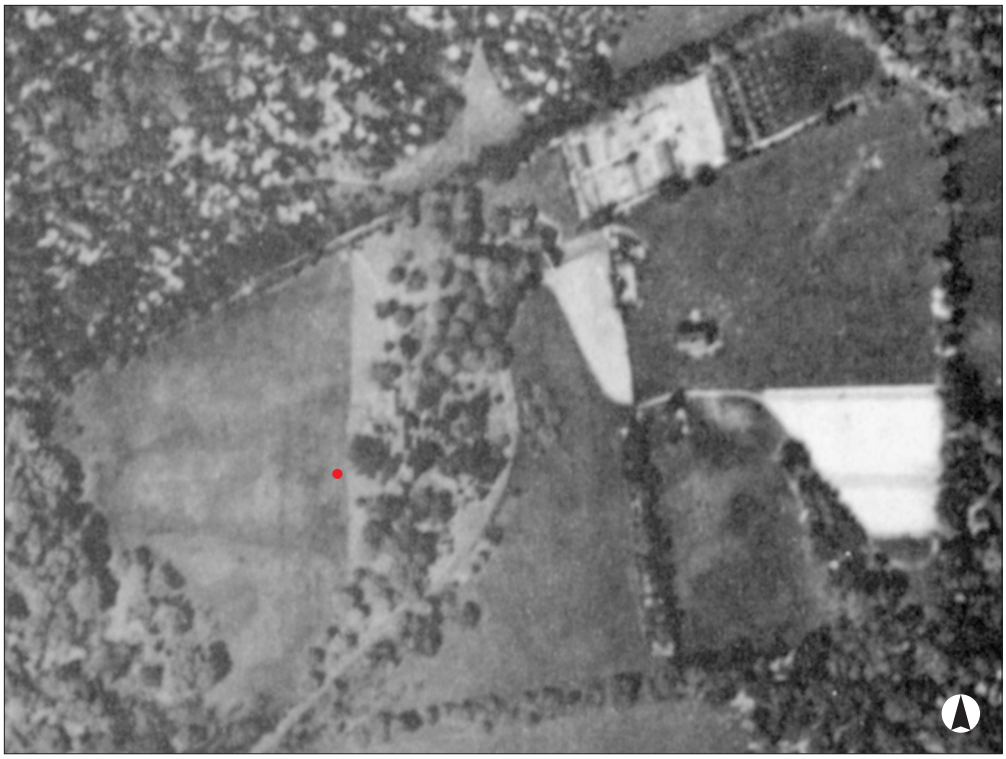


Figure 79. Aerial photograph, 1926. A lighter band of regularly maintained lawn extends from the west facade of the house and then transitions to a rustic lawn. Installed in the 1950s the Quentin Roosevelt Memorial and flagpole, shown with the red dot, create a formal element in the landscape when historically the area simply transitioned from maintained to rustic lawn (Nassau County DPW-Drainage Section, Mineola, New York and Olmsted Center).

Figure 80. Richard Derby Jr. standing in front of Sagamore Hill rock, circa 1919. During the historic period, an elongated stone marker with the words "Sagamore Hill" carved into it was present on the property but its location cannot be determined from this photograph (SAHI, Family Photo Album no. 7644).

Figure 81. Sagamore Hill rock at entry to Macadam Road, 1912. Before completion of the Macadam Road, the Sagamore Hill rock probably occupied a similar location at the entry to the Carriage Road. Since vehicular traffic no longer uses the Macadam Road, the rock should not be returned to this location (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

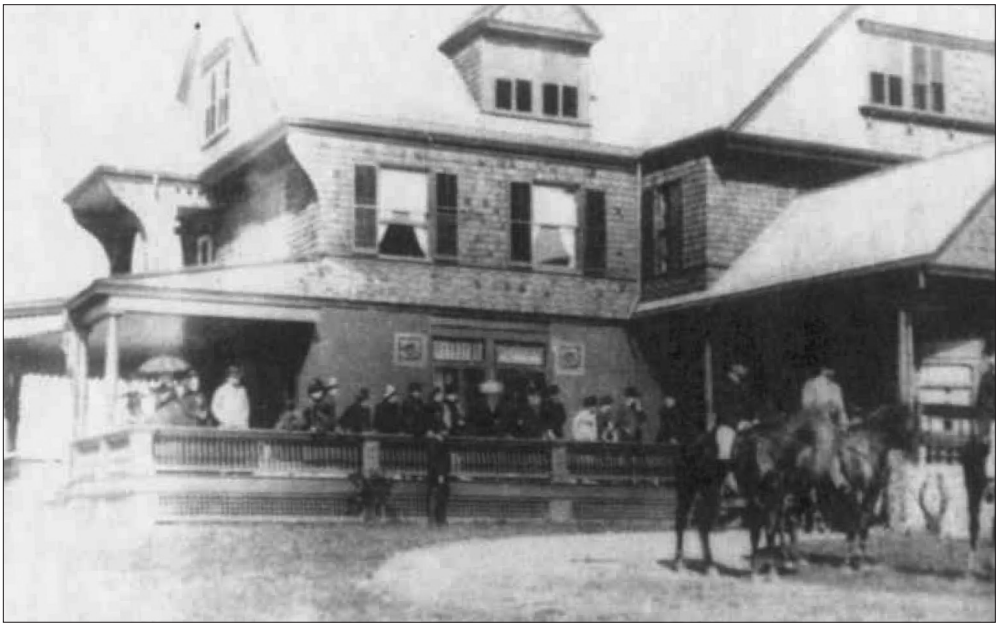


Figure 82. View looking north at the porte-cochere and veranda, circa 1885. During the Roosevelt tenure, white painted rocks were added along the inside and outside perimeters of the circular drive. However, this image demonstrates the rocks were not present shortly after construction of the main house (Francis Wilshin, *Historic Resource Study Historical Base Map Documentation*, United States Department of the Interior, National Park Service, 1972, 212).

Figure 83. Roosevelt walking from porte-cochere, 1912. White painted rocks can be seen lining the inside and outside perimeters of the circular drive near the porte-cochere. The rocks were placed on the drive surface at the edge of the drive and lawn (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

Figure 84. View looking southeast at the Theodore Roosevelt Home, circa 1930s. The Roosevelts received a white marble bench as a gift and during their tenure, placed the bench in various locations around the main house. By the early 1920s, the bench was set at a permanent location near the northwest corner of the North Room (SAHI no. 9361).

Figure 85. White marble bench at the North Room's west facade. The bench should be preserved, remain in its current location, and if necessary moved slightly away from the corner to accommodate vine replacement on the main house and the installation of a trellis structure (Olmsted Center, April 2009).

Figure 86. Post and rail fence near New Barn, circa 1918. The wood fences used during the period of significance were composed of posts, set at approximately ten feet on center, and four split rails that were equidistantly spaced (*87M-100, Theodore Roosevelt Collection, Houghton Library, Harvard University).

Figure 87. Existing post and rail fence between North and South Fields. Successional woody vegetation in historic open areas conceals some remaining posts and rails, makes routine maintenance difficult, and accelerates wood decay (Olmsted Center, January 2009).

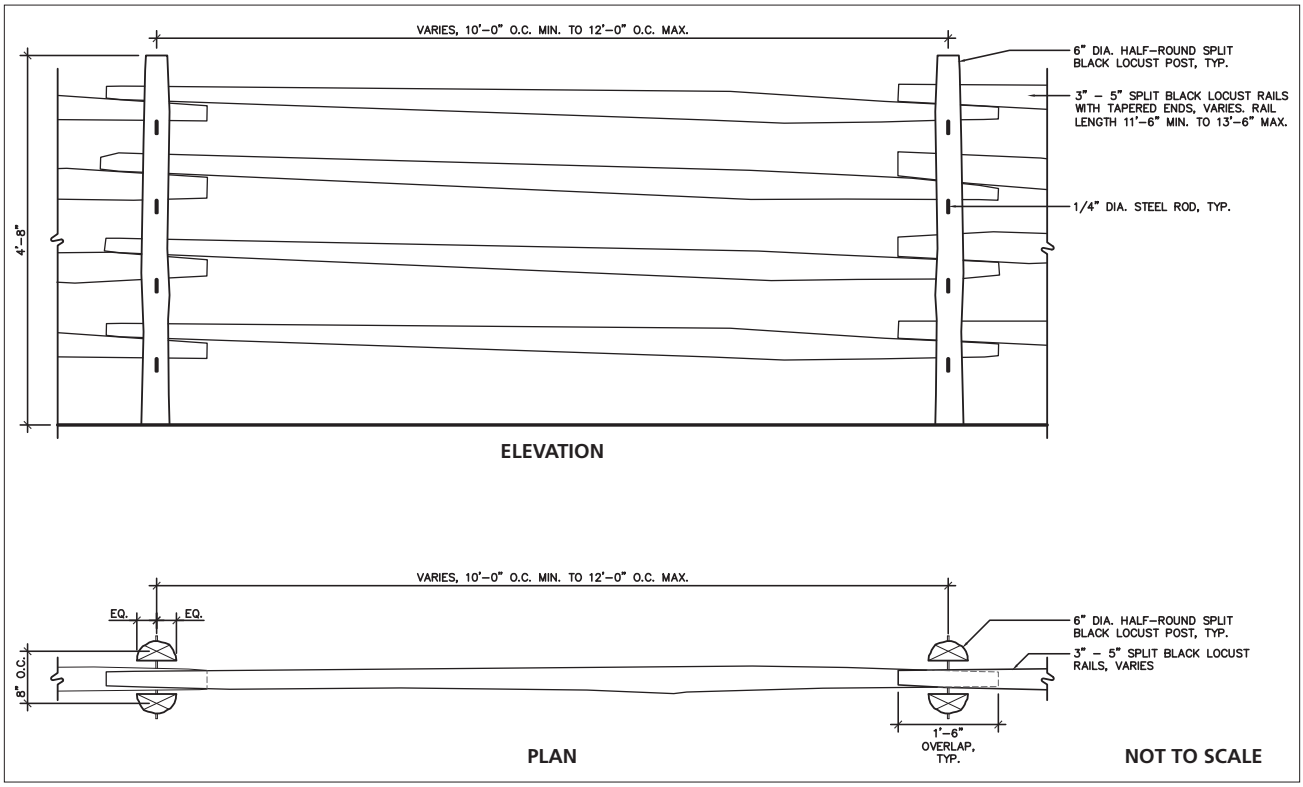


Figure 88. Plan and elevation for new post and rail fence sections. Following vegetation treatments to remove successional woody growth and establish native warm season grasses, fence lines should be replaced to define the historic agricultural spaces (Olmsted Center, 2009).

Figure 89. Roosevelt rowing in Cold Spring Harbor, 1912. In order to interpret the Cold Spring Harbor beach as an area with outbuildings that supported a variety of activities, a wayside should be installed along the Eel Creek Bridge (*Roosevelt at Home*, Roosevelt Memorial Association, Inc.).

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Treatment Plan
West Enlargement

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Fence
- Deciduous Tree
- Evergreen Tree

NOTES

1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 37.5' 75' 150'

Drawing 7

BL-3 Remove non-historic wood gazebo
VG-14 Restore portion of the flower and vegetable garden
VG-5 Inspect and repair lightning protection
CR-7 Designate new loop trail
CR-4 Rehabilitate Service Road trace surface
VG-8 Remove woody vegetation from the Service Road trace roadbed and banks
BL-2 Rehabilitate Pet Cemetery arbor
VG-7 Replace shrub and vine planting at arbor
Gardener's Shed
Service Road Trace
Pet Cemetery
Pet Cemetery Path
CR-7 Designate new loop trail
CR-2 Construct accessible route
West Lawn
VG-9 Rehabilitate West Lawn
VG-4 Replace honey locust with American elm
VG-3 Replace cherry trees at end of life cycle
SSF-1 Remove non-historic Quentin Roosevelt Memorial and replace flagpole
SSF-3 Preserve Sagamore Hill rock
Sagamore Hill Road
Tennis Court
Carriage Road
Retaining Wall
CR-5 Rehabilitate Carriage Road surface treatment
BL-8 Preserve culvert, retaining walls, and drainage gutters
Main House
Stable and Lodge Site
Farm Shed
Chicken House
BL-4 Remove non-historic visitor contact station and rehabilitate chicken yard
Ice House
Pump House
Windmill
VG-6 Remove non-historic shrubs at the Ice House
BL-8 Preserve culvert, retaining walls, and drainage gutters
Retaining Wall
Macadam Road
CR-6 Rehabilitate Macadam Road surface treatment
BL-8 Preserve culvert, retaining walls, and drainage gutters
CR-3 Rehabilitate circulation at Ice House
SSF-1 Proposed flagpole location
Southeast Field
VG-10 Rehabilitate Southeast, South, and North Fields
SSF-6 Replace missing fence lines
Old Barn Site
Pig Sty Site
Woodpile Pond
VG-17 Remove yew at Woodpile Pond
SSF-6 Replace missing fence lines
Entrance Sign
Visitor Parking Lot
VG-15 Remove non-historic plant material at visitor contact station
New Barn
BL-1 Minimize landscape impact of expanding New Barn
SSF-6 Replace missing fence lines
South Field
VG-10 Rehabilitate Southeast, South, and North Fields
VG-16 Remove existing red oak and replace with black locust
VG-16 Replace black locust
Cow Pasture
To Old Orchard
CR-8 Improve access to Old Orchard
North Field
VG-11 Rehabilitate Cow Pasture
SSF-6 Replace missing fence lines
Gray Cottage
Approximate Location Target and Rifle Pit
BL-5 Minimize landscape impact of new maintenance facility
SSF-7 Locate and preserve Target and Rifle Pit
MATCH LINE SEE DRAWING 8

Garage
Orchard
Foreman's Cottage
Orchard
Cold Cellar
Orchard
VG-12 Rehabilitate orchard
Old Orchard
VG-18 Replace Cousin's Beech in historic location
Woodland Trail
BL-6 Minimize landscape impact of addition for curatorial, research, and educational functions at Old Orchard
Woodland Trail
VG-19 Manage invasive species at Lower Lake
Lower Lake
SSF-8 Install wayside on Eel Creek bridge to interpret bathhouses and boathouse at Cold Spring Harbor Beach
Boardwalk
Eel Creek
BL-7 Replace Eel Creek Bridge in historic location
VG-21 Manage invasive species at Cold Spring Harbor Beach
VG-20 Remove Phragmites along Eel Creek and creek tidal marsh
Cold Spring Harbor
MATCH LINE SEE DRAWING 7

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Treatment Plan
East Enlargement

National Park Service
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SOURCES

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4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Mean High Water
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Fence
- Tidal Marsh
- Deciduous Tree
- Evergreen Tree

NOTES

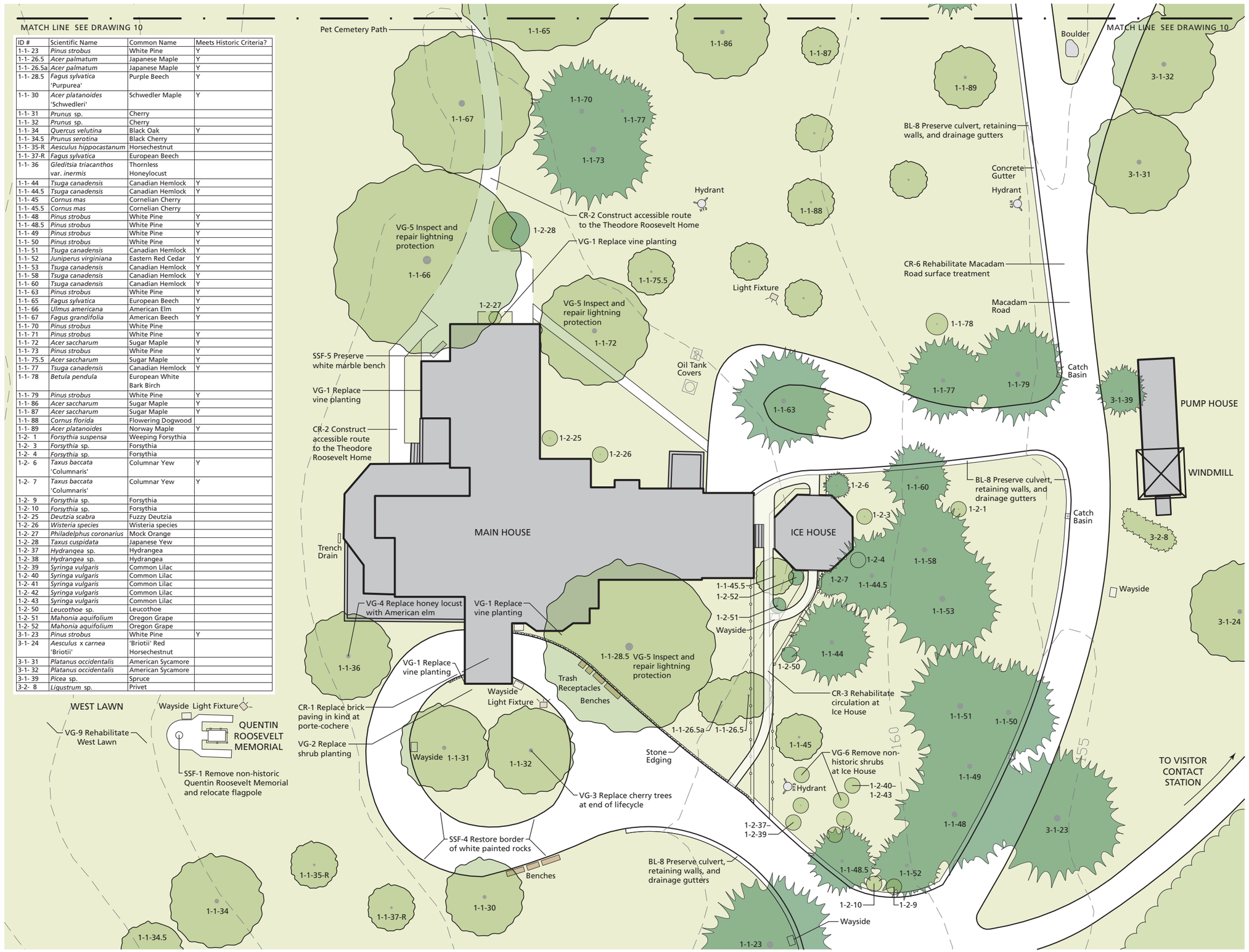
1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 375' 75' 150'

