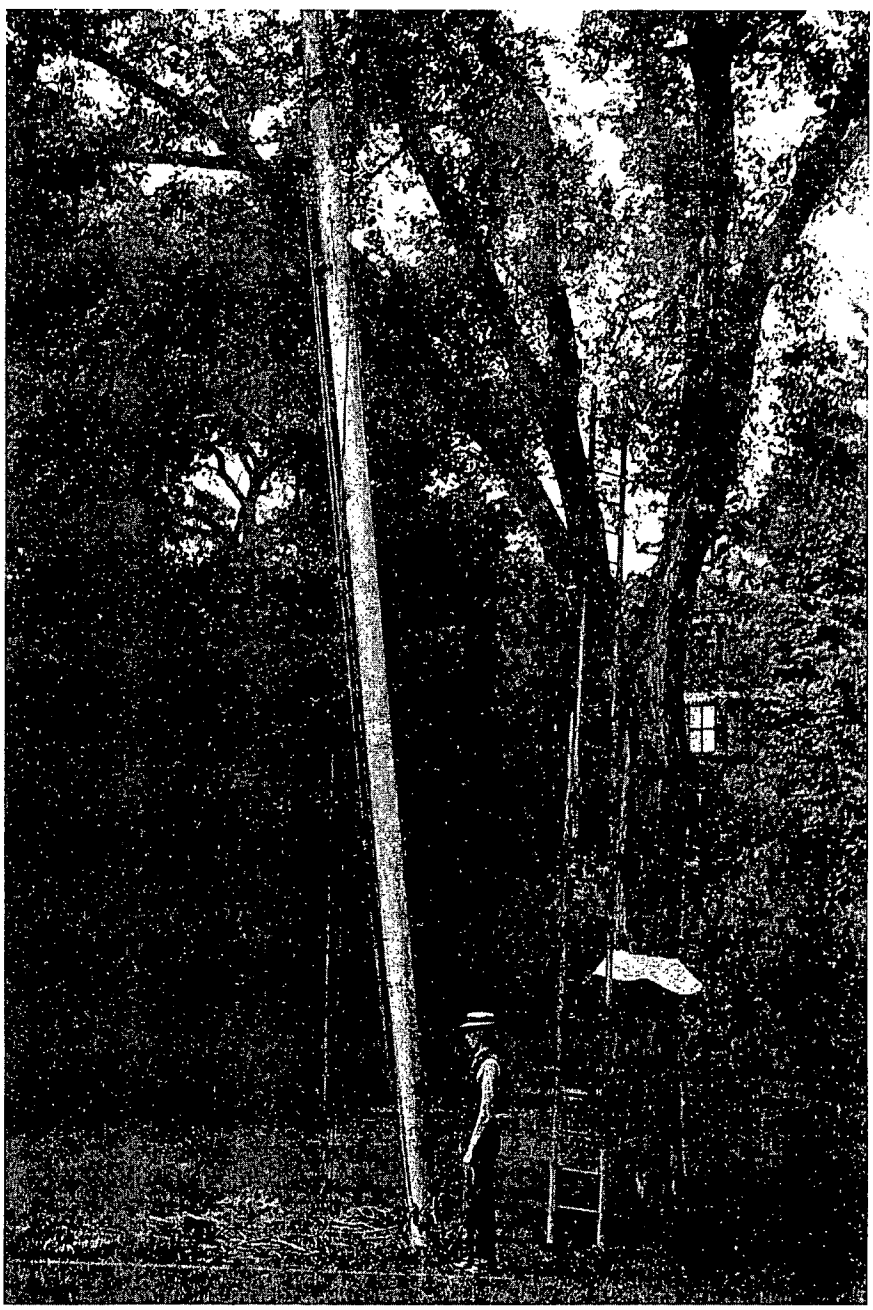
GUIDE TO DEVELOPING A
PRESERVATION MAINTENANCE PLAN
FOR A HISTORIC LANDSCAPE



Olmsted Center for
Landscape Preservation

National Park Service

U.S. Department of
the Interior

GUIDE TO DEVELOPING A
PRESERVATION MAINTENANCE PLAN
FOR A HISTORIC LANDSCAPE

by Margaret Coffin and Regina M. Bellavia

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The Olmsted Center for Landscape Preservation promotes the stewardship of significant landscapes through research, planning and sustainable preservation maintenance. Based at the Frederick Law Olmsted National Historic Site, the center perpetuates the tradition of the Olmsted firms and Frederick Law Olmsted Sr.'s lifelong commitment to people, parks and public spaces.

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Cover photo: Historic photograph, circa 1912, of tree work on the American elm at "Fairsted," the home and office of Frederick Law Olmsted and later, office of the Olmsted Brothers landscape architecture firm. The property is now managed by the National Park Service (Courtesy of Frederick Law Olmsted National Historic Site archives).

CONTENTS

FOREWORD v

ACKNOWLEDGEMENTS vii

INTRODUCTION 1

DEVELOPING A SITE-SPECIFIC PRESERVATION MAINTENANCE PLAN

1. Defining Objectives 7
2. Areas and Categories of Features 17
3. Inventory of Landscape Features 21
4A. Field Inspection 25
4B. Summary of Work Needed 29
5A. Feature Data 33
5B. Record Keeping 37
6. Seasonal Calendar 41

CONCLUSION 45

APPENDICES

A. Terminology and Related Programs 51
B. Inspection Criteria 55
C. References 57
D. Database Structure 60
E. Feature Data Example 61
F. Blank Forms 62

ILLUSTRATIONS

1. Tree pruning at Statue of Liberty National Monument 1
2. Etching of Branchville Farm, Weir Farm National Historic Site 3
3. Discussing landscape preservation maintenance goals for Frederick Law Olmsted National Historic Site 7
4. Landscape Preservation Maintenance vs. Standard Landscape Maintenance 10
5. The formal garden at Adams National Historic Site 11
6. Hedge trimming at Adams National Historic Site 11
7. Preservation height and width of boxwood hedges 11
8. The Landscape Preservation Process 12
9. Diagram of maintenance operations and the preservation planning process 13
10. Historic photograph of Fort Hancock, Gateway National Recreation Area 15
11. Contemporary photograph of Fort Hancock 15
12. Map of Fort Hancock 15
13. The hollow at Frederick Law Olmsted National Historic Site 17
14. Areas and categories of features 18
15. American elm at Frederick Law Olmsted National Historic Site 21
16. Inventory of landscape features 22
17. Inspection of the courtyard at Frederick Law Olmsted National Historic Site 25
18. Field Inspection format for specimen trees 26
19. Sidewalk repair at Frederick Law Olmsted National Historic Site 29
20. Summary and map of work needed 30
21. Repair of spruce pole arch at Frederick Law Olmsted National Historic Site 33
22. Feature data format for fences 34
23. Historic sketch of the spruce pole arch 37
24. Record keeping sheet for spruce pole gate, arch and fence 38
25. Pruning American elm at Frederick Law Olmsted National Historic Site 41
26. Seasonal calendar format 42
27. Preservation Maintenance Plan notebook 45
28. Resetting steps at Minuteman National Historical Park 49

FOREWORD

In response to an overwhelming interest in the first printing of the *Guide to Developing a Preservation Maintenance Plan for a Historic Landscape* the Olmsted Center for Landscape Preservation has prepared this second edition to help meet the needs of the preservation community.

Since the release of the first edition in 1995, the principles and practices of maintaining historic landscapes have continued to be developed and refined. The revisions and additions to this edition reflect recommendations of many in the preservation field who have carefully reviewed and provided thoughtful comments on the original publication. As a result, this edition provides updated and practical information for those undertaking the preparation of a landscape preservation maintenance plan.

It is hoped that you will continue to provide insightful comments and suggestions on this publication. In this way, the Olmsted Center will keep this Guide current and applicable to the field.

Charles Pepper
Acting Director
Olmsted Center for Landscape Preservation
January 1999

FOREWORD TO FIRST EDITION

In 1872 Frederick Law Olmsted described, in a letter to Henry G. Stebbins, the importance of landscape maintenance:

> The character of the park, its beauty and fitness for the purposes it has been designed to serve; in one word its value to the public, is to be far more affected by the work... done upon it than by all that is to be done upon accurate drawings....
>
> For example, the... seeding, mowing, rolling and weeding of turf; the spading, forking, raking... the constant repairs, ordinary and extraordinary, and... the thinning and pruning of trees and shrubs; the replacing or reinforcement of decaying wood work; the painting of iron work...

Managers of historic landscapes recognize, as Olmsted did, the important role of maintenance in preserving the character of a landscape. As the field of preservation has developed, the complexity and challenges of maintaining a historic landscape have also become increasingly clear. In our experience working with landscape managers, development of a historic landscape maintenance plan has proved to be an effective tool for integrating preservation objectives into landscape maintenance operations, and for planning and documenting work. In order to make this tool more readily available to other managers, we have developed this Guide.

Working collaboratively with maintenance managers, gardeners, landscape architects, and preservation specialists, Margaret Coffin has developed a clear step-by-step procedure to systematically describe preservation maintenance. Colleagues in the National Park Service and other organizations implemented earlier drafts of this guide and provided invaluable feedback. As you use the Guide, I encourage you to contact the Olmsted Center for Landscape Preservation with your thoughts and comments. With your assistance, the staff at the Olmsted Center can continue to improve this Guide as part of our efforts to provide practical guidance on the stewardship of significant historic landscapes.

Charles Pepper
Manager, Preservation Maintenance Branch
Olmsted Center for Landscape Preservation
June 1995

ACKNOWLEDGEMENTS

Many people were instrumental in the development of this project. The document was prepared with guidance from Nora Mitchell, Charles Pepper, Lauren Meier, and Barbara Harty at the Olmsted Center for Landscape Preservation. Robert Page and Charles Birnbaum from the Washington Office of the National Park Service offered guidance with respect to nationwide applicability. Cathy Gilbert and Marsha Tolon at the Pacific West Division of Cultural Resources Management, offered insights from their work on a comparable guide. Arthur Dutil from Chesterwood, a National Trust property, Steve McMahon from Naumkeag, a property of The Trustees of Reservations, and Peter Del Tredici from the Arnold Arboretum of Harvard University, offered their perspectives on the applicability of this system to other cultural landscapes. Rolf Diamant, and Lee Farrow Cook, at the Frederick Law Olmsted National Historic Site provided many helpful review comments. Catherine Evans and Eliot Foulds at the Olmsted Center, and Phyllis Andersen and Kristin Claeys at the Arnold Arboretum, also contributed to the Guide. Special thanks for the cooperation and feedback from the staff at parks where Preservation Maintenance Plans have been developed, including: Ed Bacigalupo, Bob Galvin, Lenny Giannetti, Pat Laffey and George Ryan at Olmsted NHS; Gene Gabriel, Bob MacKenzie, Mona Phelps and Wayne Rivard at Adams NHS; Tom O'Neil at Boston NHP; John Gilbert, James Haaf, Bill Noble, and Peter Stone at Saint-Gaudens NHS; Tim Thornhill and Dave Fernald at Salem Maritime NHS; Joe Finan at Saratoga NHP; Keith Laplante at Springfield Armory NHS; Al Farrugio at the Statue of Liberty NM; Bob Fox at Weir Farm NHS; and John Donahue at George Washington Birthplace NM.

Figure 1: Tree Pruning at Statue of Liberty National Monument, 1995 (Courtesy of Charles Pepper).

Figure 2:
Mahonri M. Young. Joe Knoche Builds a Stone Wall I. *Courtesy Museum of Art, Brigham Young University, all rights reserved. Etching done at farm in Branchville, now Weir Farm National Historic Site.*

Throughout the country, special places commemorate significant events, activities, and people in our nation's history. These places are diverse and include parks and parkways, gardens, homes of famous people, battlefields, rural settlements, and early industrial centers. Every year, millions of people visit these places to learn more about our cultural heritage. Much of this learning experience is shaped by the landscape, which reflects an earlier time. These *historic landscapes* create lasting impressions.[1] Yet, without ongoing maintenance, historic landscapes quickly lose their character and no longer educate future generations about their heritage.