Drawing 8

MATCH LINE SEE DRAWING 10

ID #	Scientific Name	Common Name	Meets Historic Criteria?
1-1- 23	*Pinus strobus*	White Pine	Y
1-1- 26.5	*Acer palmatum*	Japanese Maple	Y
1-1- 26.5a	*Acer palmatum*	Japanese Maple	Y
1-1- 28.5	*Fagus sylvatica* 'Purpurea'	Purple Beech	Y
1-1- 30	*Acer platanoides* 'Schwedleri'	Schwedler Maple	Y
1-1- 31	*Prunus* sp.	Cherry	
1-1- 32	*Prunus* sp.	Cherry	
1-1- 34	*Quercus velutina*	Black Oak	Y
1-1- 34.5	*Prunus serotina*	Black Cherry	
1-1- 35-R	*Aesculus hippocastanum*	Horsechestnut	
1-1- 37-R	*Fagus sylvatica*	European Beech	
1-1- 36	*Gleditsia triacanthos* var. *inermis*	Thornless Honeylocust	
1-1- 44	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 44.5	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 45	*Cornus mas*	Cornelian Cherry	
1-1- 45.5	*Cornus mas*	Cornelian Cherry	
1-1- 48	*Pinus strobus*	White Pine	Y
1-1- 48.5	*Pinus strobus*	White Pine	Y
1-1- 49	*Pinus strobus*	White Pine	Y
1-1- 50	*Pinus strobus*	White Pine	Y
1-1- 51	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 52	*Juniperus virginiana*	Eastern Red Cedar	Y
1-1- 53	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 58	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 60	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 63	*Pinus strobus*	White Pine	Y
1-1- 65	*Fagus sylvatica*	European Beech	Y
1-1- 66	*Ulmus americana*	American Elm	Y
1-1- 67	*Fagus grandifolia*	American Beech	Y
1-1- 70	*Pinus strobus*	White Pine	
1-1- 71	*Pinus strobus*	White Pine	Y
1-1- 72	*Acer saccharum*	Sugar Maple	Y
1-1- 73	*Pinus strobus*	White Pine	Y
1-1- 75.5	*Acer saccharum*	Sugar Maple	Y
1-1- 77	*Tsuga canadensis*	Canadian Hemlock	Y
1-1- 78	*Betula pendula*	European White Bark Birch	
1-1- 79	*Pinus strobus*	White Pine	Y
1-1- 86	*Acer saccharum*	Sugar Maple	Y
1-1- 87	*Acer saccharum*	Sugar Maple	Y
1-1- 88	*Cornus florida*	Flowering Dogwood	
1-1- 89	*Acer platanoides*	Norway Maple	Y
1-2- 1	*Forsythia suspensa*	Weeping Forsythia	
1-2- 3	*Forsythia* sp.	Forsythia	
1-2- 4	*Forsythia* sp.	Forsythia	
1-2- 6	*Taxus baccata* 'Columnaris'	Columnar Yew	Y
1-2- 7	*Taxus baccata* 'Columnaris'	Columnar Yew	Y
1-2- 9	*Forsythia* sp.	Forsythia	
1-2- 10	*Forsythia* sp.	Forsythia	
1-2- 25	*Deutzia scabra*	Fuzzy Deutzia	
1-2- 26	*Wisteria species*	Wisteria species	
1-2- 27	*Philadelphus coronarius*	Mock Orange	
1-2- 28	*Taxus cuspidata*	Japanese Yew	
1-2- 37	*Hydrangea* sp.	Hydrangea	
1-2- 38	*Hydrangea* sp.	Hydrangea	
1-2- 39	*Syringa vulgaris*	Common Lilac	
1-2- 40	*Syringa vulgaris*	Common Lilac	
1-2- 41	*Syringa vulgaris*	Common Lilac	
1-2- 42	*Syringa vulgaris*	Common Lilac	
1-2- 43	*Syringa vulgaris*	Common Lilac	
1-2- 50	*Leucothoe* sp.	Leucothoe	
1-2- 51	*Mahonia aquifolium*	Oregon Grape	
1-2- 52	*Mahonia aquifolium*	Oregon Grape	
3-1- 23	*Pinus strobus*	White Pine	Y
3-1- 24	*Aesculus* x *carnea* 'Briotii'	'Briotii' Red Horsechestnut	
3-1- 31	*Platanus occidentalis*	American Sycamore	
3-1- 32	*Platanus occidentalis*	American Sycamore	
3-1- 39	*Picea* sp.	Spruce	
3-2- 8	*Ligustrum* sp.	Privet	



Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Treatment Plan
Theodore Roosevelt Home

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

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4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Post and Chain Fence
- Deciduous Tree
- Evergreen Tree

NOTES

1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 7.5' 15' 30'

Drawing 9

ID #	Scientific Name	Common Name	Meets Historic Criteria?
1-1-65	*Fagus sylvatica*	European Beech	Y
1-1-86	*Acer saccharum*	Sugar Maple	Y
1-1-90	*Pinus strobus*	White Pine	Y
1-1-94	*Acer platanoides*	Norway Maple	Y
1-1-95	*Acer saccharum*	Sugar Maple	Y
1-1-98	*Acer saccharum*	Sugar Maple	Y
1-1-98.5	*Prunus serotina*	Black Cherry	Y
1-1-99	*Acer rubrum*	Red Maple	Y
1-1-99.5	*Pinus strobus*	White Pine	
1-1-100	*Catalpa speciosa*	Northern Catalpa	Y
1-1-101.5	*Betula papyrifera*	Paper Birch	
1-1-103	*Acer saccharum*	Sugar Maple	Y
2-1-58	*Prunus serotina*	Black Cherry	Y
2-1-61	*Quercus* (velutina) sp.	Black Oak	
2-1-62	*Quercus* (rubra) sp.	Red Oak	
2-1-63	*Cedrus atlantica* 'Glauca'	Blue Atlas Cedar	
2-2-2	*Taxus baccata*	English Yew	
2-2-3	*Taxus baccata*	English Yew	
2-2-4	*Forsythia* sp.	Forsythia	
2-2-5	*Forsythia* sp.	Forsythia	
3-1-33	*Platanus occidentalis*	American Sycamore	
4-1-1	*Quercus alba*	White Oak	Y
4-1-2	*Magnolia x soulangiana*	Saucer Magnolia	
4-1-9	*Acer platanoides*	Norway Maple	Not evaluated
4-1-10	*Pinus strobus*	White Pine	
4-2-34	*Spiraea x bumalda* 'Anthony Waterer'	Anthony Waterer Spirea	
4-2-36	*Forsythia* sp.	Forsythia	
4-2-37	*Forsythia* sp.	Forsythia	
4-2-38	*Forsythia* sp.	Forsythia	
4-2-39	*Forsythia* sp.	Forsythia	
4-2-40	*Forsythia* sp.	Forsythia	
4-2-41	*Forsythia* sp.	Forsythia	
4-2-42	*Forsythia* sp.	Forsythia	
4-2-43	*Ligustrum ovalifolium*	California Privet	
4-2-44	*Ligustrum ovalifolium*	California Privet	

Sagamore Hill Road

Service Road Trace

Vehicular Gate

Utility Pole

GARDENER'S SHED

4-1-1 VG-5 Inspect and repair lightning protection

4-1-2

CR-7 Designate new loop trail

CR-4 Rehabilitate Service Road trace surface treatment
VG-8 Remove woody vegetation from the Service Road trace roadbed and banks

CR-6 Rehabilitate Macadam Road surface treatment

SSF-2 Preserve Pet Cemetery stone

Wayside

BL-2 Rehabilitate Pet Cemetery arbor
VG-7 Replace shrub and vine planting at Pet Cemetery arbor

2-2-5

2-2-4

2-2-3

2-1-62

2-2-2

2-1-61

Pet Cemetery Path

2-1-63

1-1-103

1-1-100

1-1-101.5

1-1-99

1-1-99.5

1-1-98

Macadam Road

Concrete Gutter

1-1-98.5

Wayside

STABLE AND LODGE SITE

CR-2 Construct accessible route to the Theodore Roosevelt Home

BL-8 Preserve culvert, retaining walls, and drainage gutters

4-2-44

4-2-43

4-1-10

4-2-36–4-2-42

1-1-95

1-1-94

4-1-9

Bench

4-2-34

3-1-33

VG-9 Rehabilitate West Lawn

CR-2 Construct accessible route to the Theodore Roosevelt Home

2-1-58

1-1-65

1-1-90

1-1-86

CR-2 Construct accessible route to the Theodore Roosevelt Home

150

155

160

160

MATCH LINE SEE DRAWING 9

MATCH LINE SEE DRAWING 9

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill National Historic Site
Oyster Bay, New York

Treatment Plan
Pet Cemetery

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Fence
- Deciduous Tree
- Evergreen Tree

NOTES

1. Drawing sheet has been oriented square to the Theodore Roosevelt Home
2. Contour Interval = 5'-0"

0' 7.5' 15' 30'

Drawing 10

ID #	Scientific Name	Common Name	Meets Historic Criteria?
6-1-1	*Malus* 'Hubbardston Nonsuch'	Hubbardston Nonsuch Apple	
6-1-2	*Malus* 'Richards Red'	Richards Red Apple	
6-1-3	*Malus pumila*	Apple	
6-1-4	*Malus pumila*	Apple	Y
6-1-5	*Malus pumila*	Apple	Y
6-1-6	*Malus pumila*	Apple	Y
6-1-7	*Malus pumila*	Apple	
6-1-8	*Malus pumila*	Apple	
6-1-9	*Malus pumila*	Apple	Y
6-1-10	*Malus* 'Yellow Bellflower'	Yellow Bellflower Apple	Y
6-1-11	*Malus* 'Rome Beauty'	Rome Beauty Apple	Y
6-1-12	*Malus pumila*	Apple	
6-1-13	*Malus pumila*	Apple	
6-1-14	*Malus pumila*	Apple	
6-1-15	*Malus* 'Rome Beauty'	Rome Beauty Apple	Y
6-1-16	*Malus pumila*	Apple	Y
6-1-17	*Malus pumila*	Apple	Y
6-1-19	*Malus pumila*	Apple	Y
6-1-20	*Malus* 'Baldwin'	Baldwin Apple	Y
6-1-21	*Malus* 'Golden Delicious'	Golden Delicious Apple	
6-1-22	*Malus* 'Golden Delicious'	Golden Delicious Apple	Y, semi-dwarf
6-1-23	*Malus* 'Red Delicious'	Red Delicious Apple	Y, semi-dwarf
6-1-24	*Malus* 'Stark'	Stark Apple	Y
6-1-25	*Malus pumila*	Apple	Y
6-1-26	*Malus* 'Smokehouse'	Smokehouse Apple	Y
6-1-27	*Malus pumila*	Apple	Y
6-1-28	*Malus pumila*	Apple	Y
6-1-29	*Malus* 'Smokehouse'	Smokehouse Apple	Y
6-1-34	*Malus pumila*	Apple	Y
6-1-38	*Malus* 'Starking'	Starking Apple	
6-1-39	*Malus pumila*	Apple	Y
6-1-40	*Malus pumila*	Apple	
6-1-41	*Malus pumila*	Apple	
6-1-42	*Malus pumila*	Apple	Y
6-1-43	*Malus pumila*	Apple	
6-1-45	*Pyrus* sp.	Pear	
6-1-46	*Malus pumila*	Apple	
6-1-47	*Malus pumila*	Apple	
6-1-49	*Pyrus* sp.	Pear	Y
6-1-49-R	*Pyrus* sp.	Pear	
6-1-49-R	*Pyrus* sp.	Pear	
6-1-49-R	*Pyrus* sp.	Pear	
6-1-50	*Malus* 'Red Delicious'	Red Delicious Apple	
6-1-51	*Malus pumila*	Apple	
6-1-52	*Malus pumila*	Apple	Y
6-1-53	*Prunus* sp.	Peach	
6-1-54	*Pyrus* sp.	Pear	Y
6-1-55	*Pyrus* sp.	Pear	Y
6-1-56	*Catalpa* sp.	Catalpa	
6-1-57	*Pyrus* sp.	Pear	

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Existing Inventory
Old Orchard

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Double-Post Split Rail Fence
- Contemporary Split Rail Fence
- Stockade Fence
- Deciduous Tree
- Evergreen Tree
- Recorded for 1995 Historic Plant Inventory, Removed

NOTES

1. Projection: New York State Plane, Long Island Zone, NAD 83, US Survey Feet
2. Contour Interval = 5'-0"

0' 15' 30' 60'

Drawing 11

ID #	Scientific Name	Common Name	Meets Historic Criteria?
6-1-1	*Malus* 'Hubbardston Nonsuch'	Hubbardston Nonsuch Apple	
6-1-2	*Malus* 'Richards Red'	Richards Red Apple	
6-1-3	*Malus pumila*	Apple	
6-1-4	*Malus pumila*	Apple	Y
6-1-5	*Malus pumila*	Apple	Y
6-1-6	*Malus pumila*	Apple	Y
6-1-7	*Malus pumila*	Apple	
6-1-8	*Malus pumila*	Apple	
6-1-9	*Malus pumila*	Apple	Y
6-1-10	*Malus* 'Yellow Bellflower'	Yellow Bellflower Apple	Y
6-1-11	*Malus* 'Rome Beauty'	Rome Beauty Apple	Y
6-1-12	*Malus pumila*	Apple	
6-1-13	*Malus pumila*	Apple	
6-1-14	*Malus pumila*	Apple	
6-1-15	*Malus* 'Rome Beauty'	Rome Beauty Apple	Y
6-1-16	*Malus pumila*	Apple	Y
6-1-17	*Malus pumila*	Apple	Y
6-1-19	*Malus pumila*	Apple	Y
6-1-20	*Malus* 'Baldwin'	Baldwin Apple	Y
6-1-21	*Malus* 'Golden Delicious'	Golden Delicious Apple	
6-1-22	*Malus* 'Golden Delicious'	Golden Delicious Apple	Y, semi-dwarf
6-1-23	*Malus* 'Red Delicious'	Red Delicious Apple	Y, semi-dwarf
6-1-24	*Malus* 'Stark'	Stark Apple	Y
6-1-25	*Malus pumila*	Apple	Y
6-1-26	*Malus* 'Smokehouse'	Smokehouse Apple	Y
6-1-27	*Malus pumila*	Apple	Y
6-1-28	*Malus pumila*	Apple	Y
6-1-29	*Malus* 'Smokehouse'	Smokehouse Apple	Y
6-1-34	*Malus pumila*	Apple	Y
6-1-38	*Malus* 'Starking'	Starking Apple	
6-1-39	*Malus pumila*	Apple	Y
6-1-40	*Malus pumila*	Apple	
6-1-41	*Malus pumila*	Apple	
6-1-42	*Malus pumila*	Apple	Y
6-1-43	*Malus pumila*	Apple	
6-1-45	*Pyrus* sp.	Pear	
6-1-46	*Malus pumila*	Apple	
6-1-47	*Malus pumila*	Apple	
6-1-49	*Pyrus* sp.	Pear	Y
6-1-49-R	*Pyrus* sp.	Pear	
6-1-49-R	*Pyrus* sp.	Pear	
6-1-49-R	*Pyrus* sp.	Pear	
6-1-50	*Malus* 'Red Delicious'	Red Delicious Apple	
6-1-51	*Malus pumila*	Apple	
6-1-52	*Malus pumila*	Apple	Y
6-1-53	*Prunus* sp.	Peach	
6-1-54	*Pyrus* sp.	Pear	Y
6-1-55	*Pyrus* sp.	Pear	Y
6-1-56	*Catalpa* sp.	Catalpa	
6-1-57	*Pyrus* sp.	Pear	

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Proposed Removals
Old Orchard

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Double-Post Split Rail Fence
- Contemporary Split Rail Fence
- Stockade Fence
- Deciduous Tree
- Evergreen Tree
- Recorded for 1995 Historic Plant Inventory, Removed
- Proposed Tree to Remove

NOTES

1. Projection: New York State Plane, Long Island Zone, NAD 83, US Survey Feet
2. Contour Interval = 5'-0"

0' 15' 30' 60'

Drawing 12

Cultural Landscape Report
Updated Treatment Plan

Sagamore Hill
National Historic Site
Oyster Bay, New York

Proposed Planting
Old Orchard

National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

- Property Line
- Paved Road / Walk
- Unpaved Road / Walk
- Trail
- Double-Post Split Rail Fence
- Contemporary Split Rail Fence
- Stockade Fence
- Deciduous Tree (11 Apple / Pear)
- Evergreen Tree
- Proposed Apple / Pear Tree (46 Additions)

NOTES

1. Projection: New York State Plane, Long Island Zone, NAD 83, US Survey Feet
2. Contour Interval = 5'-0"

0' 15' 30' 60'

Drawing 13

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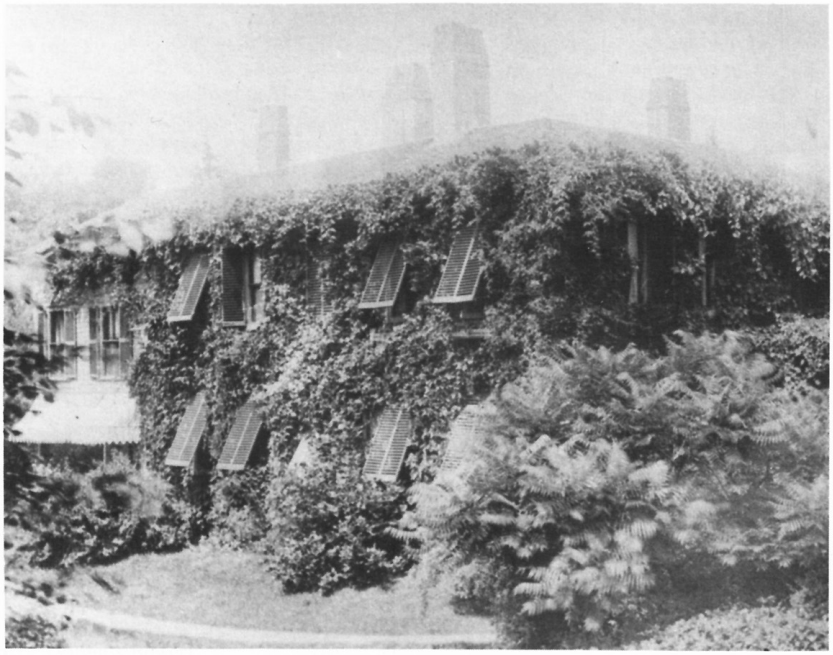
APPENDIX A



PRESERVATION
Tech Notes

U.S. Department of the Interior
National Park Service
Cultural Resources

Preservation Assistance Division

SITE

NUMBER 1

Restoring Vine Coverage to Historic Buildings

Karen E. Day
Preservation Assistance Division
National Park Service

FAIRSTED
Frederick Law Olmsted
National Historic Site
Brookline, Massachusetts

In 1883, Frederick Law Olmsted Sr., noted landscape architect and planner, established his home and office in Brookline, Massachusetts. Olmsted's improvements to the two-acre site transformed the farm into a picturesque suburban estate, which he called Fairsted. Olmsted employed elements from the picturesque and pastoral styles, including an abundance of climbing vegetation on stone walls, trees, and buildings.

To help unify the architecture and the landscape Olmsted planted two twining vines, *Wisteria sinensis* (Chinese Wisteria) and *Actinidia arguta* (Bower Actinidia), which would cover the house. The vines masked the angularities of the building, and thus accomplished Olmsted's intent of obscuring the distinction between the natural and the manmade. The vines climbed profusely on the south side of the house, twining around waterspouts, window boxes, and shutters. Olmsted installed strapping to provide vine support, that ran vertically and horizontally along the facade.

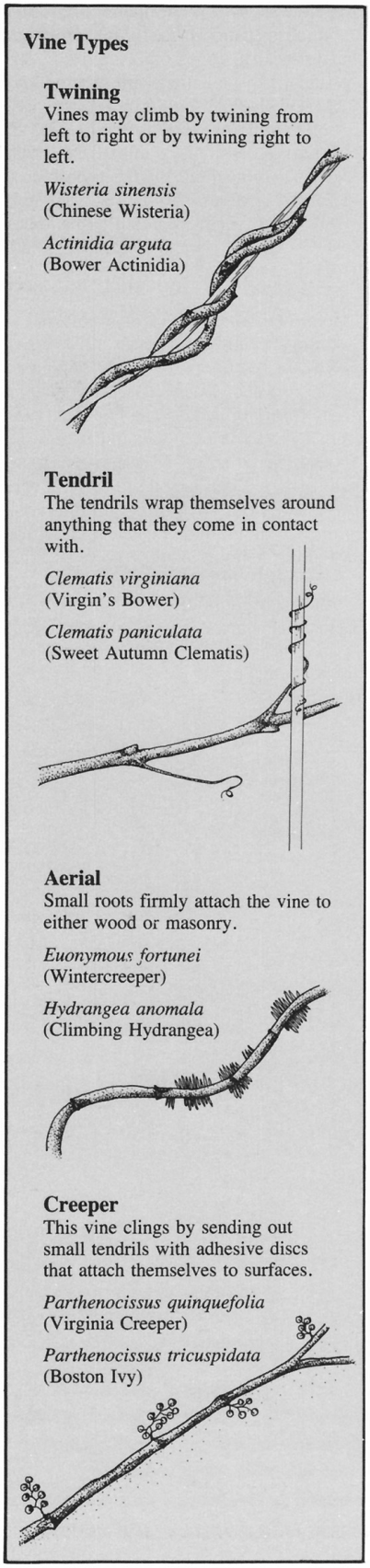
The vines that covered Fairsted are an important visual and historic feature, reflecting Olmsted's interpretation of the ideal garden suburb and his landscape design principles. Unfortunately, the vines eventually contributed to the deterioration of the clapboard house, necessitating that some alternative method be found to protect the building facade from future damage and while still supporting the historic plant material.

Problem

Vines can damage historic clapboard or masonry buildings in a number of ways. Roots growing near buildings retain moisture and can put pressure on foundations, displacing materials and providing entry points for water, insects, and rodents. The primary damage caused by all vines is due to moisture. The shade created by extensive vegetation cover prevents the sun from drying the covered wall, and also reduces the drying effect from air circulation. Moisture from condensation, rain water, and plant transpiration is thus slow to evaporate and creates an environment conducive to paint failure, wood rot, and deterioration of soft masonry. The continuous presence of moisture on masonry buildings can weaken mortar and cause structural deterioration. When water trapped in cracks and openings freezes, the ice expands— pressure that can further damage the masonry.

In addition, vines cause other forms of damage depending on their individual

Where vegetation is essential to the integrity of a historic property, historically significant plant materials and other landscape features should be preserved and maintained while taking steps to protect and maintain historic buildings.



growth habits. *Twining* vines climb by sending out shoots that wrap around objects and grow in both length and width. As the vine grows thicker, it can constrict these objects, causing features such as louver shutters to snap under the increasing pressure. Furthermore, the spreading shoots penetrate openings and crevices. In time, the growing vine can loosen and separate building materials.

Like twining vines, *tendril* vines wrap around objects for support. Because they are actually extended leaves, tendrils do not grow in width, only in length. Both twining and tendril vines, however, can break weather seals on wooden facades, separating wood shingles and siding, as well as fascia and soffit boards on porches. Other vine types include *Aerial* vines which grow small roots along the length of the stem. These rootlets cling to the wall and can force their way into crevices. The fineness and density of the rootlets makes removal difficult. *Creeping* vines have tiny adhesive pads that cling to the building surface. Commonly found on masonry brick buildings, creeping vines do not generally cause extensive damage to structures while growing, although they may abrade softer mortar. However, they attach themselves so thoroughly to the building surface that paint, mortar, and brick are likely to be damaged when the vines are removed.

In 1980, The National Park Service began structural restoration of the house at Fairsted. To facilitate this work, the historic vines were removed from the facade and cut back to the ground. Since the vines were both historic plant material and an important feature of the property, complete removal was avoided. The vines were kept at ground level, but pruned frequently to prevent reattachment to the house. This situation resulted in weakened plant growth and an appearance quite different from

Figure 1. Historic plant materials can be retained while restoration of the historic structure is underway. The *Wisteria* and *Actinidia* vines that were historically used by Olmsted, were cut back during the restoration of Fairsted in 1988. Photo by Charles Pepper, courtesy of the Olmsted National Historic Site.

Olmsted's intention *(see figure 1)*. Furthermore, long-term frequent pruning risked a higher incidence of pest-related problems to the plants and restricted their natural climbing habit. It was therefore important to the public site that a new trellis system be devised that would protect both the historic vegetation and the historic structure, while re-establishing the appearance of a "vine clad mansion."

Historic Fairsted Trellises

Development of a new trellis system began with research into the materials, techniques and hardware used in New England between 1880 and 1930, as well as specific investigation into the various techniques used at Fairsted during those years. Historically, the east elevation of the house had two trellis structures supporting *Wisteria sinensis* (Chinese Wisteria). Photographs from as early as 1884 show a wooden trellis system at the entry porch and a spiraled steel strapping system along the house facade *(see figure 2)*. Remnants of these systems, such as eyebolts and hooks, were found intact at several locations on the structure. The kitchen wall had an interesting trellis consisting of posts with protruding pegs located between windows. Holes in the post indicated that pegs could be added or removed depending on the growth of the plant.

Solution

After investigating the various types of historic trellis systems at Fairsted, four criteria for the new trellis systems were established to address particular preservation issues. An ideal system would:

1. provide an appropriate historic appearance;
2. suit the specific vine growth characteristics;
3. minimize the impact of the anchorage and support structure of the trellis to the historic building facade; and,
4. provide direct access to the building for preservation and maintenance purposes.

In order to meet both the above criteria and also to test alternative solutions, four different trellis systems were designed and installed for use in a two-year test phase *(see figure 3)*. The first system used spiraled steel strapping; the second, aircraft cable; and the third modular pipe. The fourth system combined strapping and piping.

Installation and Monitoring

The experimental trellis systems were constructed and installed on the south and west elevations (where the historic plant material is located) in 1989, and have been monitored for the past two years *(see figure 6)*. Plant growth and development, ease of removal, appearance, and effect on the historic structure are being observed and documented regularly. Some recommendations for modification have already been made.

The steel strapping system (system 1), although painted, has shown a great amount of rust. The use of galvanized steel, painted with a zinc oxide primer and a finish coat would have discour-

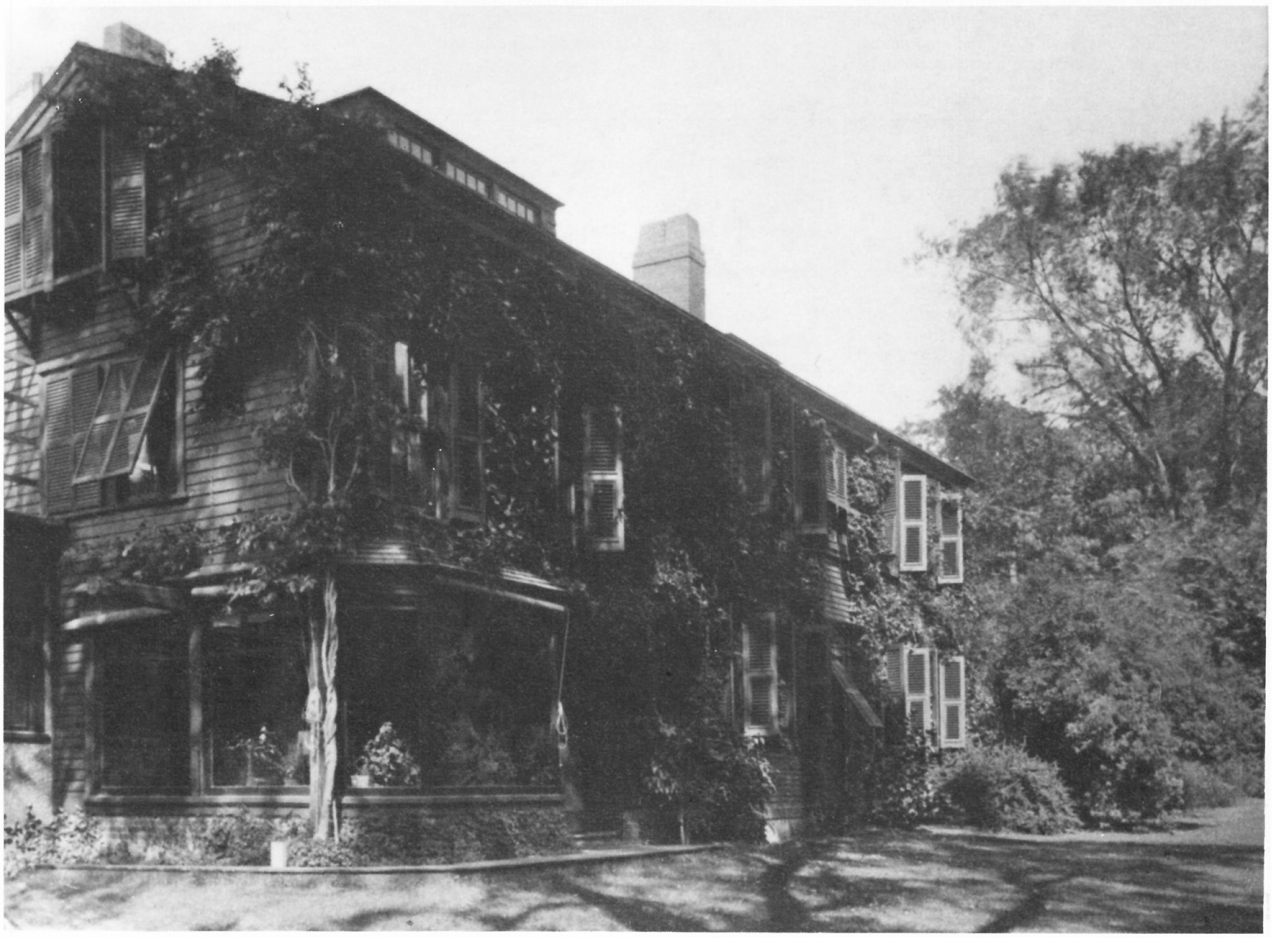


Figure 2. View of the west elevation at Fairsted which shows a steel strapping trellis system built as early as 1884. Photo courtesy of Olmsted National Historic Site.

Figure 3. The four experimental systems developed at the Olmsted National Historic Site, and some advantages and drawbacks to each.

System 1 — Spiraled Steel Strapping

Fabrication
Materials: ⅛″ x ½″ spiraled steel strapping, hooks, snap hooks, eyebolts, and F & M rings.
The steel strapping trellis is modeled after the historic design (c. 1885) developed by Olmsted. Spiraled metal strapping were attached to the house by a series of hooks and metal eyebolts. The eyebolts for this system, as well as the attachment devices for the other trellis systems, are held at least 6″ away from the house to allow for air circulation between the plant material, trellis system and building facade. The strapping was fed through intermediate F & M rings located at regular intervals vertically and horizontally along the side of the house.

Maintenance
The ends of the spiraled strapping are fitted with snap hooks so that the trellis system can be removed for maintenance purposes, thus creating a flexible trellis system.

Evaluation
The spiraled steel strapping is an appropriate support for the growth habit of twining vines. The metal strapping is also effective in recreating the historic appearance of the trellis, and is also the least visible of the systems. The steel, although treated with paint, has already shown a great amount of rust, so an alternative material should be considered.

System 2 — Aircraft Cable

Fabrication
Materials: ⅜″ aircraft cable, eyebolts, and hooks.
⅜″ aircraft cable was substituted for the spiraled strapping in the first system. A system of eyebolts and hooks was used to secure the aircraft cable to the house.

Maintenance
The cable system is similar to the spiral strapping system in that it is flexible. The aircraft cable is attached to the eyebolts with snap hooks that allow the wire and vine to be removed from the building facade without damaging the trellis system, the building, or the historic vegetation.

Evaluation
The texture and twist of the cable support and guide to the twining vines. Like the spiral strapping, the vines grow around the cable, so the structure is not visible. The weight of a mature vine growing on the cable will make removal and replacement difficult for one person on a ladder. A temporary pulley system might be used to aid in hoisting the vines back into place.

System 3 — Modular Pipe

Fabrication
Materials: galvanized metal pipe, fittings, eyebolts, and swivel sockets.
This modular pipe system is composed of galvanized metal pipe and a series of pipe fittings. This system was hinged at the base to allow the rigid trellis structure to be tilted away from the house. The support pipes were anchored in the ground by inserting them in galvanized metal sleeves that were placed 4′ below the ground surface and 6″ away from the house. The top portion of the trellis structure was secured to the house by a bolt and clamp combination.

Maintenance
More than one person is required to remove this system. The rigid system folds out away from the house on the swivel sockets near the base of the house (see figure 4).

Evaluation
Although the rigid system allows the vegetation to remain stable, the pipe structure may also have problems with the weight of fully mature vines. The tilting frame may prove to be difficult to lift back into position. The twining vines do not provide enough coverage to conceal the structure completely.

System 4 — Combination

Fabrication
Materials: spiraled steel strapping, galvanized metal pipe, fittings, eyebolts, and swivel sockets.
This solution is a combination of spiraled strapping, galvanized metal pipe and fittings. Eyebolts will separate the strapping from the supporting pipe structure. Swivel sockets near the base of the pipe structure allow the trellis to be tilted away from the house. This combination system provides a historic trellis appearance with the addition of rigid support. The vines are physically separated from the house, thus reducing potential damage to the facade.

Maintenance
The spiraled strapping can be unhooked from the pipe system for limited maintenance or the entire structure can be removed for more extensive repair.

Evaluation
The weight of a mature vine must also be considered in this solution. This pipe and strapping combination is not historically accurate in appearance. The twining vines cover the strapping, but the pipe structure behind is exposed.