Historic landscapes are composed of many features that contribute to their overall character and significance. Each feature is shaped by both the natural environment and a history of maintenance. The height of a hedge, the flowers within a perennial garden, the condition of a fence, the repair of a stone wall, and the width and surface of a carriage road, are all examples of details in the landscape that are influenced by maintenance practices.

The maintenance staff responsible for the long-term care of a historic landscape are faced with many challenges. Some landscape features, in particular vegetation, change dramatically over time, while other features, such as walls and paths, may gradually erode or disappear. The maintenance staff must address issues of decline, wear, decay and damage in order to perpetuate the character of the place.

This document offers a framework for a maintenance operations plan that focuses on preserving the character of a historic landscape. Throughout the document, the term *preservation maintenance* describes the practice of monitoring change, controlling growth, replacing in-kind, and minimizing disturbance in the landscape to ensure that features, such as vegetation, paths, walls, and other landscape furnishings, are not lost and the character of a place is not compromised.[2] The guiding philosophy is that all existing landscape features should be preserved until the history of the landscape is fully researched and documented.

---

[1] In this document, historic landscapes include historic sites, historic designed landscapes, and historic vernacular landscapes. For more detailed definitions, refer to Appendix A and the *National Park Service Cultural Resource Management Guidelines, NPS-28,* release No. 4, July 1994, chapter 7.

[2] Preservation maintenance is carried out to stabilize or protect significant or potentially significant resources before, during and after a treatment decision is made. A treatment decision is based on historical research, inventory and documentation of existing conditions, site analysis and evaluation of integrity and significance. Four treatment alternatives, preservation, rehabilitation, restoration and reconstruction, are defined in The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1992).

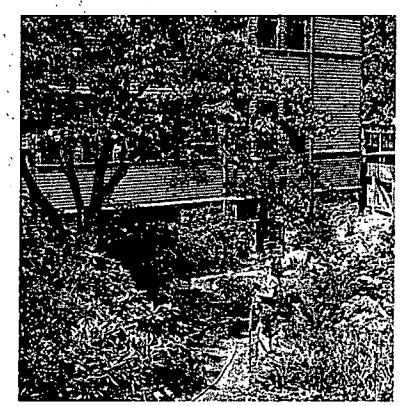
The format of this Guide is designed to provide an integrated approach to the many aspects of preservation maintenance planning, including detailed inventory and mapping, field inspections, record keeping, and work procedures that consider the historic character of the landscape. Information is gathered from a variety of sources and consolidated into a Preservation Maintenance Plan in a three-ring binder with tabs for each section. This binder can be added to periodically, thereby accumulating the technical and practical information necessary for protecting a valuable historic landscape.

This Guide was developed by a team of landscape professionals, including maintenance managers and historic preservationists. Examples are used from the Frederick Law Olmsted National Historic Site (Olmsted NHS), which was the prototype park for the Guide. Many additional examples and photographs are included from other historic properties managed by the National Park Service (NPS) throughout the northeast. At each property, the staff have adapted the format to meet their site-specific needs.

DEVELOPING A SITE-SPECIFIC PRESERVATION MAINTENANCE PLAN

A complete Preservation Maintenance Plan contains six sections. It may be best to start with one or two landscape features that are particularly significant and work through all sections. A summary of the six sections follows.

1. Defining Objectives outlines issues to address when determining how this Preservation Maintenance Plan will support the existing maintenance program.



2. Areas and Categories of Features describes a method of delineating areas and aggregating similar features within a landscape to help describe the composition of the landscape.

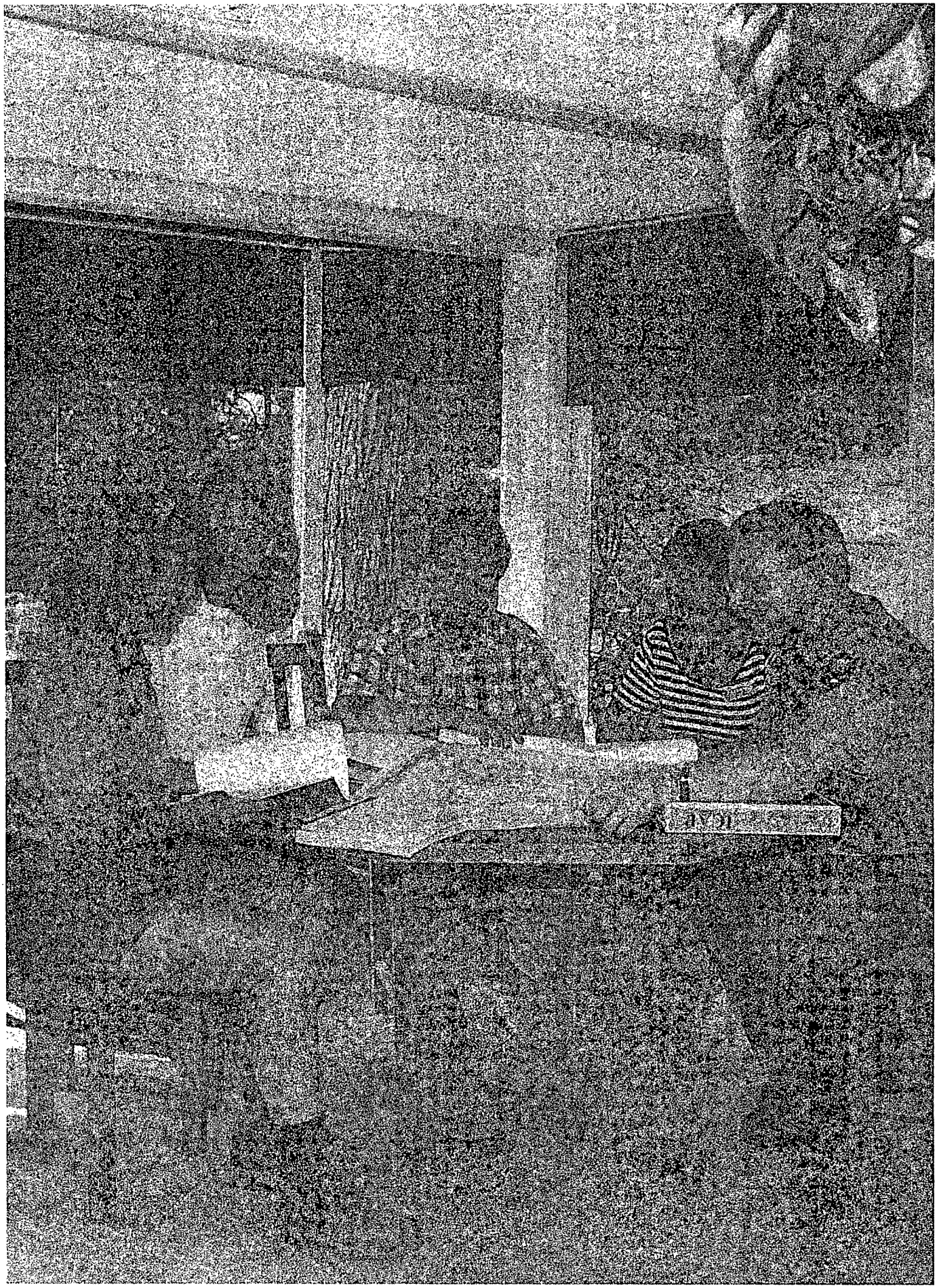
3. Inventory of Landscape Features provides a format for an inventory of all landscape features that are being managed, including their name, origin, age and size.

4. Field Inspection and Summary of Work Needed outlines a procedure for conducting field inspections for different types of landscape features and describing field work needed.

5. Feature Data and Record Keeping describes information related to the maintenance of each type of feature including its historical significance, preservation practices, potential pest or disease problems, and helpful references. Record keeping provides a format for notes related to individual features such as propagation, replacement, damage or other major changes in the landscape.

6. Seasonal Calendar describes how to compile preservation practices into an annual calendar that lists the best time to look for specific problems and carry out work needed.

Figure 3: Discussing landscape preservation maintenance goals for Frederick Law Olmsted National Historic Site, 1995 (Courtesy of H. Eliot Foulds).



DEFINING OBJECTIVES

To ensure that time is well spent in developing a Preservation Maintenance Plan, it is important to have clearly defined objectives for its purpose, scope and level of detail. Once these objectives are defined, they may be summarized in a written introduction for the Plan. Below are several considerations.

A. Preparing and using a Preservation Maintenance Plan

It is essential to determine how a Preservation Maintenance Plan will enhance current maintenance operations. The scope of information and the level of detail required is largely determined by the people who will be using and be involved in the development of the plan. One strategy is to create a work group that includes maintenance staff and historic landscape preservation specialists with a designated leader. It is imperative that maintenance staff play a major role in the development of the plan because they will ultimately be referring to it, using it, adding information, and recording work completed. Other professionals likely to be involved in the development of the plan could include site managers, maintenance supervisors, a landscape historian, landscape architect, horticulturist, carpenter, engineer, mason, archeologist, and ecologist depending on the features at the property. A diverse group ensures that all concerns, ranging from field maintenance techniques to historic character, are addressed.

Once information is assembled into a plan, all staff should become familiar with its contents and encouraged to add information, particularly in the section that contains feature data and record keeping. These records will be used in the future by maintenance managers and historians to understand how the landscape and its features have changed over time.

B. Preservation maintenance versus standard landscape maintenance

A site manager typically sets landscape maintenance priorities based on the goals and functions of a property. For example, maintenance priorities at a corporate headquarters may call for a manicured landscape that welcomes clients, whereas the maintenance priorities at a historic site may focus on the preservation of historic materials and character of the landscape. The highest priority for preservation maintenance is to preserve and protect historic authenticity while standard practices focus on aesthetics, cost effectiveness, and contemporary techniques and equipment *(Figure 4)*.

For preservation maintenance operations to be effective, daily maintenance operations may require precise instructions, such as appropriate height to trim a hedge *(Figures 5, 6, 7)*. Long-term preservation maintenance projects require thoughtful planning and documentation, such as retaining a historically significant view, resurfacing roads or walks with a particular aggregate, perpetuating specimen plants by propagation, or preserving the appearance of a meadow by managing certain grass species. Finally, and most importantly, all preservation maintenance practices must ensure that historic features and potentially significant features and materials are not inadvertently altered or lost.

C. Maintenance operations and the preservation planning process for a historic landscape

The process of acquiring, stabilizing and treating a historic landscape is referred to as the landscape preservation process. The process consists of two major facets of work, preservation maintenance and preservation planning. Preservation maintenance is the act of caring for a specific feature, area or landscape by protecting, stabilizing, and repairing it on a routine or

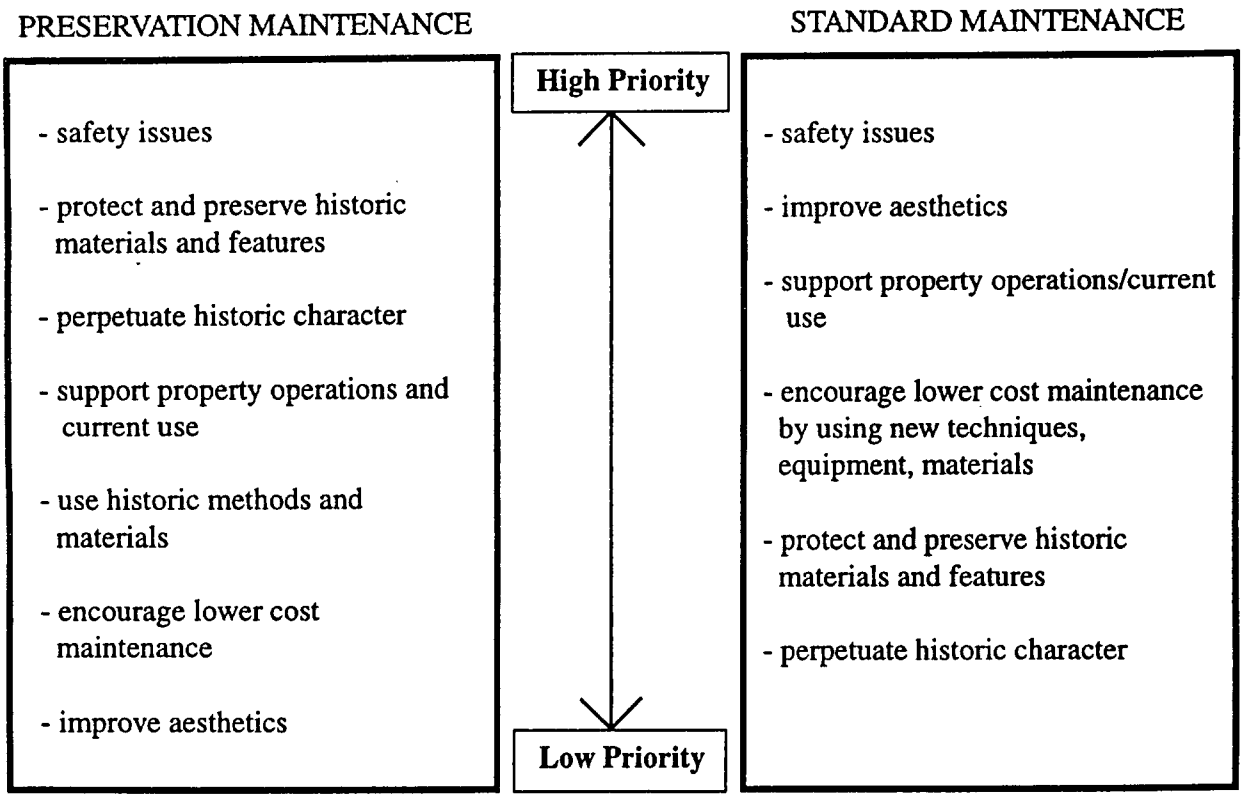


Figure 4: Priorities for landscape preservation maintenance versus standard landscape maintenance.