Figure 4. The pipe and strapping system, constructed with swivel sockets, allows the rigid support system to fold down away from the house. The strapping can also be removed from the pipe support for limited maintenance. Photo by Karen Day.

aged rapid rusting. The flexible aircraft cable (system 2), with the added weight of a mature vine will make removal and replacement difficult for one person. A temporary pulley system is recommended to aid in hoisting the vines back into place. The third design is a rigid modular pipe system (system 3). Although the rigidity of the system is advantageous to the stability of the vegetation, the weight of the vines may also be prohibitive for easy removal and replacement. The combination strapping and pipe system (system 4) does not recreate a historically accurate appearance. The system was designed in order to remove the vines on the strapping without removing the pipe supporting system. The vines growing on the strapping do not provide sufficient coverage to hide the pipe system behind. Furthermore, additional maintenance is required to keep the vines from growing on the pipe. After the multi-year test period is complete, one of the four systems will be selected, modified as needed, and installed to the east, south and west facades of the house *(see figure 7)*.

Conclusion

The trellis system solution will restore a feature that contributes to the unique character and appearance of the historic suburban estate, and thus reinforces the interpretation of the Olmsted National Historic Site. The systems discussed here were developed individually to meet the unique requirements of the property. This trellis development process, which considered the building appearance and historic character of the site in addition to the growth habits of the plant, historical trellis materials, and maintenance needs, can be applied to other sites with different needs and considerations. However, climbing vegetation should not be added to historic buildings if it did not occur historically since careful management and maintenance is required. The vines that covered Fairsted were an integral part of the historic character of the site. When vegetation is essential to the integrity of a historic property, historically significant plant materials and other landscape features should be preserved and maintained while taking steps to protect and maintain historic buildings.

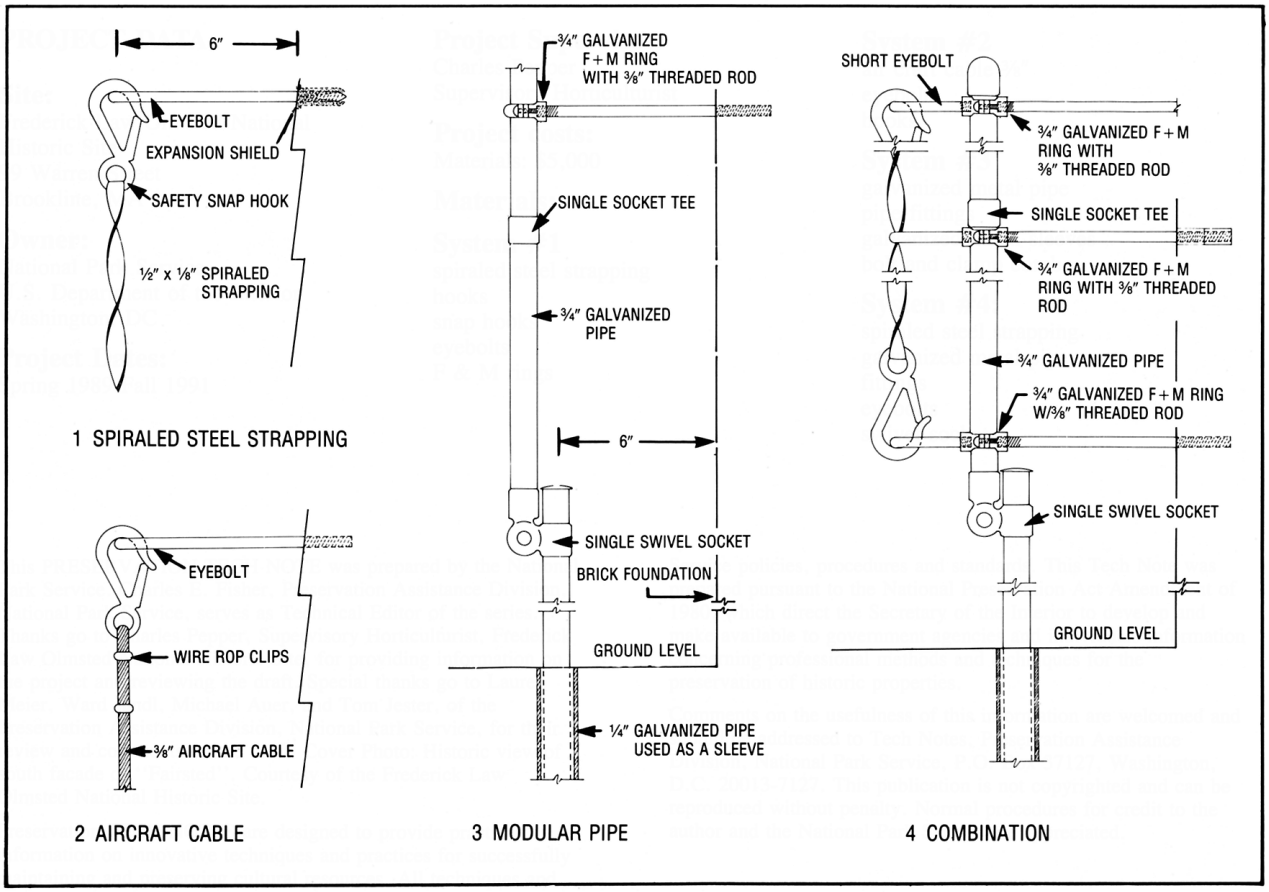


Figure 5. Details of the four experimental trellis systems. Drawings by Sharon Runner, National Park Service.

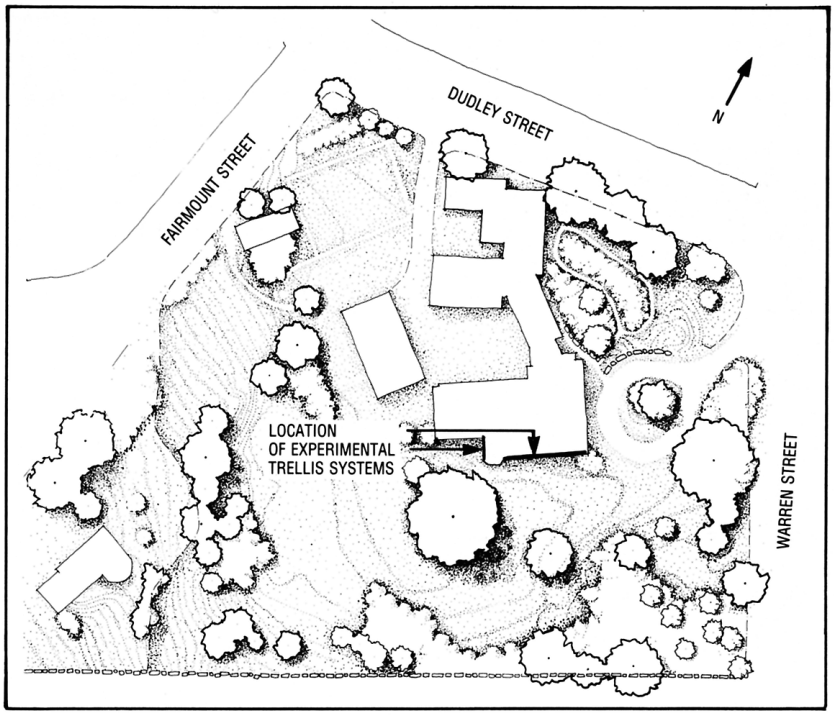


Figure 6. Site plan of Fairsted; the experimental trellis systems were installed on the south and west elevations. Drawing by Karen Day.

Figure 7. View of south facade, the experimental trellis systems have been in place for two growing seasons. Photo by Karen Day.

PROJECT DATA

Site:
Frederick Law Olmsted National Historic Site
99 Warren Street
Brookline, MA

Owner:
National Park Service
U.S. Department of the Interior
Washington, DC

Project Dates:
Spring 1989-Fall 1991

Project Supervisor:
Charles Pepper
Supervisory Horticulturist

Project costs:
Materials: $5,000

Materials:

System #1
spiraled steel strapping
hooks
snap hooks
eyebolts
F & M rings

System #2
air craft cable 3/8″
eyebolts
hooks

System #3
galvanized metal pipe
pipe fittings
galvanized metal sleeves
bolt and clamp combo

System #4:
spiraled steel strapping
galvanized metal pipe
fittings
eyebolts
swivel sockets

This PRESERVATION TECH NOTE was prepared by the National Park Service. Charles E. Fisher, Preservation Assistance Division, National Park Service, serves as Technical Editor of the series. Thanks go to Charles Pepper, Supervisory Horticulturist, Frederick Law Olmsted National Historic Site, for providing information on the project and reviewing the draft. Special thanks go to Lauren Meier, Ward Jandl, Michael Auer, and Tom Jester, of the Preservation Assistance Division, National Park Service, for their review and comments on the draft. Cover Photo: Historic view of south facade of ''Fairsted''. Courtesy of the Frederick Law Olmsted National Historic Site.

Preservation TECH NOTES are designed to provide practical information on innovative techniques and practices for successfully maintaining and preserving cultural resources. All techniques and practices described herein conform to established National Park Service policies, procedures and standards. This Tech Note was prepared pursuant to the National Preservation Act Amendment of 1980, which direct the Secretary of the Interior to develop and make available to government agencies and individuals information concerning professional methods and techniques for the preservation of historic properties.

Comments on the usefulness of this information are welcomed and should be addressed to Tech Notes, Preservation Assistance Division, National Park Service, P.O. Box 37127, Washington, D.C. 20013-7127.

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APPENDIX B

SAGAMORE HILL NATIONAL HISTORIC SITE, OYSTER BAY, NY

Stabilize and Rehabilitate Cultural Landscape
(PMIS 106918 and 106961)

Project Description

The objective of this contract is to rehabilitate the West Lawn, North Field, and Southeast Field by removing successional vegetation, planting a grass/meadow mixture, and re-installing historic fence lines to define the boundaries of the open areas. The contract also includes the removal of eighteen dead and declining trees near the Pet Cemetery and Gray Cottage. The purpose of this project is to further the park's goal to stabilize and rehabilitate cultural landscape features in the historic core of Sagamore Hill National Historic Site as outlined in the park's General Management Plan (2008). Sagamore Hill preserves and interprets the structures, landscapes, collections, and other cultural resources associated with Theodore Roosevelt's home. During Roosevelt's ownership of Sagamore Hill (1880-1919), the property's core contained the main house, a working farm with barns, stables, and outbuildings, and agriculture fields. This core area was distinct and separate from the outer acreage comprised of woodlands and a maritime complex along Cold Spring Harbor. The historic agricultural fields and open character of the core landscape have been compromised by successional growth.

The contract consists of four components: clearing and stump grinding in four areas in the historic core (02230); removal of eighteen dead and declining trees (02231); installation of historic fence (02826); and hydroseeding of the cleared areas (02926).

The first component is clearing and stump grinding in four areas totaling 3.04 acres, which have been delineated on an attached site map. At the project site, the trees at the edges of the clearing area have been wrapped with orange flagging. Trees outside of the clearing area to remain should not be damaged in any way and have been wrapped with yellow flagging. Trees in the clearing areas range from under 6 inches diameter at breast height (dbh) to 48 inches dbh. Each stump will be ground with a stump grinder to a depth of 3 inches below grade to ensure minimal ground disturbance.

The second component is the removal of eighteen individual trees that are dead or in decline in the Pet Cemetery and Gray Cottage areas. Of these eighteen trees, seven have a dbh between 6 and 11-inches and eleven trees have a dbh between 12 and 17-inches. Each stump will be ground with a stump grinder to a depth of 3 inches below grade to ensure minimal ground disturbance.

The third component specifies the materials, assembly, and installation of 870 linear feet of historic fence. The fence lines will be installed along the eastern edge of the Southeast Field, across the center and along the side of the North Field, and north of the existing visitor parking lot where the Roosevelt family historically maintained a flower and vegetable garden. This component also includes furnishing and delivering 50 posts and 75 rails for the park to stockpile for future fence replacement work.

The fourth component of the contract follows the removals and stump grinding in the 3.04 acre cleared areas, which will be hydroseeded with a seed mixture specified in these documents. Immediately after hydroseeding, the contractor shall be responsible for maintaining the newly seeded areas for one year as specified in these documents.

SAGAMORE HILL NATIONAL HISTORIC SITE, OYSTER BAY, NY

TABLE OF CONTENTS

SECTION 02100
SITE PREPARATION

PART 1 - GENERAL

1.1 SCOPE

A. The work of this Section consists of all site preparation work and related items as indicated on the Drawing entitled "Scope of Work Map, Sagamore Hill National Historic Site" and/or as specified herein and includes, but is not limited to, the following:

1. Tree protection
2. Site protection

1.2 EXAMINATION OF SITE AND DOCUMENTS

A. The following items of related site work are specified and included in other Sections and Divisions of the Specifications:

02230 CLEARING AND STUMP GRINDING
02231 SELECTIVE TREE REMOVAL
02926 HYDROSEEDING

B. The Contractor shall have a clear understanding of existing conditions of the site before submitting his/her bid, and shall be fully responsible for carrying out all site work required to execute the work of the Contract fully and properly.

C. The Contractor shall examine all drawings and all other sections of the specifications for requirements therein affecting the work of this trade.

1.3 DEFINITIONS

Standards and Definitions: The following standard(s) as referenced herein are applicable in their entirety to work of this Section.

A. *Guide for Plant Appraisal* (9th edition, 2000) authored by the Council of Tree and Landscape Appraisers.

B. *Mid-Atlantic Tree Species Rating Guide* developed by the Mid-Atlantic Chapter of International Society of Arboriculture.

C. *American National Standard for Tree Care Operations — Tree, Shrub, and Other Woody Plant Maintenance — Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction)*. ANSI A300 (Part 5).

1.4 PROFESSIONAL QUALIFICATIONS

A. An experienced Crew Supervisor(s) shall be present at all times work is being performed. Said experienced supervisor(s) must have verifiable work experience as a full time direct supervisor of shade tree maintenance.

B. All tree workers shall abide by any code of ethics or professional conduct established by the

Tree Care Industry Association and the International Society of Arboriculture.

1.5 EQUIPMENT REQUIREMENTS

A. All equipment must meet all federal OSHA, state and local safety requirements and must be properly licensed. This includes equipment such as bucket trucks, aerial lifts, chipper trucks, wood trucks, stump grinders etc. which may be needed to correctly perform tree care operations in accordance with the specifications stated herein.

1.6 CARE AND PROTECTION

A. Protection of Existing Facilities:

1. Provide protection necessary to prevent damage to existing features indicated to remain including existing structures, historic earthworks, vegetation, walkways, utilities and other landscape features. The contractor shall also be responsible for special care of materials temporarily removed and stored before their replacement.

2. Protect facilities on adjoining properties and on the Sagamore Hill National Historic Site property.

3. Restore damaged facilities to their original condition, acceptable to parties having jurisdiction.

B. Adjoining Property: Confine all operations to the property of the Sagamore Hill National Historic Site. Protect abutting properties from construction activities at all times.

DUE TO THE FRAGILE NATURE OF THIS HISTORIC LANDSCAPE, HEAVY EQUIPMENT WILL NOT BE PERMITTED BEYOND THE EXISTING ROADS AND DRIVES, AND DESIGNATED ACCESS ROUTES AND WORK AREAS UNLESS SPECIFICALLY DIRECTED BY THE CONTRACTING OFFICER (CO).

1.7 SCHEDULING AND COORDINATION

A. The Contractor shall submit a progress schedule for approval by the CO.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 TREES AND SHRUBS - GENERAL

A. Before any work is done, the Contractor shall arrange a conference on the site with the Contracting Officer to identify trees and shrubs which are to be protected.

B. The contractor shall preserve and protect all existing vegetation such as trees, shrubs, and grass areas which do not reasonably interfere with work for the length of the construction period, including liability for all damages as specified herein. The contractor shall be responsible for all unauthorized cutting or damage to trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass and other surfaced areas by equipment. Such damaged areas or materials shall be restored, repaired or replaced by the contractor, as directed by the CO, at no additional cost to the Government. The placement of protection devices additional to those specified, shall, however, be at the Contractor's discretion.

3.2 TREE AND SHRUB PROTECTION

A. The contractor shall not damage plants to remain by burning, by pumping of water, by cutting of live roots or branches, or by any other means unless directed by the Contracting Officer. No plants to be saved shall be used for crane stays, guys, or other fastenings. Vehicles shall not be parked where damage may result to trees or shrubs. Construction materials shall not be stored beneath trees or shrubs. If live roots must be cut, the cuts shall be made with a sharp pruning tool to avoid torn or jagged roots.

B. The Contractor shall be liable for all damage and/or disturbance to existing trees and shrubs. Actual charges for damage to plants shall be in accordance with the schedules defined herein, with assessed charges to be deducted from sums payable under the Construction Contract.

1. Damage which, in the CO's opinion, can be remedied by corrective maintenance shall be repaired immediately.

2. Trees or shrubs which are damaged irreparably shall, at the CO's discretion, be replaced by the Contractor with new trees or shrubs of the same type. The replacement tree or shrub size shall be determined by the CO and shall not exceed the existing tree or shrub size.

3. Irreversible damage to the tree(s) will be subject to liquidated damages at the current value for a cross sectional square inch of diameter at breast height (dbh) in accordance with the *Guide for Plant Appraisal* (9th edition, 2000) authored by the Council of Tree and Landscape Appraisers and the *Mid-Atlantic Tree Species Rating Guide* developed by the Mid-Atlantic Chapter of International Society of Arboriculture. The 2000 value is $42.50 per cross sectional square inch putting a base value for a 32-inch "specimen" elm at $34,600.

4. Damaged trees or shrubs which require removal and/or replacement shall be removed according to the Specification requirements for removals, including refilling and repair of ground surface, with such costs to be borne by the Contractor in addition to assessed charges described herein.

C. Work of pruning, fertilizing, spraying, and similar activities shall be undertaken only by certified arborists and State of New York certified chemical applicators, pertinent to the work being performed.

3.3 REMOVALS - GENERAL

A. Prior to undertaking any tree removals called for, the Contractor shall undertake a detailed review of existing conditions at the site with the CO to confirm the full extent of work to be performed. Contractor shall coordinate removals with the phasing plans and with all other subcontractors and Trades and the removals of other Work included as part of the Work of these Specifications. The CO and Contractor will identify a designated access route to each work area for heavy equipment and a designated work area for heavy equipment.

B. The Contractor shall not permit heavy equipment or vehicles or the stock piling of heavy materials in the desired root protection area. The root protection area is defined as an area equal to a radius of 1.5 feet for each inch of diameter at breast height (dbh) (ie: a 10 inch dbh tree will require protection 15 feet from the main trunk in all directions). Limited activity of this sort may take place with the expressed permission of the CO in areas determined to be safe from excessive damage, however, under no conditions shall this activity take place within the root protection area without mitigation to protect the tree trunk and roots. If construction activities are to take place within the desired root protection area, prior to any construction, tree trunks must be protected with chain link fence and the entire root protection area covered with double layered plywood, AlturnaMats® or similar, or a geotextile fabric and mulched with a minimum of 4-5 inches of wood chips. Pruning, fertilization, aeration, and irrigation may also be required if directed by the CO. Any damage resulting from such practices shall be made good to the satisfaction of and without additional expense to the Government.

C. The Contractor will be held responsible for any damages to, and for maintenance and protection of existing utilities and structures. All areas and existing improvements designated for demolition and removal shall be protected from unauthorized damage or disturbance of any type as a result of demolition and removal work. The Contractor shall be liable for the full restitution and repair of areas which become disturbed or damaged due to negligence or to failure on the Contractor's part to understand the precise limits of work required.

D. All items designated for removal shall be cut and ground with a stump grinder to the depth indicated in these Specifications. Cut vegetation shall be removed from the site, and legally disposed of.

E. The Contractor will be required to furnish all labor, materials, and equipment for daily cleanup and restoration of all disturbed areas or features which have been damaged during the course of this contract. If so directed by the CO, the Contractor shall be prepared to sweep and wash paved surfaces daily or as needed.

END OF SECTION

SECTION 02230
CLEARING AND STUMP GRINDING

PART 1 - GENERAL

1.1 SCOPE

A. The work of this section consists of clearing, removing and disposing of trees, understory vegetation, and debris in four areas that total 3.04 acres; and stump grinding all stumps to a depth of three inches below grade to ensure minimal ground disturbance.

B. The contractor shall not subcontract any work required by this contract without the express written approval of the Contracting Officer (CO). If the CO approves the Contractor to subcontract any part of the work required under this contract, a copy of any such subcontract shall be provided to the CO.

1.2 EXAMINATON OF SITE AND DOCUMENTS

A. The following items of related site work are specified and included in other Sections and Divisions of the Specifications:

02100 SITE PREPARATION
02231 SELECTIVE TREE REMOVAL
02926 HYDROSEEDING

B. The Contractor shall have a clear understanding of existing conditions of the site before submitting his/her bid, and shall be fully responsible for carrying out all site work required to execute the work of the Contract fully and properly.

C. Examine Drawing, “Scope of Work Map, Sagamore Hill National Historic Site” for designated areas to be cleared, labeled areas #1, #2, #3 and #4 and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.3 DEFINITIONS

Standards and Definitions: The following standard(s) as referenced herein are applicable in their entirety to work of this Section.

A. *Guide for Plant Appraisal* (9th edition, 2000) authored by the Council of Tree and Landscape Appraisers.

B. *Mid-Atlantic Tree Species Rating Guide* developed by the Mid-Atlantic Chapter of International Society of Arboriculture.

C. *American National Standard for Tree Care Operations — Tree, Shrub, and Other Woody Plant Maintenance — Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction)*. ANSI A300 (Part 5).

1.4 PROFESSIONAL QUALIFICATIONS

A. An experienced Crew Supervisor(s) shall be present at all times work is being performed. Said experienced supervisor(s) must have verifiable work experience as a full time direct supervisor of shade tree maintenance and felling work crews.

B. All tree workers shall, through related training and on the job experience, be familiar with the technical aspects and hazards of tree maintenance work and equipment used in such operations. All tree workers shall abide by any code of ethics or professional conduct established by the Tree Care Industry Association and the International Society of Arboriculture.

1.5 EQUIPMENT REQUIREMENTS

A. All equipment must meet all federal OSHA, state and local safety requirements and must be properly licensed. This includes equipment such as bucket trucks, aerial lifts, chipper trucks, wood trucks, stump grinders etc. which may be needed to correctly perform tree care operations in accordance with the specifications stated herein.

1.6 CARE AND PROTECTION

A. Protection of Existing Facilities:

1. The Contractor shall be responsible for special care in moving materials and equipment and for providing protection necessary to prevent damage to existing features indicated to remain including existing structures, historic earthworks, vegetation, walkways, utilities and other landscape features. The contractor shall also be responsible for special care of materials temporarily removed and stored before their replacement.

2. Protect facilities on adjoining properties and on the Sagamore Hill National Historic Site property.

3. Restore damaged facilities to their original condition, acceptable to parties having jurisdiction.

B. Adjoining Property: Confine all operations to the property of the Sagamore Hill National Historic Site. Protect abutting properties from construction activities at all times.

DUE TO THE FRAGILE NATURE OF THIS HISTORIC LANDSCAPE, HEAVY EQUIPMENT WILL NOT BE PERMITTED BEYOND THE EXISTING ROADS AND DRIVES, AND DESIGNATED ACCESS ROUTES AND WORK AREAS UNLESS SPECIFICALLY DIRECTED BY THE CONTRACTING OFFICER.

1.7 SCHEDULING AND COORDINATION

A. Prior to commencing work the contractor is responsible for inspecting all affected trees to ensure that the prescribed work is in accordance with the scope of the specifications stated herein and unit prices of the contract bid schedule.

B. The NPS shall hold a contractors meeting on _____ from ____ to ____ to allow perspective bidders to view the scope of work and have any questions pertaining to the contract answered.

C. The Contracting Officer's Representative (COR) will be responsible for acting on behalf of the Contracting Officer on all matters of work within the scope of the contract. Approval

of work beyond the scope of the contract (i.e.: wound treatment, technical removals requiring the use of a crane, etc.) is reserved for the Contracting Officer. The contractor is responsible for notifying the COR in writing of all work that is beyond the scope of the contract and include a proposal for performing the prescribed work that includes a breakdown with unit prices for labor, materials, and equipment required to ensure that the work can be completed safely and in accordance with industry standards. The COR will evaluate the proposal and if valid will seek approval from the Contracting Officer. Failure of the contractor to obtain the approval of the Contracting Officer for work beyond the scope of the contract will release the government from any obligation to pay for services claimed.

D. The contractor shall commence work at a time that is beneficial for both the contractor and COR upon receipt of delivery order. Work shall commence and be completed during a period of time between _____ and _____. Work shall be performed during the hours of ____ a.m. and ____ p.m., Monday through Friday, Federal holidays excluded, unless authorized in writing by the COR.

E. The Contractor shall submit a progress schedule for approval by the COR.

F. Work shall be scheduled and arranged so as not to interfere with normal activities of the park. Advanced notice will be given to the contractor if a conflict is expected. Any plant debris, personnel or equipment that would interfere with an activity or event shall be removed prior to the activity.

G. Once work begins the contractor is expected to be on the job site each day in which weather conditions are favorable as determined by the COR or designated park representative.

H. If, at any time, the COR determines that the work is unsatisfactory or being conducted in an unsafe manner, the contractor will be notified and shall immediately cease all work activities.

1.8 SAFETY

A. All operations shall be conducted in accordance with ANSI Z133.1-2006 *Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees and Cutting Brush* and all federal OSHA, state and local safety requirements.

1.9 CONTRACTOR RESPONSIBILITIES

A. The contractor shall provide a safe and healthful workplace for all employees while at Sagamore Hill NHS.

B. The contractor shall provide a level of public safety, proportionate with exposure, while working at Sagamore Hill NHS.

C. The contractor shall comply in rectifying all unsafe or unhealthy conditions called to his/her attention by the Contracting Officer or COR.

D. The contractor shall allow for formal and informal, announced and unannounced safety inspections at the worksite.

1.10 WORK AREA

A. Contractor shall confine his work, the storage of materials and equipment, the parking of vehicles, and all other operations in connection with this contract to the specified hours

and work areas approved by the COR. The Contractor shall not permit heavy equipment or vehicles or the stock piling of heavy materials off hard surface roads without the expressed permission of the COR.

1.11 CLEANUP, RESTORATION, AND DISPOSAL OF DEBRIS

A. The contractor will be required to furnish all labor, materials, and equipment for daily cleanup and restoration of all disturbed areas or features, which have been damaged during the course of this contract.

B. All waste, rubble, and other debris created by clearing and stump grinding work shall be disposed of at an approved rubbish disposal area away from the National Park Service's property. All disposal fees shall be paid by the Contractor.

C. No material shall be disposed of by burning.

D. Materials shall be entirely removed and disposed of off site. Such material shall not be deposited in rivers, streams, or other bodies of water. If the material is to be wasted, then it shall be disposed of at an approved dump or other approved location.

1.12 RESPONSIBILITY REGARDING EXISTING STRUCTURES, UTILITIES, EXISTING PLANT MATERIAL, AND OTHER LANDSCAPE FEATURES

A. The contractor will be held responsible for any damages to, and for maintenance and protection of existing structures. Contractor shall repair or replace any damage resulting in connection with work under this contract or as a result of operations there under. Materials and methods shall conform to the current standards for the area damaged, match existing on-site materials, shall meet the approval the approval of all cognizant officials and the COR. All damaged areas shall make smooth, satisfactory, and imperceptible transitions to existing adjacent work, and shall be performed without additional expense to the NPS.

B. The contractor will be held responsible for any damages to, and for maintenance and protection of existing utilities.

C. The contractor shall preserve and protect all existing vegetation such as trees, shrubs, and grass areas on or adjacent to trees being pruned or removed which do not reasonably interfere with work. The contractor shall be responsible for all unauthorized cutting or damage to trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass and other surfaced areas by equipment. Such damaged areas or materials shall be restored, repaired or replaced by the contractor, as directed by the COR, at no additional cost to the Government. Unauthorized cutting or damage to trees will be subject to liquidated damages in accordance with the *Guide for Plant Appraisal* (9th edition, 2000).

1.13 MONETARY ADJUSTMENTS FOR INADEQUATE PERFORMANCE

A. It is mutually agreed that failure to satisfactorily accomplish work in accordance with the specifications and provisions stated herein when due to the fault of the contractor, shall constitute a deficiency under this contract. All work will be regularly inspected by the COR and any deficiencies will be reported in writing to the contractor. Corrective action by the contractor shall be taken promptly and the work satisfactorily accomplished. Deficiencies in daily tasks shall be completed within the day the deficiency is noted. The Contracting Officer will make the sole determination as to the existence of a deficiency in performance, the corrective action(s) to be taken, and the timeliness of deficiency correction. If deficiencies are not corrected in a satisfactory and timely manner, work will

not be accepted for payment and/or a monetary deduction will be made. Irreversible damage to the tree(s) will be subject to liquidated damages in accordance with the *Guide for Plant Appraisal* (9th edition, 2000) authored by the council of Tree and Landscape Appraisers. The 2000 value is $42.50 per cross sectional square inch putting a base value for a 32 inch "specimen" elm at $34,600.

1.14 FIRE HAZARD

A. The Contractor shall not allow trash or debris to accumulate about the work site. No trash may be burned on the site. Fire safety precautions must be observed at all times when working near existing buildings. Portable fire extinguishers must be present at points of hazardous work. All Federal, state, and/or city codes or requirements pertaining to trash disposal must be observed.

PART 2 - PRODUCTS

2.1 BACKFILL MATERIAL

A. Backfill material shall be imported topsoil as specified in Section 02926 HYDROSEEDING.

PART 3 - EXECUTION

3.1 PROTECTION OF EXISTING TREES AND PLANTS TO REMAIN

A. Protection of existing trees and plants to remain shall be as specified in Section 02100 SITE PREPARATION.

3.2 CLEARING

A. Remove all trees, brush, and vegetation from areas designated to be cleared marked with orange flagging tape. As directed by the Contracting Officer, prune unsound, or unsightly branches on trees and shrubs designated to remain along edge of cleared area. Make cuts flush with trunk or branch. Pruning work shall be in accordance with the American National Standard for Arboricultural Operations – *Pruning, Repairing, Maintaining and Removing Trees and Cutting Brush – Safety Requirements ANSI Z133.1-2000.*

3.3 STUMP GRINDING

A. Remove all stumps, roots, and debris a minimum of 3 inches below original ground using a stump grinder. Grubbing with a backhoe is not acceptable. Use hand methods for grubbing stumps of shrubs and vines with stumps less than 4" diameter to a depth of 3" below grade that are within the drip line of trees to remain, also referred to as the root protection area in Site Preparation (02100, Section 3.3, B). For tree stumps greater than 4" in diameter and within the drip line of the trees to remain, the Contractor will seek approval from the CO before using a stump grinder inside the drip line area. Fill stump and root holes as specified in Section 02926 HYDROSEEDING.

3.4 DISPOSAL

A. Dispose of debris and excess material at an approved rubbish disposal area away from the National Park Service's property. All disposal fees shall be paid by the Contractor.

PART 4 - MEASUREMENT AND PAYMENT

4.1 CLEARING AND STUMP GRINDING

A. Measurement will be the number of acres, to the nearest 0.01 acre, of the area to be cleared and stumps to be ground with a stump grinder within the limits shown on the map specified above on site. The trees at the edges of the clearing area for removal have been marked with orange flagging tape. The trees outside of the clearing area to remain should not be damaged and are marked with yellow flagging tape. No deduction will be made for clear areas within the designated limits. Payment will be made at the contract unit price.

END OF SECTION

SECTION 02231
SELECTIVE TREE REMOVAL

PART 1 - GENERAL

1.1 SCOPE

A. The Contractor shall furnish all equipment and sufficient personnel for removal of eighteen trees and stump grinding in locations identified as #5 and #6 on the Drawing entitled "Scope of Work Map, Sagamore Hill National Historic Site" as in accordance with the bid schedule and specifications stated herein. Any items not specifically noted, but necessary for performance in accordance with accepted tree industry standards, shall be furnished under this contract.

B. The trees are located adjacent to developed areas containing high densities of pedestrians, vehicles, utilities, and structures.

C. The contractor shall not subcontract any work required by this contract without the express written approval of the Contracting Officer (CO). If the CO approves the Contractor to subcontract any part of the work required under this contract, a copy of any such subcontract shall be provided to the CO.

1.2 EXAMINATON OF SITE AND DOCUMENTS

A. The following items of related site work are specified and included in other Sections and Divisions of the Specifications:

02100 SITE PREPARATION
02230 CLEARING AND STUMP GRINDING

B. The Contractor shall have a clear understanding of existing conditions of the site before submitting his/her bid, and shall be fully responsible for carrying out all site work required to execute the work of the Contract fully and properly.

C. Examine Drawing, "Scope of Work Map, Sagamore Hill National Historic Site" for locations of trees to be removed, labeled areas #5 and #6 and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.3 DEFINITIONS

Standards and Definitions: The following standard(s) as referenced herein are applicable in their entirety to work of this Section.

A. *Guide for Plant Appraisal* (9th edition, 2000) authored by the Council of Tree and Landscape Appraisers.

B. *Mid-Atlantic Tree Species Rating Guide* developed by the Mid-Atlantic Chapter of International Society of Arboriculture.

C. *American National Standard for Tree Care Operations — Tree, Shrub, and Other Woody Plant Maintenance — Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction)*. ANSI A300 (Part 5).

1.4 PROFESSIONAL QUALIFICATIONS

A. An experienced Crew Supervisor(s) shall be present at all times work is being performed. Said experienced supervisor(s) must have verifiable work experience as a full time direct supervisor of shade tree maintenance and felling work crews.

B. All tree workers shall, through related training and on the job experience, be familiar with the technical aspects and hazards of tree maintenance work and equipment used in such operations. All tree workers shall abide by any code of ethics or professional conduct established by the Tree Care Industry Association and the International Society of Arboriculture.

1.5 EQUIPMENT REQUIREMENTS

A. All equipment must meet all federal OSHA, state and local safety requirements and must be properly licensed. This includes equipment such as bucket trucks, aerial lifts, chipper trucks, wood trucks, stump grinders etc. which may be needed to correctly perform tree care operations in accordance with the specifications stated herein.

1.6 CARE AND PROTECTION

A. Protection of Existing Facilities:

1. The Contractor shall be responsible for special care in moving materials and equipment and for providing protection necessary to prevent damage to existing features indicated to remain including existing structures, historic earthworks, vegetation, walkways, utilities and other landscape features. The contractor shall also be responsible for special care of materials temporarily removed and stored before their replacement.

2. Protect facilities on adjoining properties and on the Sagamore Hill National Historic Site property.

3. Restore damaged facilities to their original condition, acceptable to parties having jurisdiction.

B. Adjoining Property: Confine all operations to the property of the Sagamore Hill National Historic Site. Protect abutting properties from construction activities at all times.