cyclic basis so that the historic character is not compromised or lost. Preservation planning is the process of researching, documenting, and deciding how to treat the landscape.[3] Preservation maintenance operations begin upon acquisition of a property and continue forever. Preservation planning on the other hand, often times does not begin for several years after acquisition and often ends after treatment is implemented and recorded. *Figure 8* graphically depicts the level of effort for a landscape preservation program over time from the time a property is acquired.

To effectively care for a historic property, the maintenance staff needs to know the signficance of each landscape feature and how it should be maintained. However, in many cases the history and significance of each feature in the landscape is not fully understood. Therefore the focus of maintenance operations shifts depending on what stage of the planning process has been initiated and completed. Three stages of the landscape preservation process are described below and illustrated in *Figure 9.*

During the first stage, prior to research on the landscape, a Preservation Maintenance Plan should be prepared which focuses on the protection and stabilization of landscape features to provide temporary, often emergency measures to halt deterioration or loss without altering the site's existing character. *All* landscape features should be treated as significant and

[3] For a description of the preservation planning process, refer to *Preservation Brief #36, Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes,* prepared by C. Birnbaum. US DOI, NPS, Cultural Resources, Preservation Assistance Division, 9/1994.

historic until research and planning efforts are undertaken to prove otherwise. This will ensure that potentially historic features are not removed or altered while planning is ongoing. For example, maintenance may involve the rejuvenation rather than removal of an old hedge or replacement in-kind of a tree that has become a safety concern. Protection and stabilization may continue for several years.

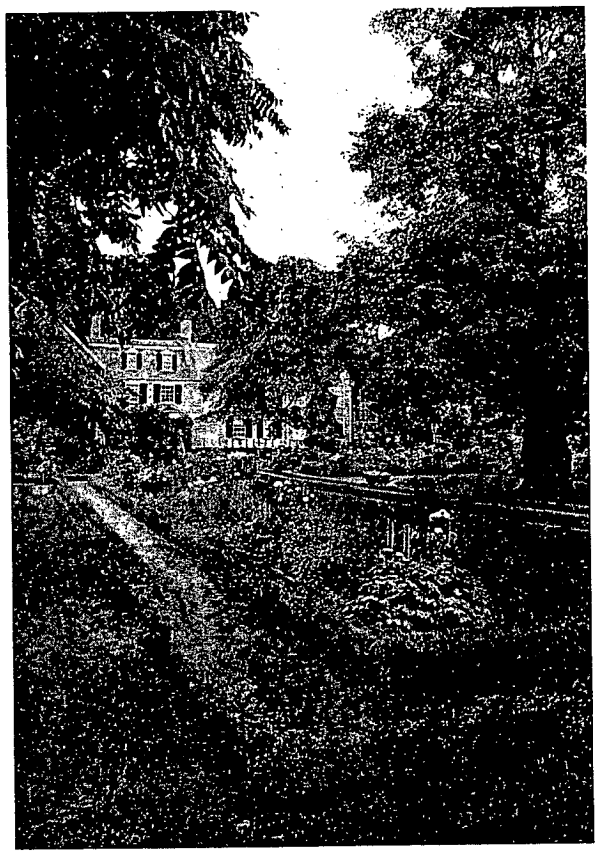


Figure 5: The formal garden at Adams National Historic Site in Quincy, Massachusetts, 1993 (Courtesy of Kristin Baker).

Figure 6: Hedge trimming in the formal garden, July 1995.

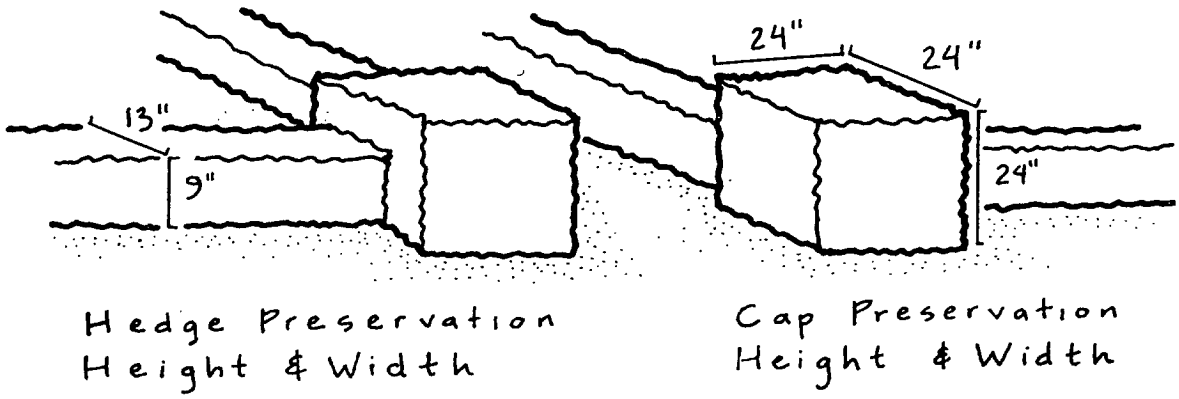


Figure 7: Diagram indicating the preservation height and width of the boxwood hedges within the formal garden.

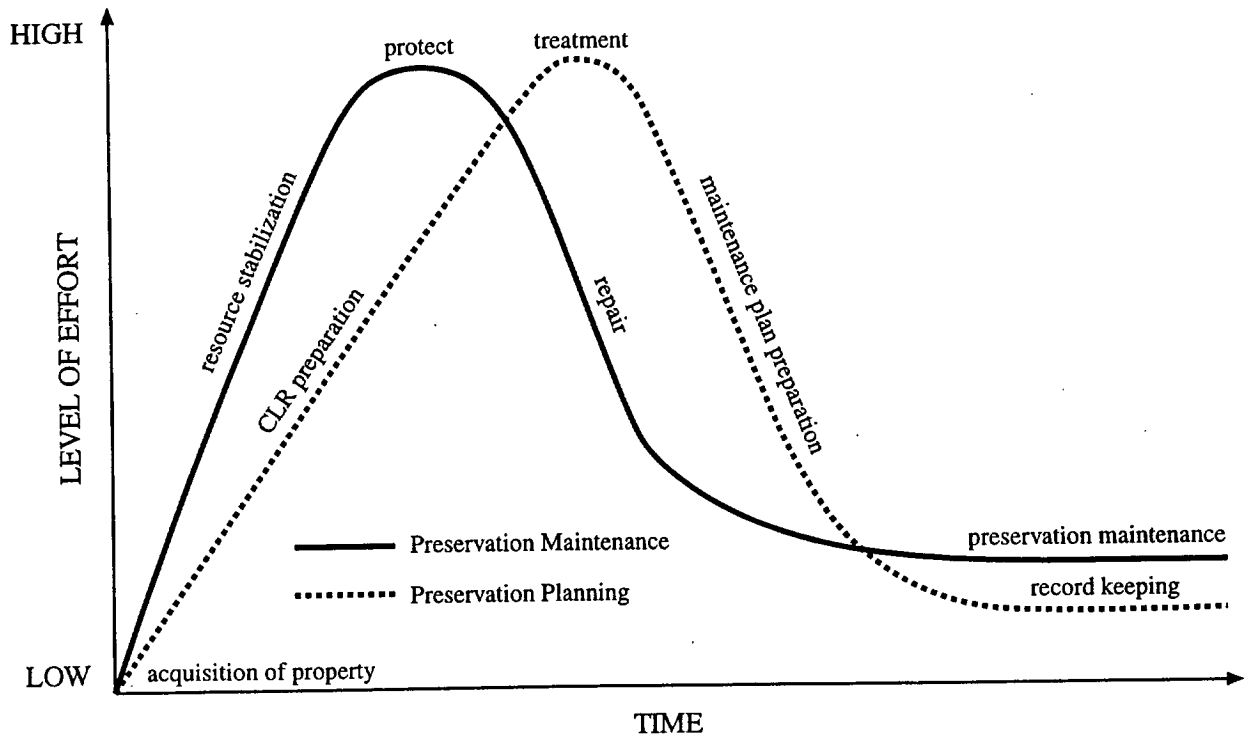


Figure 8: The Landscape Preservation Process

In the second stage, during the preservation planning process, maintenance operations continue to focus on minimizing disturbance, and protecting and stabilizing deteriorated features. A Cultural Landscape Report (CLR) is prepared containing an in-depth history of the landscape, historic and existing conditions base maps, site analysis, and evaluation of the landscapes' significance and integrity.[4] Throughout this process, overlap is likely between maintenance operations and research. For example, archaeologists may find evidence of an old drainage system that, when unclogged, alleviates flooding of a portion of the property. Or, maintenance staff may discover evidence of an old path or garden. The second stage also involves a treatment decision on whether to preserve, rehabilitate, restore, or reconstruct the landscape. One of the many factors which determines treatment is whether or not funding and staffing resources are available to sustain it. For example, it may not be possible to restore an extensive historic perennial garden if, during the period of signficance there were thirty gardeners to maintain it, whereas now there is only one.

In the third stage, after treatment is implemented, the Preservation Maintenance Plan may be revised to incorporate new or removed landscape features. The Plan would now include information about the history and origin of features, long-term preservation objectives, and maintenance procedures that will ensure the treatment goals are achieved. Throughout all stages of the preservation process, thorough record keeping within the preservation maintenance plan ensures that important information regarding changes to the landscape are noted for future reference.

---

[4] For a definition of a Cultural Landscape Report, treatment, and treatment options including preservation, rehabilitation, restoration, and reconstruction, refer to Appendix A. A more detailed explanation of a Cultural Landscape Report and its components can be found in *Preservation Brief #36, NPS-28,* or *A Guide to Cultural Landscape Reports: Contents, Process and Techniques,* prepared by Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan. US DOI, NPS, Cultural Resources, Park Historic Structures and Cultural Landscapes Program, 1998.

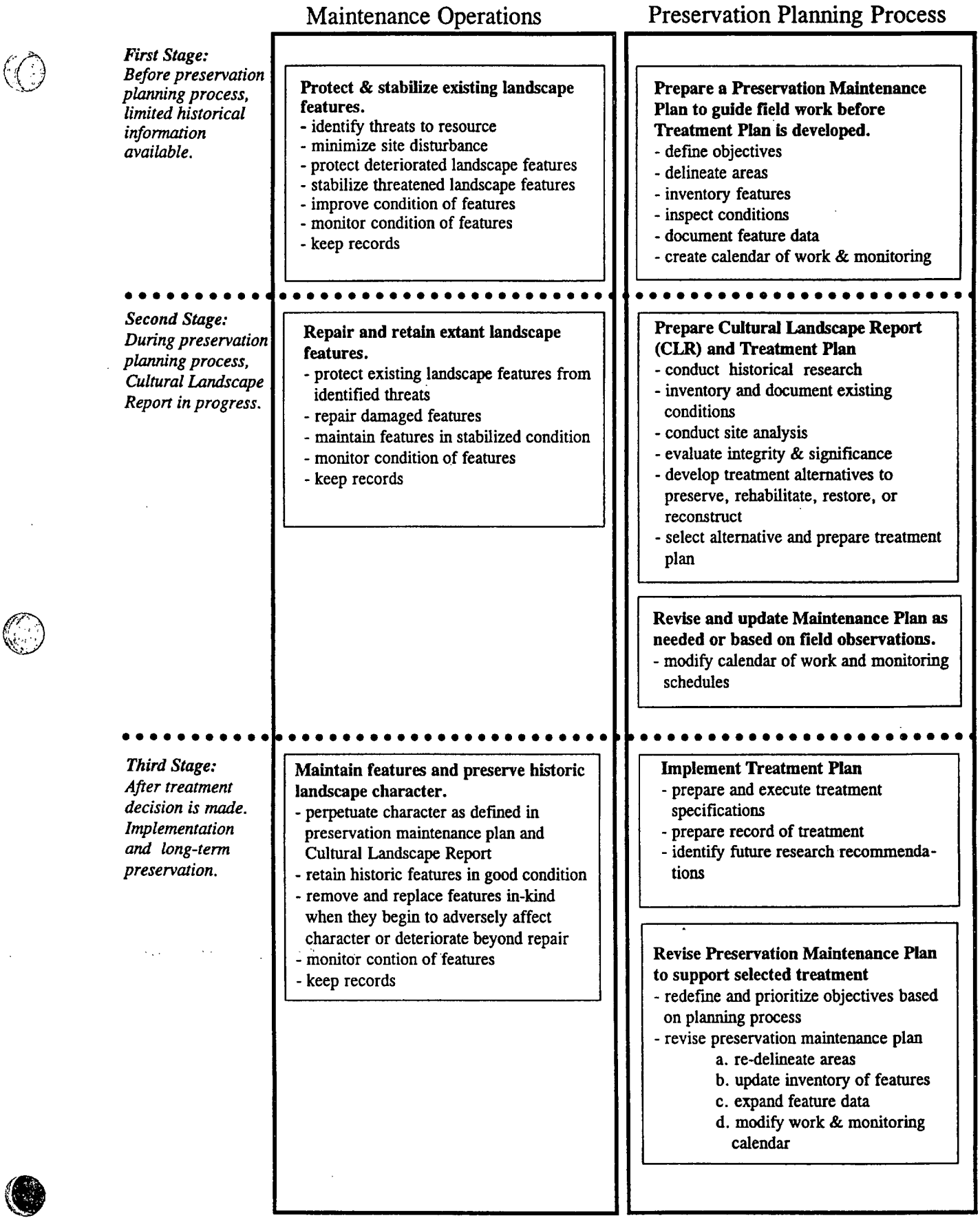


Figure 9: Diagram of the three stages of maintenance operations in relationship to the preservation planning process.

D. Documentation of maintenance operations

Information about the landscape may be collected and stored manually or through a computer-operated database program. This Guide offers a manual approach for several reasons: it is easy to initiate with a low budget; the three-ring binder that is produced is accessible to all staff; and supplemental information, such as photographs and relevant publications, can always be added where appropriate. However, over time there are many advantages to a computer-operated database program: information can be inserted quickly, sorted, and various reports can be generated to help direct daily maintenance operations; multiple copies can be made and installed into several work stations; and large amounts of information can be stored in a small space.

One approach for developing a Preservation Maintenance Plan is to start documenting maintenance operations manually while information is being collected in the field. Once all staff have acquired training on how to access the information through the computer, a gradual transition can be made to a computer-operated program. Within the National Park Service, two database programs are available to maintenance staff to facilitate operations, the *Inventory and Condition Assessment Program* (ICAP) and *Maintenance Management Program* (MM).[5] The manual forms presented in this Guide were designed to feed directly into these programs. Maintenance managers of non-NPS properties are likely to find an increasing number of well-suited commercial database programs. A generic database structure for evaluating the condition of trees was developed as an example and is located in Appendix D. If a computer application is used, there are still many supplemental materials that need to be gathered and organized in an accessible format. Thus it is recommended that a manual notebook for the landscape be developed to complement the computer-stored information.

E. Setting priorities for developing a Preservation Maintenance Plan for large landscapes

The final consideration is the size and composition of the landscape. For a small landscape, such as the 1.7-acre Olmsted National Historic Site, the maintenance program may be comprehensive, identifying individual plants, walls and paths as features. For larger landscapes, such as the 1,650-acre Sandy Hook Unit of the Gateway National Recreation Area, the maintenance program is likely to address management within smaller parcels, like the 40-acre historic core of Fort Hancock *(Figures 10, 11, & 12)*. Often times the landscape is too large to complete a comprehensive inventory and condition assessment of all landscape feature types at any one time. In these cases, feature types can be prioritized by determining those that are important to the historic character of the site. These features would be addressed first in the Preservation Maintenance Plan and as time and funding allows, other features could be added to the Plan later. For example, the views from a historic building may be important to the integrity of a site and therefore maintaining these views may become a priority for landscape maintenance operations. Or, managers may divide the property into general areas and focus on the most intensively managed portions of the property, such as the grounds immediately surrounding a historic home. The next section describes in greater detail how to divide the landscape into areas.

[5] For more information on ICAP and MM, refer to Appendix A.

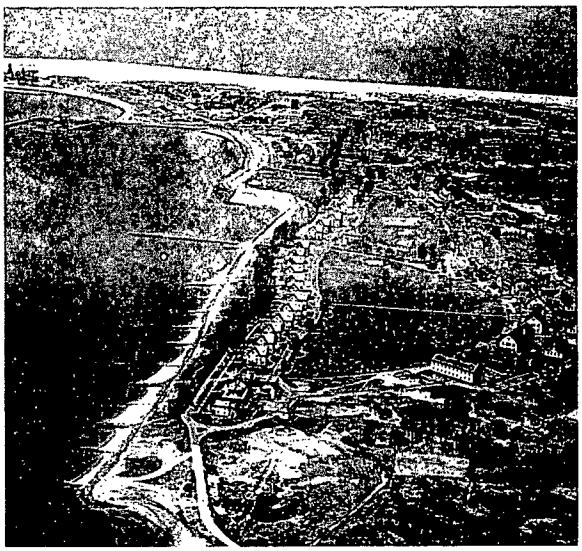


Figure 10: Historic photograph of Fort Hancock in New Jersey, circa 1925 (courtesy of Gateway National Recreation Area Archives).

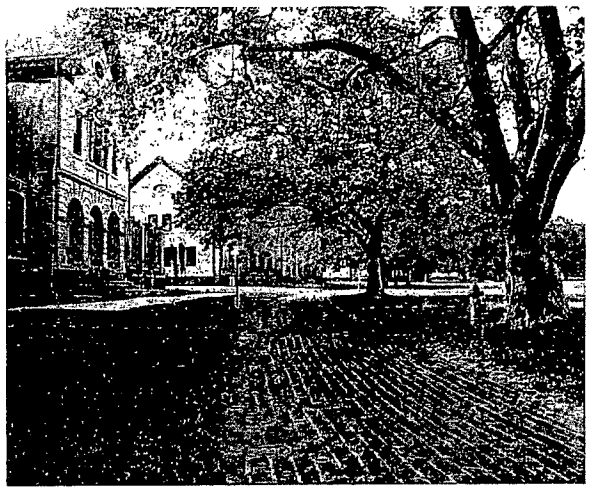


Figure 11: Contemporary photograph of the barracks, brick walkway, and the edge of the parade ground lined with London plane trees—all features that define the character of the landscape, 1994 (courtesy of H. Eliot Foulds).

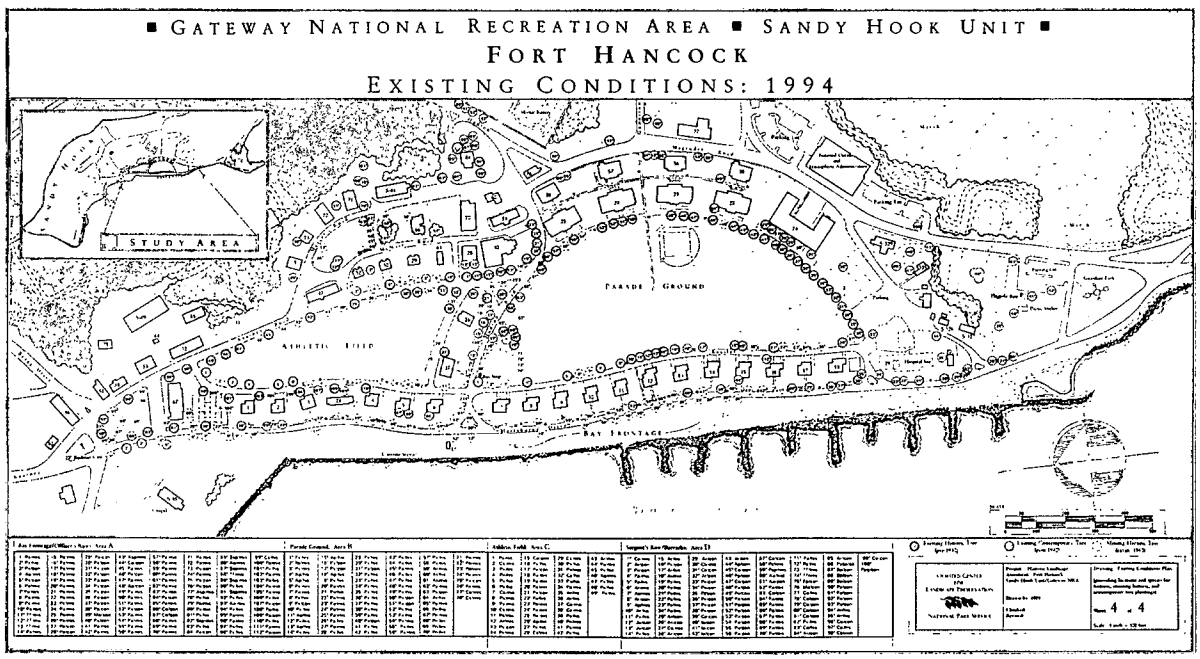
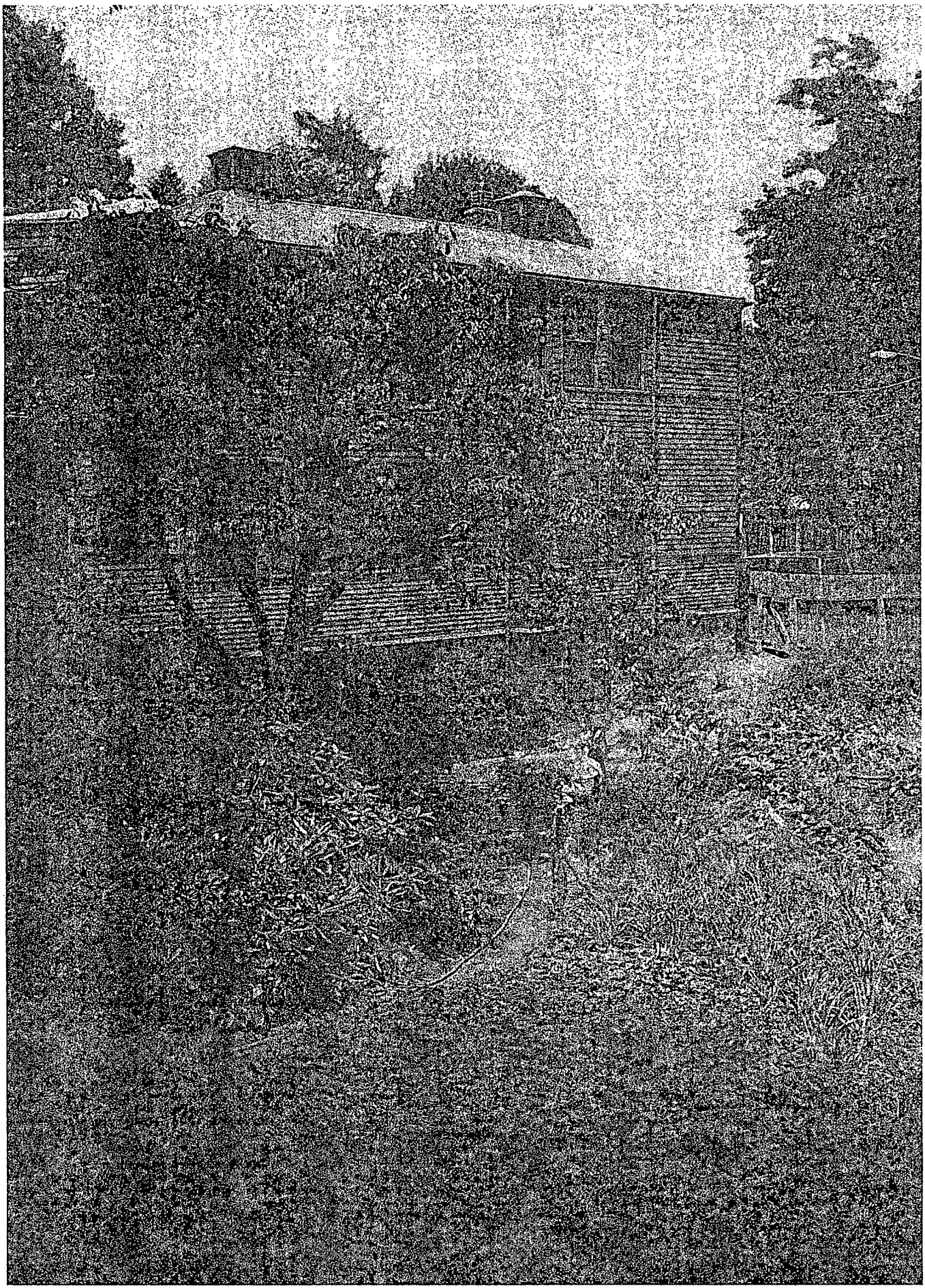