DUE TO THE FRAGILE NATURE OF THIS HISTORIC LANDSCAPE, HEAVY EQUIPMENT WILL NOT BE PERMITTED BEYOND THE EXISTING ROADS AND DRIVES, AND DESIGNATED ACCESS ROUTES AND WORK AREAS UNLESS SPECIFICALLY DIRECTED BY THE CONTRACTING OFFICER.

1.7 SCHEDULING AND COORDINATION

A. Prior to commencing work the contractor is responsible for inspecting all affected trees to ensure that the prescribed work is in accordance with the scope of the specifications stated herein and unit prices of the contract bid schedule.

B. The NPS shall hold a contractors meeting on _____ from ____ to ____

to allow perspective bidders to view the scope of work and have any questions pertaining to the contract answered.

C. The Contracting Officer's Representative (COR) will be responsible for acting on behalf of the Contracting Officer on all matters of work within the scope of the contract. Approval of work beyond the scope of the contract (i.e.: wound treatment, technical removals requiring the use of a crane, etc.) is reserved for the Contracting Officer. The contractor is responsible for notifying the COR in writing all work that is beyond the scope of the contract and include a proposal for performing the prescribed work that includes a breakdown with unit prices for labor, materials, and equipment required to ensure that the work can be completed safely and in accordance with industry standards. The COR will evaluate the proposal and if valid will seek approval from the Contracting Officer. Failure of the contractor to obtain the approval of the Contracting Officer for work beyond the scope of the contract will release the government from any obligation to pay for services claimed.

D. The contractor shall commence work at a time that is beneficial for both the contractor and COR upon receipt of delivery order. Work shall commence and be completed during a period of time between _____ and _____. Work shall be performed during the hours of ____ a.m. and ____ p.m., Monday through Friday, Federal holidays excluded, unless authorized in writing by the COR.

E. The Contractor shall submit a progress schedule for approval by the COR.

F. Work shall be scheduled and arranged so as not to interfere with normal activities of the park. Advanced notice will be given to the contractor if a conflict is expected. Any plant debris, personnel or equipment that would interfere with an activity or event shall be removed prior to the activity.

G. Once work begins the contractor is expected to be on the job site each day in which weather conditions are favorable as determined by the COR or designated park representative.

H. If, at any time, the COR determines that the work is unsatisfactory or being conducted in an unsafe manner, the contractor will be notified and shall immediately cease all work activities.

1.8 REPORTS

A. The contractor shall note and report to the CO in writing the presence of any structural weakness, girdling roots, disease conditions, decayed trunk or branches, and split crotches or branches or any other hazardous condition that has the potential for personal injury or damage to property, that can not be corrected within the scope of work described herein.

1.9 SAFETY

A. All operations shall be conducted in accordance with ANSI Z133.1-2006 Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees and Cutting Brush and all federal OSHA, state and local safety requirements.

1.10 CONTRACTOR RESPONSIBILITIES

A. The contractor shall provide a safe and healthful workplace for all employees while at Sagamore Hill NHS.

B. The contractor shall provide a level of public safety, proportionate with exposure, while working at Sagamore Hill NHS.

C. The contractor shall comply in rectifying all unsafe or unhealthy conditions called to his/her attention by the Contracting Officer or COR.

D. The contractor shall allow for formal and informal, announced and unannounced safety inspections at the worksite.

1.11 WORK AREA

A. Contractor shall confine his work, the storage of materials and equipment, the parking of vehicles, and all other operations in connection with this contract to the specified hours and work areas approved by the COR. The Contractor shall not permit heavy equipment or vehicles or the stock piling of heavy materials off hard surface roads without the expressed permission of the COR.

1.12 CLEANUP AND RESTORATION

A. The contractor will be required to furnish all labor, materials, and equipment for daily cleanup and restoration of all disturbed areas or features, which have been damaged during the course of this contract.

1.13 RESPONSIBILITY REGARDING EXISTING STRUCTURES, UTILITIES, EXISTING PLANT MATERIAL, AND OTHER LANDSCAPE FEATURES

A. The contractor will be held responsible for any damages to, and for maintenance and protection of existing structures. Contractor shall repair or replace any damage resulting in connection with work under this contract or as a result of operations there under. Materials and methods shall conform to the current standards for the area damaged, match existing on-site materials, shall meet the approval the approval of all cognizant officials and the COR. All damaged areas shall make smooth, satisfactory, and imperceptible transitions to existing adjacent work, and shall be performed without additional expense to the NPS.

B. The contractor will be held responsible for any damages to, and for maintenance and protection of existing utilities.

C. The contractor shall preserve and protect all existing vegetation such as trees, shrubs, and grass areas on or adjacent to trees being pruned or removed which do not reasonably interfere with work. The contractor shall be responsible for all unauthorized cutting or damage to trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass and other surfaced areas by equipment. Such damaged areas or materials shall be restored, repaired or replaced by the contractor, as directed by the COR, at no additional cost to the Government. Unauthorized cutting or damage to trees will be subject to liquidated damages in accordance with the *Guide for Plant Appraisal* (9th edition, 2000).

1.14 MONETARY ADJUSTMENTS FOR INADEQUATE PERFORMANCE

A. It is mutually agreed that failure to satisfactorily accomplish work in accordance with the specifications and provisions stated herein when due to the fault of the contractor, shall constitute a deficiency under this contract. All work will be regularly inspected by the COR and any deficiencies will be reported in writing to the contractor. Corrective action by the contractor shall be taken promptly and the work satisfactorily accomplished. Deficiencies in daily tasks shall be completed within the day the deficiency is noted. The

Contracting Officer will make the sole determination as to the existence of a deficiency in performance, the corrective action(s) to be taken, and the timeliness of deficiency correction. If deficiencies are not corrected in a satisfactory and timely manner, work will not be accepted for payment and/or a monetary deduction will be made. Irreversible damage to the tree(s) will be subject to liquidated damages in accordance with the *Guide for Plant Appraisal* (9th edition, 2000) authored by the council of Tree and Landscape Appraisers. The 2000 value is $42.50 per cross sectional square inch putting a base value for a 32 inch "specimen" elm at $34,600.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 REMOVALS

A. The work to be performed under this section shall include removing trees in accordance with the American National Standard for Arboricultural Operations – *Pruning, Repairing, Maintaining and Removing Trees and Cutting Brush – Safety Requirements ANSI Z133.1-2000.*

3.2 GENERAL REQUIREMENTS

A. For trees specified to have all wood, chips and debris removed, the contractor shall, on the same day the tree is removed, chip all materials and remove all remaining wood and debris from the park and dispose of legally off site, unless approved otherwise by the COR. Removal from the park and disposal is the responsibility of the contractor. There shall be no sale of wood on government property.

B. The contractor shall take all reasonable precautions to avoid damaging surrounding vegetation or lawn areas and prevent gouging and erosion of soils as a result of tree removal operations.

3.3 EXECUTION

A. Trees shall be felled only when there is an adequate felling area at least equal in radius to the height of the tree.

B. Trees that can not be felled due to proximity of the roadways, buildings, structures, utilities, and/or lack of an adequate felling area shall be topped and/or sectioned.

C. The contractor is responsible for taking all precautions to ensure that the tree will fall where desired. If a tree can not be felled safely in one piece, the tree shall be topped and/or sectioned.

D. All stumps shall be cut to a height not to exceed 2" from grade unless directed otherwise by the COR. Stumps shall then be ground as specified below.

3.4 STUMP REMOVAL

A. Stumps of trees indicated for removal shall be ground with a stump grinder to a depth of 3 inches below grade with the depression shall be refilled with the waste material.

PART 4 - ACCEPTANCE, MEASUREMENT AND PAYMENT

4.1 ACCEPTANCE

A. The contractor shall submit an invoice for payment at the completion of the work. The COR will sign the invoice certifying that all work performed conforms to contract requirements. The signed invoice will then be forwarded to the CO for payment processing.

4.2 MEASUREMENT / VERIFICATION OF QUANTITIES

A. Removals: Shall be based on individual trees measured by the diameter at breast height (dbh) and the type of removal in accordance with the bid schedule and specifications.

B. Stump Grinding: Shall be based on individual trees measured by the diameter at breast height (dbh) in accordance with the bid schedule and specifications. In the absence of the tree, the stump size shall be the diameter of the cut wood surface measured across the narrowest portion.

TREE MAINTENANCE BID SCHEDULE

Item	Size	Quantity		Unit Price	Total
A.	**REMOVALS**				
	REMOVE AND DISPOSE OF ALL WOOD, CHIPS AND DEBRIS				
1.	6 – 11” DBH (b. locust, N. maple)	7	X	_____	_____
2.	12 – 17” DBH (birch, cherry, fir)	11	X	_____	_____
				TOTAL REMOVAL _____	
B.	**STUMP GRINDING/REMOVAL**				
1.	6 – 11” Across the Narrowest Portion	7	X	_____	_____
2.	12 – 17” Across the Narrowest Portion	11	X	_____	_____
				TOTAL STUMP GRINDING _____	

TOTAL FOR TREE MAINTENANCE (Bid Items A-B) _____

END OF SECTION

SECTION 02826
DOUBLE POST SPLIT RAIL FENCE

PART 1 - GENERAL

1.1 SCOPE:

A. The work of this section consists of furnishing and installing 870 linear feet of split rail fencing and furnishing and delivering 50 posts and 75 rails for the park to stockpile for future fence replacement as shown on Drawing entitled “Fence Details, Sagamore Hill National Historic Site” in locations identified as Areas A, B, C and D on Drawing entitled “Scope of Work Map, Sagamore Hill National Historic Site” as in accordance with the bid schedule and specifications stated herein.

B. The contractor shall not subcontract any work required by this contract without the express written approval of the Contracting Officer (CO). If the CO approves the Contractor to subcontract any part of the work required under this contract, a copy of any such subcontract shall be provided to the CO.

1.2 EXAMINATION OF SITE AND DOCUMENTS

A. The following items of related work are specified and included in other Sections of the Specifications:

02100 SITE PREPARATION
02230 CLEARING AND STUMP GRINDING
02926 HYDROSEEDING

B. Examine Drawings, “Fence Details” and “Scope of Work Map, Sagamore Hill National Historic Site” for designated areas for fence installation, labeled areas A, B, C and D and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.3 SAMPLES AND SUBMITTALS

A. At least thirty (30) days prior to intended use, the Contractor shall provide the following samples and submittals for approval. All samples, if approved may be incorporated into the final work. Do not order materials until approval of samples, certifications, or test results has been obtained. Delivered materials shall closely match the approved samples.

1. Material Sample:

a. Black locust posts
b. Black locust rails

2. Provide one sample panel of the double post split rail fence, including two sets of posts complete in place.

1.4 PROFESSIONAL QUALIFICATIONS

A. An experienced Crew Supervisor(s) shall be present at all times work is being performed. Said experienced supervisor(s) must have verifiable work experience as a supervisor of fence installation work crews.

1.5 SCHEDULING AND COORDINATION

A. The Contracting Officer's Representative (COR) will be responsible for acting on behalf of the Contracting Officer on all matters of work within the scope of the contract. Approval of work beyond the scope of the contract is reserved for the Contracting Officer. The contractor is responsible for notifying the COR in writing all work that is beyond the scope of the contract and include a proposal for performing the prescribed work that includes a breakdown with unit prices for labor, materials, and equipment required to ensure that the work can be completed safely and in accordance with industry standards. The COR will evaluate the proposal and if valid will seek approval from the Contracting Officer. Failure of the contractor to obtain the approval of the Contracting Officer for work beyond the scope of the contract will release the government from any obligation to pay for services claimed.

B. The contractor shall notify the Contracting Officer (CO) 48 hours prior to beginning any work on a delivery order. Work shall be performed between the hours of _____ a.m. and _____ p.m. Monday through Friday, legal holidays excluded, unless authorized in writing by the CO.

C. Work shall be scheduled and arranged so as not to interfere with normal activities of the park. Advanced notice will be given to the contractor if a conflict is expected. Any plant debris, personnel, or equipment that would interfere with an activity or event shall be removed prior to the activity.

D. Once work begins the contractor is expected to be on the job site each day in which weather conditions are favorable as determined by the COR or designated park representative.

E. All work within a designated area as specified on the delivery order shall be completed, inspected, and accepted in accordance with the procedures stated herein before beginning work in another area.

F. If, at any time, the CO determines that the work is unsatisfactory or being conducted in an unsafe manner, the contractor will be notified and shall immediately cease all work activities.

G. The time stated for completion shall include final cleanup of the premises.

H. All approvals will be in writing.

1.6 CONTRACTOR RESPONSIBILITIES

A. The contractor shall provide a safe and healthful workplace for all employees while at Sagamore Hill NHS.

B. The contractor shall provide a level of public safety, proportionate with exposure, while working at Sagamore Hill NHS.

C. The contractor shall comply in rectifying all unsafe or unhealthy conditions called to his/her attention by the Contracting Officer or COR.

D. The contractor shall allow for formal and informal, announced and unannounced safety inspections at the worksite.

SAGAMORE HILL NATIONAL HISTORIC SITE **DOUBLE POST SPLIT RAIL FENCE**
02826-2

1.7 WORK AREA

A. Contractor shall confine his work, the storage of materials and equipment, the parking of vehicles, and all other operations in connection with this contract to the specified hours and work areas approved by the COR. The Contractor shall not permit heavy equipment or vehicles or the stock piling of heavy materials off hard surface roads without the expressed permission of the COR.

1.8 CLEANUP AND RESTORATION

A. The contractor will be required to furnish all labor, materials, and equipment for daily cleanup and restoration of all disturbed areas or features, which have been damaged during the course of this contract.

1.9 RESPONSIBILITY REGARDING EXISTING STRUCTURES, UTILITIES, EXISTING PLANT MATERIAL, AND OTHER LANDSCAPE FEATURES

A. The contractor will be held responsible for any damages to, and for maintenance and protection of existing structures. Contractor shall repair or replace any damage resulting in connection with work under this contract or as a result of operations there under. Materials and methods shall conform to the current standards for the area damaged, match existing on-site materials, shall meet the approval of all cognizant officials and the COR. All damaged areas shall make smooth, satisfactory, and imperceptible transitions to existing adjacent work, and shall be performed without additional expense to the NPS.

B. The contractor will be held responsible for any damages to, and for maintenance and protection of existing utilities.

C. The contractor shall preserve and protect all existing vegetation such as trees, shrubs, and grass areas adjacent to fence lines. The contractor shall be responsible for all unauthorized cutting or damage to trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass and other surfaced areas by equipment. Such damaged areas or materials shall be restored, repaired or replaced by the contractor, as directed by the COR, at no additional cost to the Government. Unauthorized cutting or damage to trees will be subject to liquidated damages in accordance with the *Guide for Plant Appraisal* (9th edition, 2000).

PART 2 - PRODUCTS

2.1 POSTS

A. Species *Robinia pseudoacacia*, Black Locust, without bark, seven feet (7') long. Posts shall be split (not sawn) to a rough half-round shape, 6-inches (6") in diameter.

B. Posts shall be spaced at ten feet (10') on center minimum to twelve feet (12') on center maximum. All posts shall be unstained and left to weather naturally.

2.2 RAILS

A. Species *Robinia pseudoacacia*, Black Locust, without bark, 11 feet six-inches (11'-6") long minimum to 13 feet six-inches (13'-6") long maximum. Rails shall be split (not sawn) with tapered ends to allow a 1 foot six-inch (1'-6") overlap.

B. All rails shall be unstained and left to weather naturally.

2.3 STEEL SUPPORT ROD

A. Round steel bar stock, ¼" diameter, conforming to ASTM Designation A36.

B. Bar stock shall be unfinished and left to weather naturally.

2.4 DENSE GRADED AGGREGATE

A. Dense graded aggregate shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious materials. Gradation shall conform to the following:

U.S. Sieve No.	Percent Passing by Weight
1-1/2"	95-100
3/4"	70-92
3/8"	50-70
#4	35-55
#30	12-25
#200	0-8

B. Maximum size of stone in dense graded aggregate shall be two inches (2") largest dimension

2.5 POSTS AND RAILS FOR THE PARK TO STOCKPILE

A. In accordance with the specifications above, the Contractor shall provide fifty (50) posts and seventy-five (75) rails for the park to stockpile for future fence replacement work.

B. Twenty (20) rails shall be at no less than 11 feet six-inches (11'-6") long and fifty-five (55) rails shall be at no less than 13 feet six-inches (13'-6") long.

C. Fence posts and rails shall be delivered to a location approved by the Contracting Officer. The material shall be neatly stacked on skids and not come into direct contact with the ground.

PART 3 - EXECUTION

3.1 GENERAL

A. Examine final grades and installation conditions. Do not start work of this section until unsatisfactory conditions are corrected

B. Line of fence shall be installed straight and true. All posts shall be set plumb and level and rails shall be installed parallel and true.

SAGAMORE HILL NATIONAL HISTORIC SITE **DOUBLE POST SPLIT RAIL FENCE**
02826-4

3.2 POSTS

A. Establish the location of each set of posts and the number of posts that will be used. The minimum spacing between sets of posts is ten feet (10') on center. The maximum spacing between sets of posts is twelve feet (12') on center.

B. Drill post holes for the installation of each set of posts as follows;

1. Hole diameter: Minimum three times post diameter.
2. Hole depth: Minimum six inches deeper than post setting depth.
3. Post depth: Minimum 2'-0' deep for fences up to 5'-0" high, minimum 3'-0" for fences up to 6'-0" high, and minimum 3'-6" for fences up to 8'-0" high.

C. Dense graded aggregate shall be placed in two (2) layers of four inches (4") loose depth each and then compacted to three inches (3") for a total aggregate base of six inches (6").

D. Set posts on six inch (6") depth of dense graded aggregate. Fill remaining void with compacted earth fill. Slope top surface away from post.

E. Half-round posts shall be set so that the rounded surface faces out and the split surface (flat side) faces the split surface (flat side) of the opposite post.

F. Align each post both vertically and laterally and plumb with tops properly aligned. Secure in position during earth fill placement.

3.3 STEEL SUPPORT ROD AND RAILS

A. Drill posts as shown on drawings to accept ¼" diameter steel bar stock.

B. Cut steel bar stock in field to adequate length to span the two half-round posts and allow a maximum protrusion beyond each post of two inches (2"). Position steel bar stock equidistant between posts. Bend protruding ends of bar stock down to a flush or nearly flush condition with the posts. Grind smooth any burs or sharp edges on bar stock.

C. Set rail between a pair of posts resting the rail on the steel bar stock. Tapered ends of rails shall overlap 1 foot six-inches (1'-6").

3.4 CLEAN-UP

A. Perform cleaning during installation of work and upon completion of the work. Remove from site all debris and equipment. Repair all damage resulting from work of this Section.

PART 4 - MEASUREMENT AND PAYMENT

4.1 DOUBLE POST SPLIT RAIL FENCE

A. Measurement will be the number of linear feet measured along the top of the fence in place. Payment will be made at the contract unit price.

END OF SECTION

SECTION 02926
HYDROSEEDING

PART 1 - GENERAL

1.1 SCOPE

A. The work to be performed under this contract shall consist of providing all materials, labor, equipment, tools, and services necessary to complete hydroseeding in accordance with the specifications and drawings herein, but is not limited to, the following:

1. Fine grading
2. Hydroseeding
3. Maintenance
4. Guarantee

B. The contractor shall not subcontract any work required by this contract without the express written approval of the Contracting Officer (CO). If the CO approves the Contractor to subcontract any part of the work required under this contract, a copy of any such subcontract shall be provided to the CO.

1.2 EXAMINATION OF SITE AND DOCUMENTS

A. The following items of related work are specified and included in other Sections of the Specifications:

02100 SITE PREPARATION
02230 CLEARING AND STUMP GRINDING
02231 SELECTIVE TREE REMOVAL

B. Examine Drawing, “Scope of Work Map, Sagamore Hill National Historic Site” for designated areas to be hydroseeded, labeled areas #1, #2, #3 and #4 and all other Sections of the Specifications for requirements therein affecting the work of this trade.

C. All areas to be hydroseeded shall be inspected by the Contractor before starting work and any defects such as incorrect grading, etc., shall be reported to the Contracting Officer prior to beginning this work. The commencement of work by the Contractor shall indicate his/her acceptance of the areas to be seeded, and he/she shall assume full responsibility for the work of this Section.

1.3 DEFINITIONS

A. The following standards and definitions shall apply to the work of this Section.

1. AOAC: Association of Official Agricultural Chemists
2. USDA: United States Department of Agriculture, latest requirements for "USDA Textural Classification."

1.4 WORK AREA

The contractor shall confine his/her work, the storage of materials and equipment, the parking of vehicles, and all other operations in connection with this contract to the areas approved by the CO.

The public ways shall not be encumbered with any of the above or any unusual traffic situations created by reason of operations under this contract without special permits obtained by and at the expense of the contractor from cognizant local officials.

1.5 HEAVY EQUIPMENT:

Contractor shall not permit heavy equipment or vehicles or the stock piling of heavy materials in the desired root protection area. The root protection area is defined as an area equal to a radius of 1.5 feet for each inch of diameter at breast height (dbh) (ie: a 10 inch dbh tree will require protection 15 feet from the main trunk in all directions). Limited activity of this sort may take place with the expressed permission of the CO in areas determined to be safe from excessive damage, however, under no conditions shall this activity take place within the root protection area without mitigation to protect the tree trunk and roots. If construction activities are to take place within the desired root protection area, prior to any construction, tree trunks must be protected with chain link fence and the entire root protection area covered with double layered plywood, AlturnaMats® or similar, or a geotextile fabric and mulched with a minimum of 4-5 inches of wood chips. Pruning, fertilization, aeration, and irrigation may also be required if directed by the CO. Any damage resulting from such practices shall be made good to the satisfaction of and without additional expense to the Government.

1.6 RESPONSIBILITY REGARDING EXISTING PLANT MATERIAL AND OTHER LANDSCAPE FEATURES:

The Contractor shall preserve and protect all existing vegetation such as trees, shrubs, and grass on or adjacent to the site. Trees and shrubs that may be subject to construction activities within the root protection area shall be boxed and protected with vinyl, plastic mesh, or wood fencing material as directed by the CO. The Contractor shall be responsible for all unauthorized cutting or damage to trees and shrubs, including damage resulting from careless operation of equipment, stockpiling of materials, or tracking of grass and other surfaced areas by equipment. Such damaged areas or materials shall be restored, repaired, or replaced by the Contractor, as directed by the CO, at no expense to the Government and within 5 days prior to Initial Acceptance.

1.7 PATCHING OF PUBLIC SIDEWALKS, CURBS, GUTTERS, AND STREETS:

Contractor shall patch, repair, or replace portions of sidewalks, curbs, gutters, streets, manholes, and the like that are damaged in connection with work under this contract or as a result of operations thereunder. Materials and methods shall conform to the current standards for the area damaged, match existing on-site materials, and shall meet the approval of all cognizant officials and the CO. All damaged areas shall make smooth, satisfactory, and imperceptible transitions to existing adjacent work, and shall be performed without additional expense to the Government.

1.8 WARNING SIGNS:

The Contractor shall provide, erect, and maintain all necessary barricades, traffic cones, suitable and sufficient red lights, warning and danger signals and signs, and provide a sufficient number of watchmen and flagmen to insure the safe flow of traffic, protection of the work area, and safety of the public in accordance with "Work Zone Traffic Control, Standards and Guidelines", U.S. Department of Transportation, Federal Highway Administration. All open excavations shall be barricaded overnight and warning lights shall be clearly visible. All roadways must remain open to the public unless approved by the CO.

1.9 AIR AND WATER POLLUTION CONTROL:

The Contractor shall take all necessary measures to prevent soil erosion, air and water pollution by any material and/or equipment used during construction. The Contractor shall keep the site clean and free of trash and debris including, but not limited to, loose construction and materials such as; sand, cement, lime, wood pieces, building paper, etc. The Contractor shall place all trash and debris in approved containers. These containers shall be removed from the site daily to a location where it will not be possible for water to reach them, or for it to be dispersed in any way. No burning of trash or debris will be permitted on site. When excavation, obliterations, and demolitions are made, resultant loose earth and debris shall be immediately disposed of, off the site, unless otherwise specified.

1.10 CLEANUP AND RESTORATION:

The Contractor will be required to furnish all labor, materials, and equipment for daily cleanup and restoration of all disturbed areas or features which have been damaged during the course of work. If so directed, the Contractor shall be prepared to sweep and wash paved surfaces daily or as needed. The Contractor shall also be responsible for replacing all damaged turf areas to the satisfaction of the CO.

1.11 LAYOUT OF WORK:

Final grades and all planting locations shall be subject to adjustment and approval on-site with the concurrence of the CO or designated representative.

1.12 SCHEDULING AND COORDINATION

A. The contractor shall notify the Contracting Officer (CO) 48 hours prior to beginning any work on a delivery order. Work shall be performed between the hours of _____ a.m. and _____ p.m. Monday through Friday, legal holidays excluded, unless authorized in writing by the CO.

B. Work shall be scheduled and arranged so as not to interfere with normal activities of the park. Advanced notice will be given to the contractor if a conflict is expected. Any plant debris, personnel, or equipment that would interfere with an activity or event shall be removed prior to the activity.

C. Once work begins the contractor is expected to be on the job site each day in which weather conditions are favorable as determined by the COR or designated park representative.

D. All work within a designated area as specified on the delivery order shall be completed, inspected, and accepted in accordance with the procedures stated herein before beginning work in another area.

E. If, at any time, the CO determines that the work is unsatisfactory or being conducted in an unsafe manner, the contractor will be notified and shall immediately cease all work activities.

F. The time stated for completion shall include final cleanup of the premises.

G. All approvals will be in writing.

PART 2 - PRODUCTS

2.1 IMPORTED TOPSOIL

A. Any depressions greater than three (3) inches depth created during the tree clearing work should be brought to level grade with added topsoil. Topsoil shall be natural, surface soil, free of any man-made materials, in a friable condition and contain less than 3 percent subsoil. It shall match the existing parent soil in composition and texture. When tested, the topsoil shall have a pH range of 6.0 to 7.0. The topsoil shall be free of hardpan material, stones and clods larger than 1/2 inch in diameter, sticks, tree or shrub roots, debris, toxic substances (i.e. residual herbicides) and other material detrimental to plant growth. The area and the topsoil shall be free of plant or plant parts of undesirable plants such as, but not limited to, bermudagrass, nut sedge, mugwort, johnson grass, quack grass, Canada thistle or noxious weeds as set forth in the Federal Seed Act.

B. Contractor shall notify CO of location of all sources of the topsoil and furnish the CO a certified report from the agricultural experiment station or approved agricultural laboratory of an analysis performed not more than 60 days prior to the date of submission. The CO shall inspect a sample of the topsoil.

C. Agricultural limestone at not more than 5 pounds per cubic yard of topsoil may be used to adjust an acidic condition if necessary following soil tests and with approval of the CO. The limestone, if needed, shall be thoroughly mixed by volume.

D. Amended topsoil is not acceptable. Topsoil which has been synthesized by blending materials which individually do not meet the requirements of this specification will not be accepted even though the resulting blend meets the organic matter, mechanical analysis, pH and soluble salts requirements.

E. The CO must inspect and sample all topsoil at the source and at the time of delivery. These inspections will be made without cost to the Contractor.

F. Topsoil must not be delivered or handled in a frozen or muddy condition.

G. Shipment and delivery - All soil must be approved by the CO before delivery to site. Any material not meeting requirements of this specification will be rejected on or after delivery.

2.2 SOIL ADDITIVES

A. Agricultural limestone or other additives shall be used to counteract soil deficiencies as recommended by the soil test analysis and as directed by the CO. Nitrogen fertilizers shall not be used unless soil nutritional conditions are extremely poor, as may be the case on sand dunes or gravel pits.

B. Acidic soils greater than 5.5 pH shall be adjusted with ground limestone meeting the following specifications: Limestone shall be calcic or dolomitic agricultural ground limestone containing at least 85% of total calcium and magnesium carbonates with 40% passing a No. 100 sieve and 95% passing a No. 8 sieve.

2.3 SEED MIXTURES FOR HYDRODSEEDING

A. Seed mixtures shall be fresh, clean, new crop seed. Grass shall be of the previous year's crop and in no case shall weed seed content exceed 1% by weight. The seed shall be

furnished and delivered in the proportion specified below in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturer's Certificates of Compliance. Seed which has become wet, moldy, or otherwise damaged will not be acceptable.

B. Seed shall be labeled in accordance with USDA Rules and Regulations under the Federal Seed Act and applicable state seed laws. Seed shall be from the same or previous year's crop; each variety of seed shall have the following:

Percentage of germination	≥ 90%
Percentage of purity	≥ 85%
Percentage of weed seed	≤ 0.02%
Percentage of inert material	< 2%

Within thirty (30) days of award of the contract, the Contractor shall provide the CO with written certification from the supplier of the seed to ensure that the required plant species are available.

The seed mix should yield an open meadow plant community which is low maintenance, requiring no more than one to two mowings per year once the vegetation is established. The plant community should also be relatively resistant to invasion by non-native plant species so that there is not a constant need for spraying, pulling, or hand-weeding.

The following native grass species are found at Sagamore Hill and can be purchased commercially, which makes them desirable candidates for the seed mix, depending on the site conditions. However, other native grasses can be considered and some are listed after this section.

- *Agrostis perennans*, Perennial or autumn bentgrass
- *Andropogon gerardii*, Big bluestem: should comprise <3% in the mix unless a cultivar is selected that is proven shorter and less invasive.
- *Deschampsia flexuosa*, Wavy hairgrass
- *Dichanthelium clandestinum*, Deertongue
- *Elymus virginicus*, Virginia wildrye
- *Schizachyrium scoparium*, Little bluestem
- *Sorghastrum nutans*, Indiangrass: should comprise <3% in the mix unless a cultivar is selected that is proven shorter and less invasive.
- *Tridens flavus*, Purpletop: should comprise <3% in the mix unless a cultivar is selected that is proven shorter

Other grass species that are native to Long Island, but not found at Sagamore Hill, can be considered:

- *Festuca rubra* ssp. rubra, Red fescue: Only this subspecies is acceptable; other subspecies have been listed as invasive in New York. If ascertaining the subspecies cannot be done with certainty, this grass should not be included.
- *Koeleria macrantha* (*cristata*), Prairie junegrass
- *Sporobolus heterolepis*, Northern prairie dropseed

In all cases, taller and/or more aggressive species should be a smaller percentage of any seed mix.

Ten percent or less of the mix should contain forbs which are beneficial to native pollinators, insects, and other wildlife. Some native forbs to consider are:

- *Asclepius tuberosa*, Butterfly milkweed
- *Chamaecrista fasciculata*, Partridge pea: The seed for this must be inoculated with the correct Rhizobium species prior to planting.
- *Monarda fistulosa*, Wild bergamot: This species should be a very small percentage of the seed mix as it can become weedy.
- *Monarda punctata*, Spotted (dotted) beebalm
- *Rudbeckia* spp., Black or brown-eyed Susans: This species should comprise a very small percentage of the mix as certain species can get weedy.

C. Prior to the start of work, the Contractor shall furnish the CO with a certified statement as to the number of pounds of materials to be used per 1000 square feet at least thirty- (30) days prior to starting work.

2.4 HYDROMULCH

A. Hydromulch shall be 100% Virgin Wood Fiber Mulch with tackifier shall be for use in hydraulically planting grass seed, either alone or in combination with fertilizers and other approved additives, and shall consist of specially prepared wood fibers as manufactured from whole wood chips by Weyerhaeuser under the brand name of Silva-Fiber or approved equal. It shall contain a specified range of fiber lengths, with a minimum of 30% of the fibers averaging 0.15 inches or longer. All matter shall be non-toxic to plant or animal life.

1. The Virgin Wood Fiber Mulch shall contain no growth or germination-inhibiting factors, and be colored green with a non-toxic dye to facilitate visual metering during application. It shall disperse rapidly in water to form a homogenous slurry, and remain in such a state when agitated in the hydraulic mulching unit with any other specified and approved materials.
2. The Virgin Wood Fiber Mulch and any specified additives, when applied, shall form an absorptive mat, but not a growth inhibiting membrane, to allow moisture, natural or mechanical, to percolate into the underlying soil.
3. Fiber for mulch shall not be produced from recycled material such as sawdust, paper, cardboard or residue from pulp, paper or insulation factories.

B. Hydromulch Virgin Wood Fiber With Tackifier shall be applied at a rate of 1,200-1,500 pounds per acre on 2.5:1 slopes or flatter, or at 1,500-2,000 pounds per acre on slopes steeper than 2.5:1.

2.5 SUBMITTALS

A. Source for seed mixtures - Within 7 days of receiving a delivery order

B. Topsoil - 2 pounds submitted 14 days after award. A soil analysis certificate conducted not less than 60 days before submittal shall accompany the sample.

2.6 WATER

A. If a water supply is not available or not functioning on site the Contractor will be held responsible to furnish adequate supplies of water to meet the watering requirements specified, herein, at his own cost.

B. Any work injured or damaged due to the lack of water, or the use of too much water, shall

be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

C. Any water trucks or mechanical pumping devices shall be appropriately sized to not damage existing structures, historic earthworks, pathways, or other site improvements. Contractor likewise shall not cause damage to any lawns or planting during the watering operation. Any damage to the site or adjacent sites caused by the Contractor shall be repaired in kind at his cost.

PART 3 - EXECUTION

3.1 FINE GRADING

A. The Contractor shall prepare all areas to be hydroseeded with a York® rake or equivalent landscape rake and light tractor to remove from the surface all stones greater than two (2") inches and all debris or rubbish. Such material shall be removed from the site and legally disposed of.

B. All depressions caused by tree clearing work greater in depth than three (3) inches below existing grade shall be filled with approved imported topsoil. The surface shall be regraded until presenting a smooth and even finish corresponding to level, adjacent grades.

C. No subsoil or imported topsoil shall be handled in any way if it is in a wet or frozen condition.

D. After approved imported topsoil has been spread, it shall be carefully prepared by scarifying and hand raking. Any large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter, and stones over one inch in diameter shall be removed from the topsoil. Approved imported topsoil shall also be free of smaller stones in excessive quantities as determined by the CO.

E. Contractor shall obtain CO's approval of fine grading and bed preparation before doing any hydroseeding.

3.2 INCORPORATION OF ADDITIVES

A. For areas to be hydroseeded, the soil additives shall be included in the hydroseeding mix. The mix composition shall be submitted for written approval of the CO.

3.3 HYDROSEEDING

A. Limit of hydroseeding shall be as indicated as areas #1, #2, #3 and #4 on the Drawing "Scope of Work Map, Sagamore Hill National Historic Site." These areas shall be hydroseeded only after written approval of bed preparation by the CO. If areas are disturbed by the Contractor during his construction operations these areas shall be rehydroseeded by the Contractor at no increased cost, and shall be subject to the same quality control and guarantees as regular hydroseeding specified herein.