Figure 12: A Preservation Maintenance Plan was developed for the 40-acre core of Fort Hancock, which is now part of the 1,650-acre Sandy Hook Unit of Gateway National Recreation Area. The Plan includes an existing conditions map that illustrates the location and status of specimen trees within the historic core of the fort (drawn by H. Eliot Foulds).

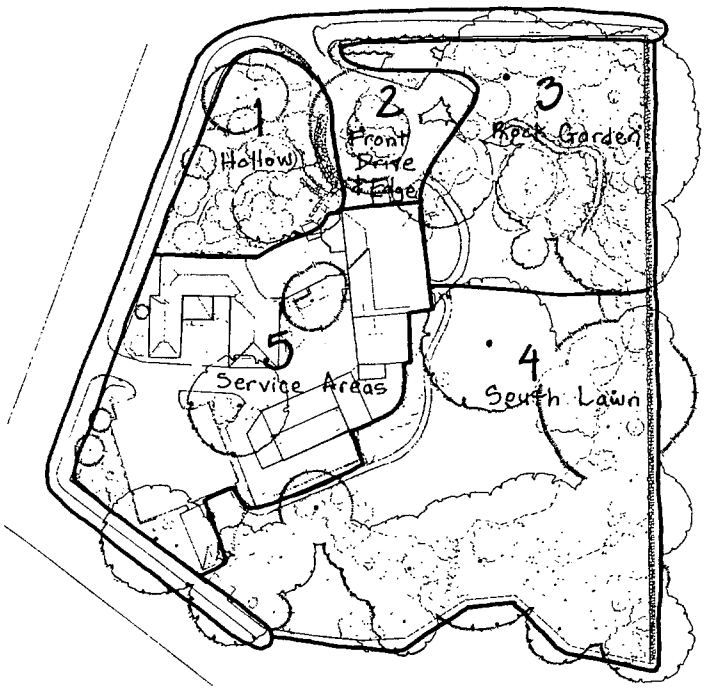
Figure 13: The hollow at Frederick Law Olmsted National Historic Site.



Frederick Law Olmsted National Historic Site

AREAS & CATEGORIES OF FEATURES

Property map:



FREDERICK LAW
OLMSTED
NATIONAL HISTORIC SITE
"Fairsted"

Area# - Category# Names

c

1 - Hollow
1 - 1 - trees
1 - 2 - shrubs & vines
1 - 3 - herbaceous plants
1 - 5 - stone walls & steps
1 - 6 - paths
1 - 9 - drainage systems

2 - Front Drive & Edge
2 - 1 - trees
2 - 2 - shrubs & vines
2 - 3 - herbaceous plants
2 - 4 - lawn
2 - 5 - stone walls & steps
2 - 6 - paths
5 - 8 - fences & gates
2 - 9 - drainage systems

3 - Rock Garden
3 - 1 - trees
3 - 2 - shrubs & vines
3 - 3 - herbaceous plants
3 - 5 - stone walls & steps
3 - 6 - paths

4 - South Lawn
4 - 1 - trees
4 - 2 - shrubs & vines
4 - 3 - herbaceous plants
4 - 4 - lawn
4 - 5 - stone walls & steps
4 - 6 - paths
4 - 8 - fences & gates
4 - 9 - drainage systems

5 - Service Areas
5 - 1 - trees
5 - 2 - shrubs
5 - 3 - herbaceous
5 - 5 - stone walls & steps
5 - 6 - paths
5 - 7 - drives & parking areas
5 - 8 - fences & gates
5 - 9 - drainage systems

d

Sources:

All areas defined in the "Historic Grounds Report and Management Plan for Frederick Law Olmsted National Historic Site," prepared by Lucinda A. Whitehill in 1982. Also based on current maintenance practices as described by Barbara Harty, Grounds Supervisor, Olmsted NHS, June 1993. Existing Conditions map drawn by Catherine Morris, 1993.

Figure 14: Map and list of areas and categories of features.

AREAS AND CATEGORIES OF FEATURES

To organize information within a Preservation Maintenance Plan, the landscape needs to be divided into clearly defined areas, much like a house is divided into rooms. Examples of areas include a front lawn, formal garden, orchard, parking lot, meadow, woodland, or a wetland. Areas are likely to range in size from many acres to small spaces according to the size of the property and level of maintenance.

Within each defined area, the landscape is likely to contain many features. Features are objects or group of objects that individually or collectively contribute to the physical appearance of the landscape. Features that are similar in material, function, or care can be grouped into categories, much like similar types of home furnishings. Examples of categories include trees, shrubs, herbaceous plants, fences, paths, roads or water systems. Each area, and the categories of features within, are assigned numbers and descriptive names *(Figure 14)*. Below are some recommendations on how to establish areas and categories.

a Areas

Obtain a map of the site. Ideally this would be a recent map that locates all landscape features. If a recent map is not available, any map of the site can be used to get started. For example, a United States Geological Survey (USGS) Map, enlarged several times, can serve as an initial map. Using the map, walk the site to determine logical divisions for the site. These divisions may be based on historical or current use, type of maintenance practices, or by clearly defined boundaries such as paths or fences.[6] Note that the creation of too many areas may make the numbering system too cumbersome to use. Draw lines on the map to illustrate the boundaries of each area. For example, *Figure 14* illustrates how the Olmsted NHS is divided into five areas, most delineated by paths, fences, and structures.

b Categories

Within each area, study the composition of the landscape. Group features into categories that are similar in material, function, or care. For example, *Figure 14* contains the categories of features at the Olmsted NHS including trees, shrubs & vines, herbaceous plants, stone walls & steps, fences, paths, roads, and water systems. It is likely that different areas will contain many of the same categories.

c List of names and numbers

Once areas and categories are defined, assign names and numbers to each area and category to simplify communication and documentation. For example, at Olmsted NHS, 4-1 refers to the South Lawn (area number 4) and trees (category number 1). In later sections of this Guide, these numbers will be used frequently to organize features that require similar care.

d Sources

Indicate whether defined areas were based on historical or current use, maintenance practices, or clearly defined boundaries. Include the names of people that defined the areas, dates, and relevant documents. Also record the source and date of the map.

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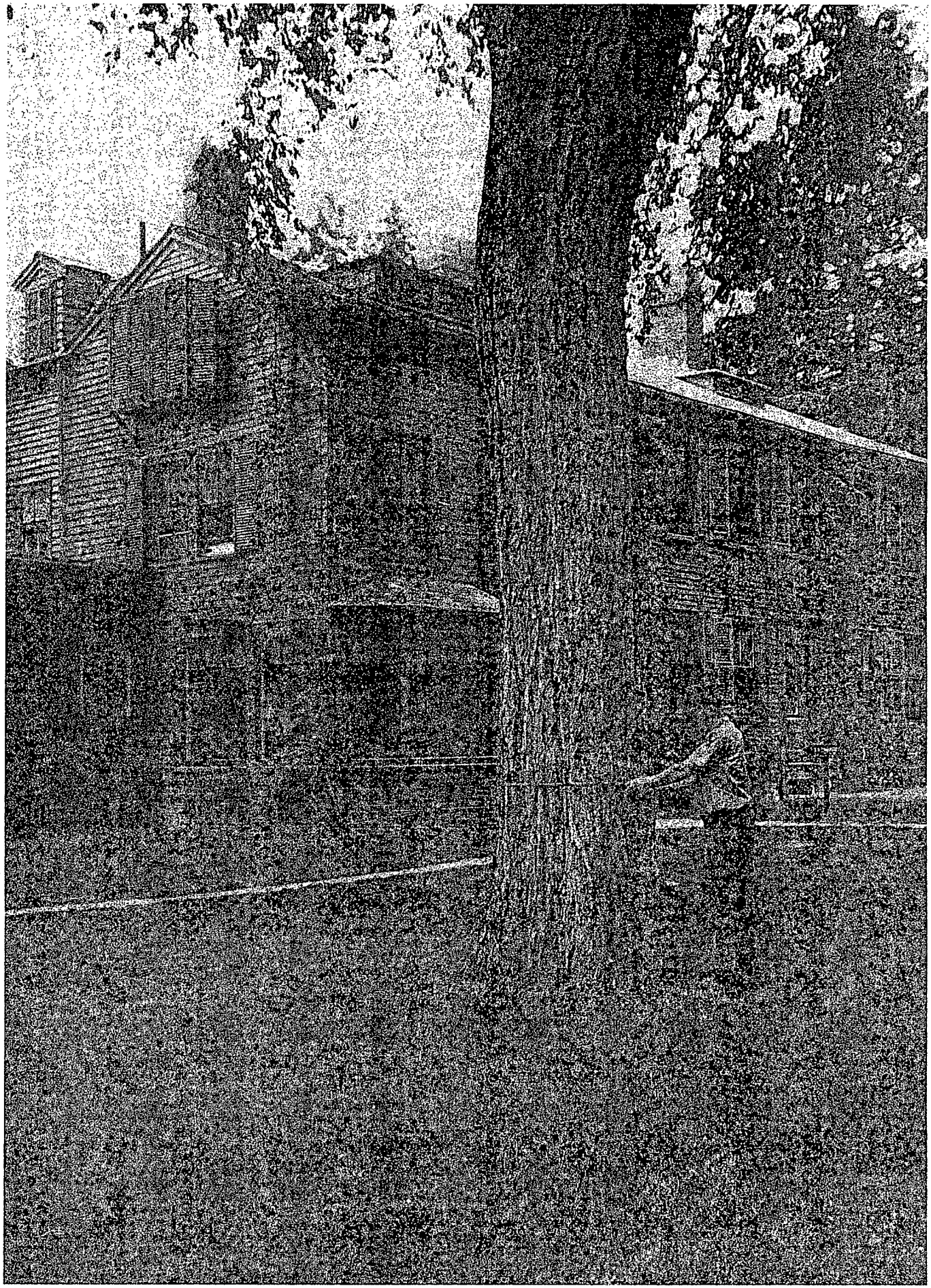
[6] For NPS properties, areas may have been defined in the property's *General Management Plan* or *Cultural Landscape Report*. For an explanation of these documents, refer to Appendix A.

Figure 15: American elm at Frederick Law Olmsted National Historic Site.