B. Hydroseeding shall be done only during the period from April 1 to May 15 or August 20 to September 30. The actual planting of seed shall be done, however, only during periods within this season, which are normal for such work as determined by weather conditions and

by accepted practice in this locality. At his option, and on his responsibility, the Contractor may plant seed under unseasonable conditions at no increased cost.

C. Hydroseed only when the bed is in a friable condition, not muddy or hard. Any area inadequately covered shall be retreated until a satisfactory stand of grass is established. This shall include mowing, refertilizing, reseeding and remulching as required.

D. Wood cellulose fiber mulch shall be added to the hydroseeding slurry at the rate of 1,200 to 1,500 pounds per acre for 2.5:1 slopes or flatter slopes and 1,500 to 2,000 pounds per acre for slopes steeper than 2.5:1.

E. Mobile sprayers shall be filled with water, virgin wood fiber mulch, and tackifier, in quantities so they may be sprayed in the specified proportions per unit of area to be seeded. The slurry shall be thoroughly mixed by means of positive agitation in the tank. The sprayer shall be equipped with a seeding nozzle of a proper design to insure even distribution of the hydromulch with tackifier over the area to be mulched and shall be operated by a person thoroughly familiar with this type of spraying operation.

F. When applying hydromulch the equipment to be utilized shall be approved by the CO before arriving on the site.

3.4 MAINTENANCE

A. Maintenance shall begin immediately after any area is hydroseeded and shall continue for one (1) year following the completion of all seeding work, and until final acceptance of the project.

B. Contractor shall mow entire hydroseeded grass areas and other areas identified on the Drawings for one (1) year after hydroseeding as detailed under 3.4.H below.

C. Maintenance shall include reseeding or rehydroseeding, mowing, watering, weeding, and fertilizing. Maintenance shall also include chemical treatments as required for fungus, weed, and/or pest control. Submit all proposed chemical treatments for approval of the CO prior to application.

D. During the maintenance period, any decline in the condition of seeded or hydroseeded areas shall require the Contractor to take immediate action to identify potential problems and to undertake corrective measures.

E. Watering of Hydroseeded Areas:

1. First Week: The Contractor shall provide all labor and arrange for all watering necessary to establish an acceptable lawn. In the absence of an adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least two inches.
2. Second and Subsequent Weeks: The Contractor shall water the lawn as required to maintain adequate moisture, in the upper two inches of soil, necessary for the promotion of deep root growth.
3. Watering shall be done in a manner which will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment. The Contractor shall furnish sufficient

watering equipment to apply one complete coverage to the hydroseeded areas in an eight (8) hour period.

F. Protection:

1. The Contractor is responsible for keeping people, animals, and vehicles off hydroseeded areas during the lawn establishment period until grasses are finally accepted.
2. The Contractor is responsible for protection immediately after hydroseeding and for maintaining protection until acceptance. If security is required it shall be the responsibility of the Contractor at no additional cost to the Government.

G. Rehydroseeding:

1. After the grass in hydroseeded areas has appeared, all areas and parts of areas which, in the opinion of the CO, fail to show a uniform stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas shall be rehydroseeded repeatedly until all areas are covered with a satisfactory growth of grass.
2. Rehydroseeding together with necessary grading, fertilizing, liming and trimming shall be done at the expense of the Contractor who shall spread the seed by a method approved by the CO and during an approved season.

H. Mowing: The Contractor shall keep lawn areas mowed until written acceptance by the CO by cutting to a height of three (3) inches when growth reaches four (4) inches or as directed by the CO. Mowing shall be performed by a mulching deck.

3.5 INITIAL ACCEPTANCE

Initial acceptance will be given by the CO after an inspection and verification of the work performed as defined in the contract specifications. Acceptance can be on partially completed work if approved by the CO.

3.6 GUARANTEE

The guarantee period shall begin after Initial Acceptance. During the guarantee period the contractor shall properly care for all hydroseeded grass areas as specified herein until final acceptance. The contractor is responsible for periodically inspecting the materials during the guarantee period and shall notify the Government in writing of any suspected problems.

3.7 FINAL ACCEPTANCE

Final Acceptance will be given at the end of the one (1) year maintenance period. At the time of final acceptance, hydroseeded grass areas shall be considered unacceptable if they fail to show a uniform stand of grass. The Contractor shall be responsible for a one time replacement only.

3.8 MEASUREMENT AND PAYMENT:

A. The Contractor shall include with all invoices for payment an acceptance report signed by the CO or designated park representative. Failure of the contractor to obtain signed acceptance report(s) will release the Government from any obligation to pay for services claimed but not documented by a signed acceptance report.

B. The amount to be paid will be based on the actual bid items completed and accepted. Quantities so measured will be paid for at the specified item bid price.

C. **The National Park Service reserves the right to conduct any testing or inspection it may deem advisable to assure that all work conforms to the specifications herein.**

END OF SECTION

Sagamore Hill National Historic Site

Class C Government Cost Estimate - December 2009

ITEMS AND ASSUMPTIONS	*QUANTITY*	*UNIT*	*UNIT COST*	*TOTAL COST*
Site Preparation				
Clear wooded areas to restore historic fields and meadows				
1) West Lawn				
cut and chip large trees and brush	0.87	acre	$14,050	$12,224
grind stumps 6"- 11" dbh	59	ea	$80	$4,720
grind stumps 12"- 17" dbh	28	ea	$100	$2,800
grind stumps 18"- 23" dbh	8	ea	$150	$1,200
grind stumps 24"- 35" dbh	2	ea	$200	$400
2) North field (area closest to parking lot)				
cut and chip large trees and brush	0.36	acre	$14,050	$5,058
3) North field				
cut and chip large trees and brush	0.94	acre	$14,050	$13,207
grind stumps 6"- 11" dbh	100	ea	$80	$8,000
grind stumps 12"- 17" dbh	23	ea	$100	$2,300
grind stumps 18"- 23" dbh	12	ea	$150	$1,800
grind stumps 24"- 35" dbh	4	ea	$200	$800
4) Southeast field (area north of composting locations and along fence line)				
cut and chip large trees and brush	0.94	acre	$14,050	$13,207
grind stumps 6"- 11" dbh	47	ea	$80	$3,760
grind stumps 12"- 17" dbh	25	ea	$100	$2,500
grind stumps 18"- 23" dbh	10	ea	$150	$1,500
grind stumps 24"- 35" dbh	5	ea	$200	$1,000
grind stumps 36"- 48" dbh	3	ea	$300	$900
clear vines 30-feet beyond limit of clearing	0.31	acre	$3,600	$1,116
remove wood pile	4.40	cu yd	$22	$95
Remove trees & grind stumps near Gray Cottage				
6"- 11" dbh	1	ea	$155	$155
12"- 17" dbh	5	ea	$300	$1,500
Remove declining trees & grind stumps near historic road trace				
6"- 11" dbh	6	ea	$155	$930
12"- 17" dbh	6	ea	$300	$1,800
			subtotal	**$80,971**
Planting				
York rake cleared areas				
1) West Lawn	0.87	acre	$2,352	$2,046
2) North field (area closest to parking lot)	0.36	acre	$2,352	$847
3) North field	0.94	acre	$2,352	$2,211
4) Southeast field (area north of composting locations and along fence line)	0.94	acre	$2,352	$2,211
Hydro-seed with Custom Native Grass and Forb Mix				
1) West Lawn	0.87	acre	$2,030	$1,766
2) North field (area closest to parking lot)	0.36	acre	$2,030	$731
3) North field	0.94	acre	$2,030	$1,908
4) Southeast field (area north of composting locations and along fence line)	0.94	acre	$2,030	$1,908
			subtotal	**$13,628**
Maintenance				
Mowing hydro-seeded areas for one year	1	allow	$3,000	$3,000
			subtotal	**$3,000**
Site Furnishings				
Double Post Split Rail Fence				
1) Between south and southeast field	260	lf	$31	$8,060
2) Across north field	300	lf	$31	$9,300
3) From Gray Cottage to North Pasture	133	lf	$31	$4,123
4) Between parking lot and garden site	177	lf	$31	$5,487
Replacement posts	50	ea	$34	$1,700
Replacement rails	75	ea	$45	$3,375
			subtotal	**$32,045**
			TOTAL	**$129,644**

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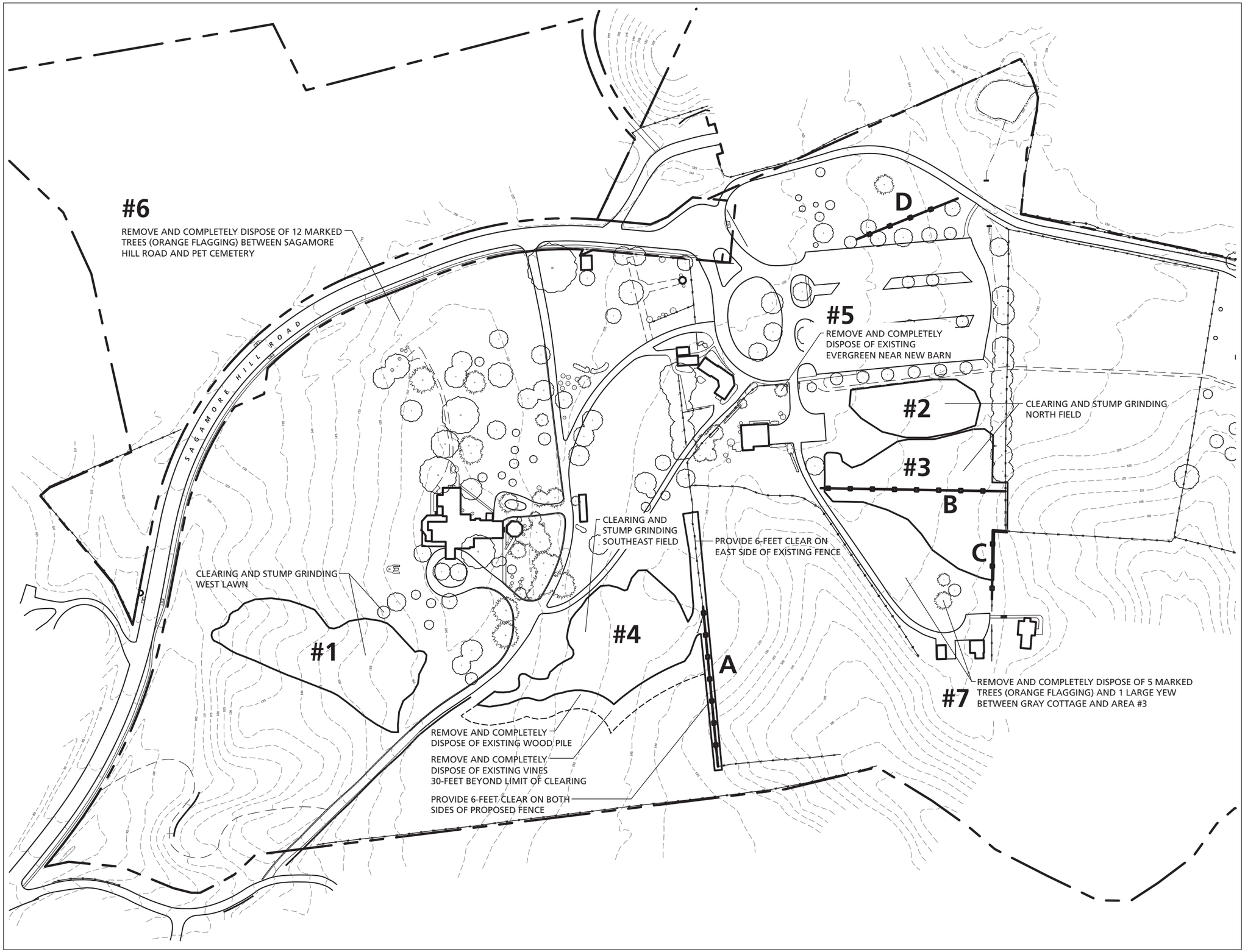
Sagamore Hill National Historic Site

Oyster Bay, New York

Scope of Work Map



National Park Service

Olmsted Center for Landscape Preservation

www.nps.gov/oclp

SOURCES

1. Boundary Survey for Sagamore Hill National Historic Site, 2006
2. Town of Oyster Bay, Nassau County, Color Ortho Imagery, Captured 2007
3. Existing Conditions Plans for Historic Plant Inventory, 1995
4. Landscape Rehabilitation Plan, 1998
5. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

LEGEND

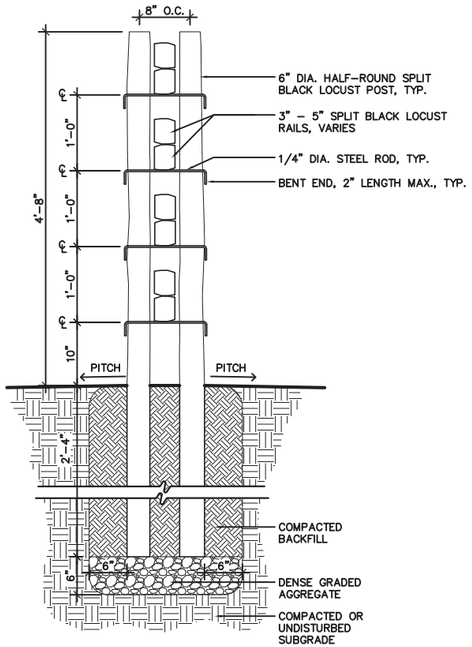
- Property Line
- Limit of Clearing
- Limit of Vine Removal
- Proposed Fence Installation

NOTES

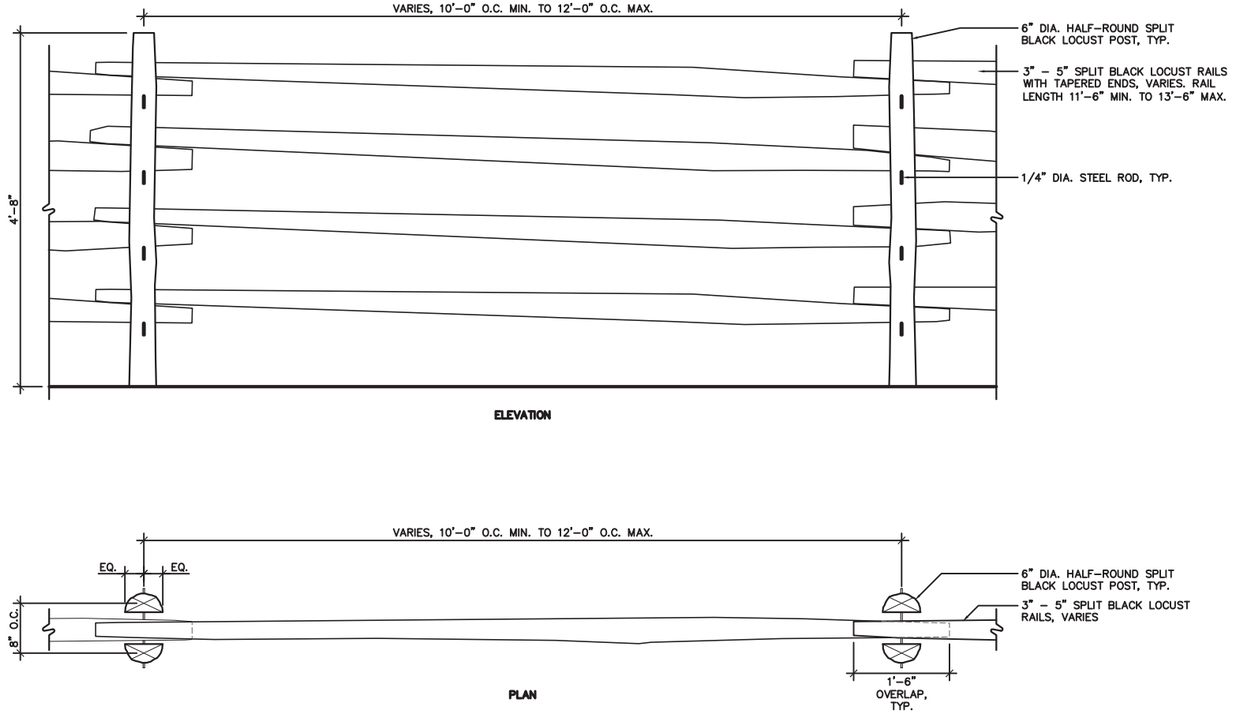
1. Contour Interval = 5′-0″

0′ 37.5′ 75′ 150′

Drawing 1



2 DOUBLE POST INSTALLATION
SCALE: 1/2"=1'–0"



1 DOUBLE POST SPLIT RAIL FENCE
SCALE: 1/2"=1'–0"

Sagamore Hill National Historic Site

Oyster Bay, New York

Fence Details

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Field Inventory, Olmsted Center for Landscape Preservation, March-April 2009

DRAWN BY

Tim Layton, AutoCAD 2002, Illustrator CS3, 2009

NOTES

1. New fence sections shall be installed at 10'-0" on center. At locations where the 10'-0" on center spacing does not work out evenly, one section or more shall be increased to greater than 10'-0" on center. The rails shall be 11'-6" long for the 10'-0" on center spacing and maintain a minimum of 6" of overlap for longer sections.

2. In accordance with the documents, the Contractor shall provide 50 posts and 75 rails for the park to stockpile for future fence replacement work. Twenty (20) rails shall be at no less than 11'-6" long and fifty-five (55) rails shall be at no less than 13'-6" long. Fence posts and rails shall be delivered to a location approved by the Contracting Officer. The material shall be neatly stacked on skids and not come into direct contact with the ground.

SCALE

As Noted

Drawing 2

National Park Service
U.S. Department of the Interior

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