Frederick Law Olmsted National Historic Site

INVENTORY OF LANDSCAPE FEATURES

a Inventory conducted by: B. Harty, C. Pepper, M. Coffin Date July 10, 1993

b Category & Feature name	Field ID#	Field Tag	Size	Origin & Age (if known)
	c	d	e	f	g
VEGETATION				
1. Trees				
Tuliptree *(Liriodendron tulipifera)*	1-1-1	yes	2" dbh, 10' h, 6' w	replaced, 1991
N. Red Oak *(Quercus rubra)*	1-1-2	no	-	
Flowering Dogwood *(Cornus florida)*	1-1-4	yes	14 & 5" dbh, 30' h, 25' w	installed, c. 1900-1905
American Elm *(Ulmus americana)*	4-1-1	no	34" dbh, 80' h, 70' w	retained, 1883
2. Shrubs				
Summersweet *(Clethra alnifolia)*	1-2-1	yes	6' h, 7',w	unknown
Mountain Laurel *(Kalmia latifolia)*	1-2-2	yes	4' h, 6' w	unknown
3. Herbaceous Plants				
Goutweed *(Aegopodium podagraria)*	1-3-1	no	throughout area	unknown
Pachysandra *(Pachysandra terminalis)*	1-3-2	no	throughout area	unknown
4. Lawn				
South lawn, class A	4-4-1	no	approx 3000 sq ft	unknown
CIRCULATION				
5. Paths				
Rough stone edge	1-6-1	no		installed, c. 1890
Steel edge	4-6-1	no	200 linear ft	installed, 1986
Stonedust walk	4-6-2	no	800 sq ft	replaced, annually as needed
6. Drives & Parking Areas				
Stone edge	2-7-1	no	250 linear ft	installed, c. 1880-1890
Gravel & compacted earth surface	2-7-2	no	1500 sq ft	replaced, annually as needed
Stones defining edge of parking area	5-7-1	no	30 stones, approx 8 x 8"	unknown
Steel edge	5-7-2	no	100 linear feet	installed, 1986
Cinder surface	5-7-3	no	3000 sq ft	replaced, annually as needed
SMALL SCALE FEATURES				
7. Stone Walls & Steps				
Cut field stone wall	1-5-1	no	20' length	installed, c. 1890
Rough field stone wall	1-5-2	no	30' length	installed, c. 1890
8. Fences & Gates				
Spruce pole gate	2-8-1	no	6' h, 3.5' w	replaced, 1982
Spruce pole entrance arch	2-8-2	no	2' h, 20' w	replaced, 1982
Spruce pole fence	2-8-3	no	100' length	replaced, annually as needed
Green board fence gate	5-8-1	no	8' h, 8' w	installed, 1986
Green board fence	5-8-2	no	8' h, 85' length	installed, 1986
SITE ENGINEERING				
9. Drainage Systems				
Grate	1-9-1	no	1 x 1'	unknown
Pipe from hollow to central drain	1-9-2	no	40' length, 8" dia.	unknown
Fan grate along Warren St near arch	2-9-1	no	18" x 15'	unknown
Pipe from fan grate to street drain	2-9-2	no	20' lenth, 8" dia.	unknown

Figure 16: Inventory of landscape features.

INVENTORY OF LANDSCAPE FEATURES

To further define the scope of the Preservation Maintenance Plan, each individual feature is located and described. In previous sections, a "landscape feature" has been defined as an object or group of objects that individually or collectively contribute to the physical appearance of the landscape. In this section it is necessary to assign a name and number to each feature. To facilitate this process, features should also be defined by their maintenance requirements. In this respect, a large feature may be a group of objects that require uniform maintenance practices throughout, such as a lawn, hedge, fence or path. In some cases a feature may be defined as an entire area, such as a meadow or woodland. In contrast, a small feature is likely to require detailed, individual care, such as a specimen tree, fence gate, fountain, trellis, or statue.

A comprehensive inventory of all landscape features in all areas within a property may be an extensive project. A recommended strategy is to first concentrate on individual features that are most historically significant or potentially significant. Second, incorporate all features that are within the most intensively managed portions of the property, such as the individual plants around a historic home. Third, include all features throughout the property that require maintenance to ensure they are monitored and cared for as needed.

Before conducting the inventory, assemble helpful information such as maps, aerial photographs, management documents, and other inventories.[7] Compile a preliminary inventory, then verify information in the field. A good strategy when conducting the inventory of landscape features is to complete an inspection or feature condition assessment simultaneously. Combining the initial inventory and inspection will save time and facilitate the gathering of information for the Plan. The following section of this Guide, Field Inspection, details how an inspection might be completed and what types of information should be recorded. Below is a list of information to collect and organize in a format similar to *Figure 16*.[8]

a Date and names
For future reference, specify the date and the names of the people conducting the inventory.

b Scope of inventory
Define the scope of the inventory and the types of information to be collected. Create headings for each type of information across the top of the form.

c Feature name
Describe each feature with an individual name such as "Front Gate" or "Entrance Path." For plant material, this would be a name such as "Mixed Pine and Oak Forest" or "American elm *(Ulmus americana)*."

d Field identification number
Assign a field identification number (field ID #) to differentiate each feature. This number helps with field monitoring, mapping, work assignments, and other record keeping. Numbers may be assigned to missing features or non-historic features to facilitate record keeping of all features associated with a particular landscape. A three-part field ID # is recommended as described on the following page:

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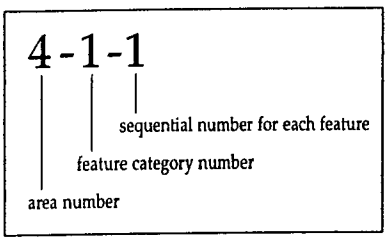
[7] In many cases an inventory has already been carried out and simply needs to be updated. A *Cultural Landscape Inventory* is being carried out for many NPS properties.

[8] The information to be collected relates specifically to maintenance. The Historic American Buildings Survey (HABS) has generated more detailed standards for landscape inventory and documentation. Refer to Appendix C for cultural landscape references.



Area and feature category numbers - Using the areas and feature categories defined in Section 2, list only the numeric descriptions to save time and space on the inventory form.

Sequential code number - Assign a sequential number to each feature within an area and category.

Example: The American elm at Olmsted NHS located in area 4, is in category 1, and is the 1st individual tree inventoried. Thus, the complete field ID # is 4-1-1.

e Field Tags

Some properties may benefit from field tags on features in the landscape to facilitate identification, mapping, and future inventory field checks. The tag may list the field ID #, the name or other relevant information. At a minimum the tag may contain the sequential number in order to differentiate similar features that are located near each other in the landscape, such as trees in an orchard. It may also be helpful to note what information is on the tag.

f Size

Determine the size of the feature and record the unit and type of measurement.

g Origin and Age

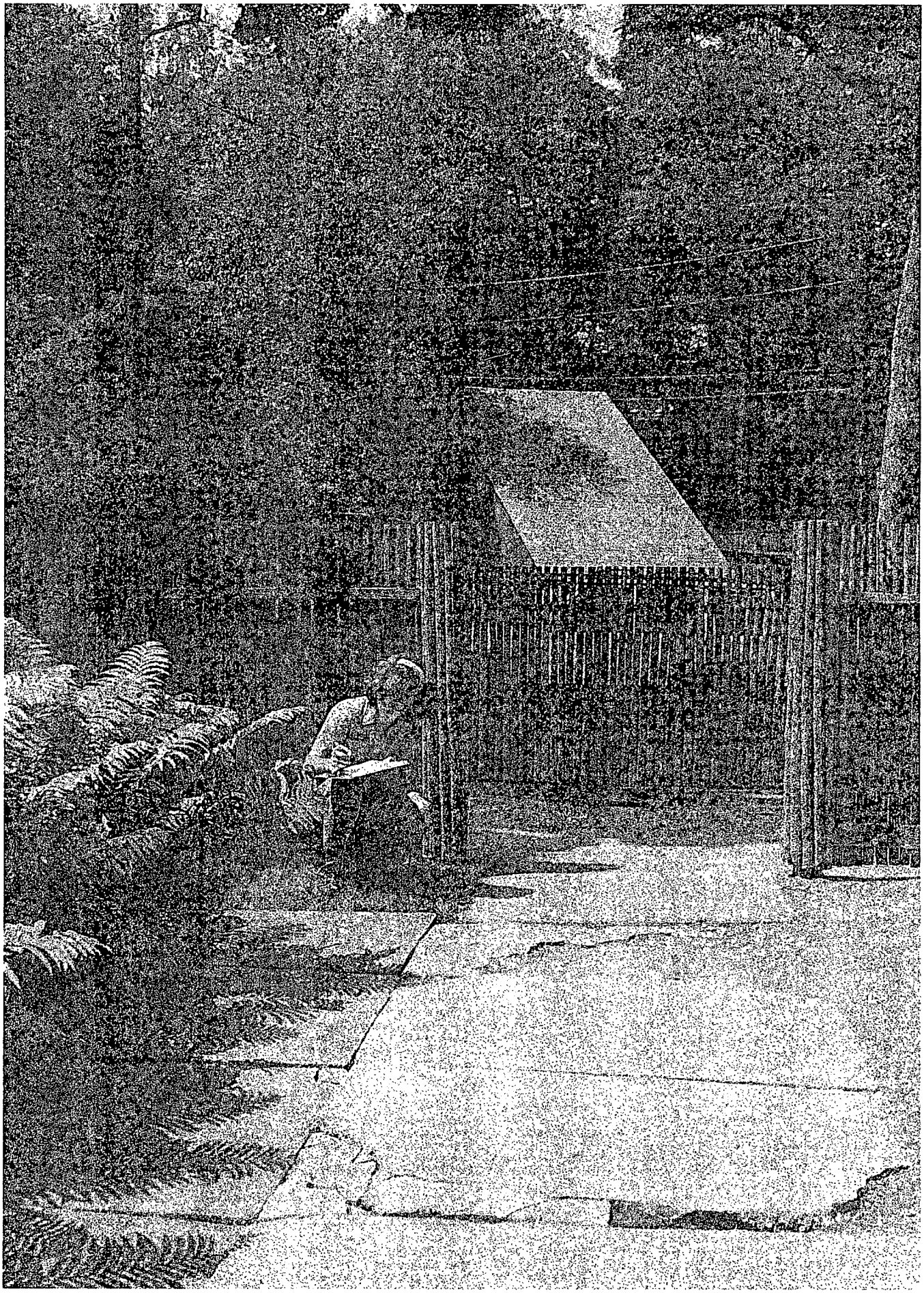
The origin and age of each feature is an important part of the history of the landscape.[9] If a feature originated before or during the period of significance of a site, its condition and care may be of a higher priority than a feature that was installed or, for plants, was self-sown, after the period of significance. Possible origins and associated codes are listed below.

Installed, year	=	Installed during the year _____
Retained, year	=	Retained, predates the year _____
Self, year	=	Self-sown during the year _____
Replaced, year	=	Replacement during the year _____
Unknown	=	Origin of feature is unknown

Example: The American elm, #4-1-1, at the Olmsted NHS was growing on the property prior to the arrival of Frederick Law Olmsted, Sr. in 1883. Therefore, the code is "Retained, 1883." Additional information about the history of individual features will be covered in later sections of this Guide.

[9] If available, this information may be extracted from the property's *Cultural Landscape Report*. In particular, period plans that illustrate the historic appearance of the landscape may be useful.

Figure 17: Inspection of the courtyard at Frederick Law Olmsted National Historic Site.



Frederick Law Olmsted National Historic Site

FIELD INSPECTION - SPECIMEN TREES

Inspected by: (a) MC, BH

Date: 7/15/93

Feature Name and Field ID#: (b)

Feature Name and Field ID#	Overall Form (c)	Leaf, Shoots (c)	Branches (c)	Cables (c)	Trunk (c)	Roots, Soil (c)	Flower, Fruit (c)	Pests, Diseases (c)	Tag Present (y/n) (d)	Size (dbh) (d)	Comment on condition: / Comment on stabilization and/or repair work needed: (e)	Further Diagnosis Needed (y/n) (f)	Work Needed (X) Critical Work (*) (g)	Stabilize Immed (S) Plan for Repair (P) (h)
Tuliptree #1-1-1	X		X						y	48"	Fair condition, prune out dead branch on north side		X	
N. Red Oak #1-1-2			X						n	4"	Replacement tree planted in spring, Prune to improve structure		X	
Shagbark Hickory #1-1-3	X	X	X						y	34"	Dieback in crown, prune out deadwood. Inspected cable - o.k.		X	
Flowering Dogwood #1-1-4	X	X	X						y	10"	Limb obstructing walkway, prune to lighten. Some purple spots on leaves, may be anthracnose.	y	*	
Hemlock #1-1-5	X	X	X						y	11"	Poor condition - dieback throughout, poor needle color, plan for replacement		*	P
Hemlock #1-1-6											ABSENT - needs replacement		X	P
Hemlock #1-1-7									y	8"	Good condition.			
Hemlock #2-1-1	X	X	X						y	9"	Dieback in crown, dead limb over parking area, prune.		*	
American Elm #4-1-1	X	X	X						y	40"	Good condition, prune out minor deadwood.		X	
Norway Maple #4-1-14									y	36"	Good condition.			

Recommended Equipment for Inspection: (i)

- *binoculars*
- *pruning shears*
- *map*
- *insect jars*

Figure 18: Field inspection format for specimen trees.

FIELD INSPECTION

Periodic field inspections of landscape features reveal evidence of damage, deterioration, or potential problems. There are three kinds of inspections. First, a comprehensive inspection of all features to record the current condition. This initial inspection could be combined with the field inventory discussed in the previous section of this *Guide.* Second, a series of targeted inspections, at the appropriate times of year, to monitor for specific problems, such as rodent damage in the winter; potholes and erosion in the spring; or plant vigor in the summer. Third, an inspection in response to unplanned events such as storm damage, drought, vandalism or a pest infestation. The observations recorded during all of these inspections are very important. Without written and/or photographic documentation, it is difficult to assess changes in condition from one year to the next.

The effectiveness of an inspection is dependent upon the inspectors' ability to identify problems. This may require bringing in a consultant or forming a team of specialists with different areas of expertise. Inspectors should be able to:

- monitor conditions during the appropriate time and frequency throughout the year(s);
- monitor changes in health due to decay, pests, diseases, environmental, or cultural problems, including vandalism or inappropriate maintenance practices;
- identify external threats such as visitor use, construction, air quality, etc.;
- diagnose conditions in the field when possible, or note that further diagnosis is needed;
- describe what level or threshold of damage is acceptable and when action is necessary; and
- describe work required to treat the condition, or know where to get more information.

The results of an inspection may include written notes, photographs, marked-up maps, specimen samples, drawings and correspondence. These are all very valuable as part of the history and evolution of the property and should be retained or referenced in the Preservation Maintenance Plan. The contents of an inspection form are described below *(Figure 18).*

a Inspected by and date
Name of person or team conducting the inspection and date.

b Feature names and field identification numbers
List names and field identification numbers as described in previous sections. Ideally, inspector(s) would also have a map of the property illustrating the location and numbers for each feature.

c Type of feature and criteria for inspection
For each type of feature, create a list to prompt inspectors, either where to look, or what to look for. Each type of feature will have a different set of criteria for inspection. *Figure 18* contains the criteria for specimen trees. Criteria for other types of features are provided in Appendix B.

d Inspection results

As each feature is inspected for the criteria listed in section "c" of the form, problem areas are marked with an "x" in the space provided indicating where problems exist. For example, an "x" in the "cables" column indicates that either the tree needs a cable, or the existing cable needs repair.

This system allows the inspector to indicate problem areas in a quick manner. Column "e" of the form, "comments on condition and work needed," is used to describe the specific problem in greater detail.

e Comment on condition, size, stabilization and/or repair work needed

Describe in detail all conditions observed. This description is very important since it communicates the degree and scope of a problem. When describing damage, an effort should be made to quantify the extent of the damage. This, in turn, can be used to determine the acceptable level of tolerance, or threshold for the situation. Quantification of the problem will also be useful in the next year to determine whether the condition has changed.

f Further diagnosis needed

Use this column to flag problems that could not be diagnosed or if there are any doubts about the structural stability of a feature.

g Work needed (x), critical work (*)

If work is needed, mark an x to draw attention to the feature. Use an asterisk * to indicate a serious or potential safety problem that should be attended to as soon as possible.

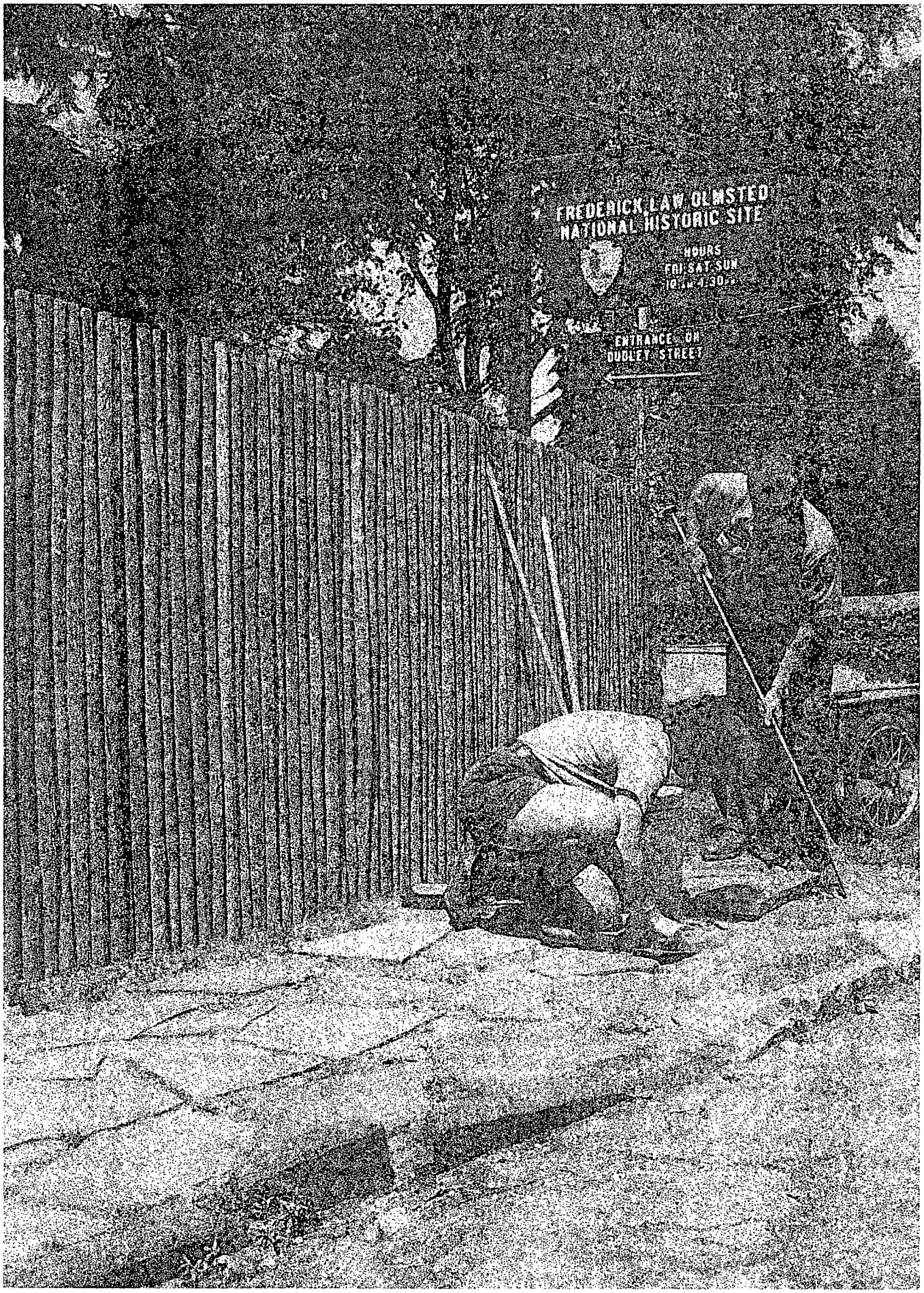
h Stabilize immediately (S); Plan for repair (P)

If a feature is threatened or deteriorating, to the extent that it may be lost if no immediate action is taken, mark an S to indicate the need for stabilization. If a feature is stable but work is needed to improve its' condition, mark a P to indicate the need to consider for future repairs when preparing budget and work plans.

i Equipment needed to conduct assessment

List items needed for an inspection such as: a clipboard, measuring tape, binoculars, camera, hand lens, specimen vials, shovel, knife, pruning shears, ladder, map or diagram of the area, and/or field copies of reference photographs. Good equipment and a clear map help ensure that all features are thoroughly inspected.

Figure 19: Sidewalk repair at Frederick Law Olmsted National Historic Site, 1995 (Courtesy H. Eliot Foulds).


FREDERICK LAW OLMSTED
NATIONAL HISTORIC SITE
HOURS
FRI SAT SUN
ENTRANCE ON
DUDLEY STREET

Frederick Law Olmsted National Historic Site

SUMMARY OF WORK NEEDED

Season	Work Needed, Field ID#s, Feature names (optional)		Field notes, Hours spent, & Date completed
Winter	**Prune out deadwood and hangers**		
	1-1-1	Tuliptree	✓rem'd 1 branch, 3/3/94, 1 hr.
	1-1-2	N. Red Oak	✓pruned, 3/3/94, 1 hr.
	1-1-3	Shagbark Hickory	✓rem'd deadwood, 3/3/94, 4 hrs.
	1-1-4	Flowering Dogwood	✓lightened branch, " 1 hr.
	2-1-1	Eastern Hemlock	□need bucket truck to finish
	4-1-1	American Elm	✓rem'd minor deadwood, 3/4/94, 3 hrs.

Special considerations for historic appearance, design, or significance:

- When pruning the Flowering Dogwood (#1-1-4) pruning tools should be sterilized between cuts to reduce the likelihood of spreading Dogwood Anthracnose.

- Remove only deadwood and dead hangers. Lower limbs should be retained to provide a visual screen.

- For more information on pruning practices, refer to the Feature Data sections for each tree species in the Preservation Maintenance Plan.

- Provide maintenance staff with training on the effects of mower damage on vegetation.

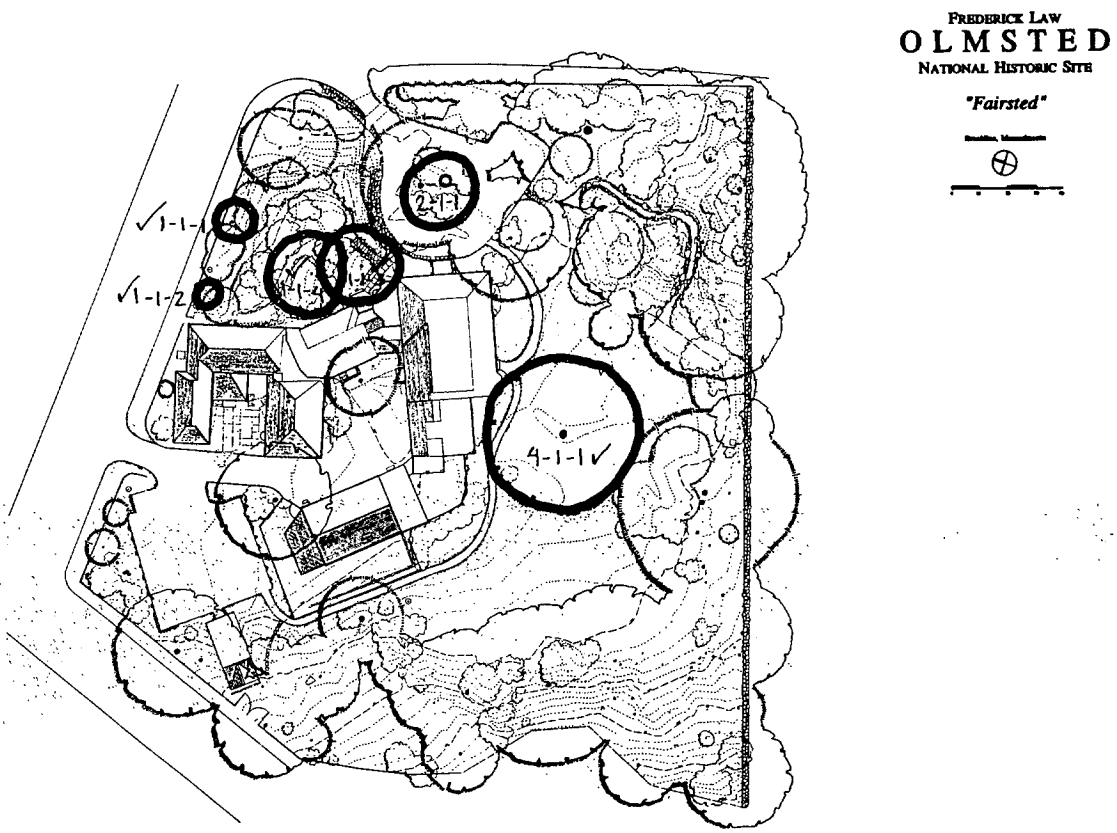


Figure 20: Summary and map of work needed.

SUMMARY OF WORK NEEDED

As follow-up to a field inspection, a summary of observations, each with an associated map, highlights features that require work or further diagnosis *(Figure 20)*. The summary provides a concise list of widespread problems, issues to address, and scope of work needed. The maps guide the work crew in the field by illustrating areas where the highest priority work is needed. The maps can also indicate patterns, such as tree decline adjacent to salted walkways, or trees of a certain age all planted too deep. These maps should be retained in the Preservation Maintenance Plan for reference in future inspections. This information may be placed after a tab for sections 4A and 4B titled "Field Inspection & Work Needed."

In some cases, the summary of work needed may address issues that need to be resolved, such as the long-term effects of poor pruning cuts or damage to a feature by maintenance equipment. These problems need to be brought to the attention of maintenance managers to indicate the need for training or alternative maintenance practices. Summary notes should also highlight features that inspectors found remarkable, in excellent condition, one-of-a-kind, or otherwise noteworthy.

a Season
Indicate the best time of year to carry out work.

b Work needed and list of features in need of work
Describe the type of work that needs to be done. List features in need of work using the field identification numbers and names (optional). Also mark the features on a map of the area. For some properties it may be easier to reference a map printed on a larger piece of paper.

c Field notes, date completed, and hours spent
Comment on work carried out; other conditions observed in the field; the date work was completed; and amount of time spent.

d Special considerations for historic appearance, design or significance
Note any special considerations to inform the maintenance staff how work affects the historic appearance. For example, a tree that frames an important view requires specific pruning. Indicate if further reference information is available in the Feature Data section of the Preservation Maintenance Plan (to be described in the next section of this Guide).

Figure 21: Repair of spruce pole arch at Frederick Law Olmsted National Historic Site, 1995 (Courtesy of H. Eliot Foulds).

Frederick Law Olmsted National Historic Site

FEATURE DATA: Spruce Pole Gate, Arch and Fence

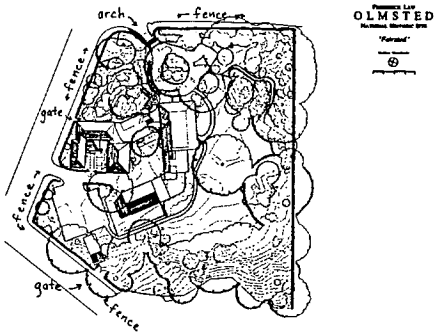
a **Category:** Fences

Feature Name & Field ID # (s):

spruce pole gate	2-8-1
spruce pole arch	2-8-2
spruce pole fence	2-8-3

b **Source of Name:** Correspondence, F.L. Olmsted, 1884

c **Location Map:**



d **Descriptive Characteristics:**

poles - *spruce, stripped bark, hand peeled, 1.5 - 2" diameter, 5 - 10' length*
fence posts - *spruce, stripped bark, hand peeled, 5.5 - 6" diameter, 4.5 - 7' height*
wrought iron posts - *1 x 1" width, 4.5 - 7' height*
horizontal straight rails - *rough stock cedar, 2 x 5" width, 6.5 - 7'8" length*
horizontal curved rails - *cypress, 4 x 12" width, lengths cut to fit*
arch frame - *white cedar, 4 x 4" width, 12' length or as needed for curves*
bolts for rails, 6"
nails, galvinized, 8 & 16 penny
strap hinges for gates, 18"
wood preservative

e **Historical Appearance, Design or Significance:**

A spruce pole fence and arch were installed by F.L. Olmsted in 1884. The gate was installed at a later date. The fence, arch, and gate have been altered several times as described in detail in the 'fences' section of the Olmsted NHS Historic Structures Report, draft 1987 - 1991.

Frederick Law Olmsted National Historic Site

FEATURE DATA: Spruce Pole Gate, Arch and Fence

f **Preservation Practices and Work Procedures:**

Ordering replacement parts -

Measure damaged pieces and use as patterns for replacement pieces. Replacement poles should be cut when fence work is in progress since the wood used is green and tends to warp.

Setting Cedar Posts -

Cedar posts are set into the ground at a minimum depth of 2' and preferably 3' to ensure stability. Dig post holes wide enough to encircle the bottom foot of the post with gravel fill. In some areas, posts are over bedrock and may only be set to a depth of 1'.

The tops of the cedar posts should be high enough that the spruce poles extend 12 -14" above. However, in some areas, such as where the topography changes near the arch, the spruce poles may extend more than 12 - 14". Cedar posts are placed approximately 7'8" apart on the straight sections and 6'5" apart on the curved sections of the fence. Once set, upper horizontal rails are nailed to the tops of cedar posts. Lower horizontal rails are placed in notches. Cedar posts are notched 6 - 8" above the ground to hold the lower 2 x 4" horizontal rail. For straight sections, the notch is cut 4" wide and 1" deep. For curved sections, a 2 x 5" horizontal rail is with the 5" side up, and the notch is 2" wide and 1" deep.

Setting Iron posts -

There are five iron posts at the southern end of the Warren Street fence section. These add stability where it is a shallow depth to bedrock.

Setting horizontal rails -

For straight sections, top rails 2 x 4" wide with the 4" side up. Bottom rails are 2 x 4" with the 2" side up. For curved sections, top and bottom rails are 2 x 5" with the 5" side up. Curved rails are cut using the old rail as a pattern.

For straight sections, bottom rail ends are cut on an angle and joined with 6" bolts. Excess bolt ends are cut off. Nails may be added to secure the joint between the rails. These joints are made in the middle of the fence sections when possible. For curved sections, joints are located at the post and secured to the post with nails.

Bottom rails are nailed to the posts first, then a bar level is used to place the top rail parallel to the bottom rail.

Installation of Spruce Poles -

The bottom one inch of each spruce pole is cut to expose fresh wood and soaked in a wood preservative for 20 minutes or until the preservative has been absorbed to a height of one foot. Some poles will be installed with the narrower end down to maintain even spacing, so some should be freshly cut at the narrow end and placed in the wood preservative.

Spruce poles are nailed to the horizontal rails through pre-drilled holes to minimize cracking. 8 penny nails are used at the narrow end of the poles and 16 penny nails at the wider end.

Most poles are placed with the wider end at the base of the fence. However, a pole is flipped over few poles to keep the spacing even and vertical. At fence ends the spruce poles are nailed to the fence post.

Frederick Law Olmsted National Historic Site

FEATURE DATA: Spruce Pole Gate, Arch and Fence

Preservation Practices and Work Procedures (continued):

December, January, February, March, April

Apply sand to driveway during and after snow and ice storms to prevent cars to skidding into the fence, in particular near the south side of the arch.

After heavy snow storms, pile snow in front of this section as a buffer for skidding vehicles.

Best time of year to order spruce poles.

May, June, July, August, September

Inspect the structural stability of the gate, arch and fence, particularly at joints. Examine each fence section for rotting, cracked wood, and loose nails.

Repair damaged sections of fence. When work is in progress, block off the area with safety caution tape and place orange cones along the street. (repair procedures outlined on page 3 of Feature Data)

October, November

Remove accumulated leaves, soil, and vegetation from base of fence as it contributes to decay of the fence poles and posts.

g **Potential Problems or Perils:**

Frederick Law Olmsted National Historic Site

FEATURE DATA: Spruce Pole Gate, Arch and Fence

Recommended replacement method:

repair damaged and decayed parts as needed

h **Sources of replacement parts:**

Mastercraft Fence Co. International Wood Industry, Inc, Box 39, Greensboro, Vermont 05841, contact: Jose Cartes

Joseph Richards, TSI Contractor, Box 691, Greensville, Maine 04441

Utilization and Marketing Forester State of Maine, Department of Conservation, State House Station 22, Augusta, Maine 04333, contact: Peter Lammert

Peter Ackerman, Cabot, Vermont 05647

Concord Woodworking Co., Inc, 100 Church Street, Lydonville, Vermont 05851

Huntingdon Fence Company, South Strafford, Vermont 05070, contact: James Condict

Green Mountain Fence Company, PO Box 115, Glover, Vermont 05839, contact: Howard Conley

Westwood Fences, Inc. Barton, Vermont, 05822, contact: Gaston Poirer

Vermont National Industries, RR 1, Box 680, Windsor, Vermont 05089

i **Additional Sources of Information:**

Correspondence file D52, Spruce Pole Fence, Frederick Law Olmsted National Historic Site administrative files.

Historic Structures Report: spruce pole fence. Carden and Gilmore, draft 1987 - 1991, pages 60 - 68.

Historic Grounds Report and Management Plan, Whitehill, 1982, page 10.

Figure 22: Feature data format for fences.

FEATURE DATA

The Feature Data section contains reference information on each feature or groups of features on the property. This information includes location, descriptive characteristics, historic significance, preservation practices, potential problems, and other relevant information needed by the maintenance staff. For some properties, this information may be available, but is stored in many different locations. Thus, the Preservation Maintenance Plan serves to consolidate information. For other properties, preservation practices and potential problems are known by the maintenance staff, but have never been recorded. In this case, the Plan is a mechanism for documenting the 'how to' and 'why' of these site-specific procedures *(Figure 22, see Appendix E for another example).*

With both large and small properties, a completed set of data sheets for all features is an extensive project. For this reason, information should be gathered first for features that require the most care or those that are most significant. Over time, data sheets can be added, amended, and updated for each feature.

When the Preservation Maintenance Plan notebook is assembled, each Feature Data sheet should be marked with a tab so it is easy to find. Examples of feature data tabs are: spruce pole fence, elm, dogwood, lilac, and drainage. It is helpful to supplement the data sheets with related information such as: photographs, diagrams, maps, pest fact sheets, and correspondence.

a Category, feature name and field identification number(s)
As described in previous sections.

b Source of name/identification
For certain historic features it is important to know by whom and when a feature was given its name, such as the name of a water feature. For plants, this would be the source of identification. Record the source, affiliation, and date.

c Locator map
Use a map or portion of a map to highlight the location(s) of the feature.

d Descriptive characteristics
Describe in detail the physical characteristics, functions, and/or materials of a feature. If the feature is ever altered or lost, this description will be helpful in repairing or replacing it. Supplemental photographs or diagrams are recommended.

e Historical appearance, design, or significance
The maintenance of a historic landscape is challenging because of the need to preserve its historical appearance, design, or significance. To help guide maintenance operations, summarize the history of the feature with information quoted directly from preservation documents, such as the *Cultural Landscape Report,*[10] with the source and page numbers cited.

f Preservation practices and work procedures
Describe, in as much detail as possible, how to inspect for potential problems and the feature-specific work required. Organize the information in an annual calendar format.[11]

---

[10] For a definition of a Cultural Landscape Report, refer to Appendix A.

[11] By organizing this information in an annual calendar format, preservation practices and work procedures for all features within the property can be consolidated into one calendar. This will be described in more detail in Section 6.

For *inspection of potential problems,* it is helpful for the reader/user to receive instructions in a similar format throughout the calendar. When giving recommendations for monitoring pest and disease problems, provide instructions in a standardized format such as:

- when to look for the problem
- where on the feature to look for the problem
- what evidence of damage to look for
- what causes the damage
- what level of damage or threshold can be tolerated
- what action should be taken
- what references should be consulted

For *feature-specific work required,* it is also helpful to give instructions in a standardized format such as:

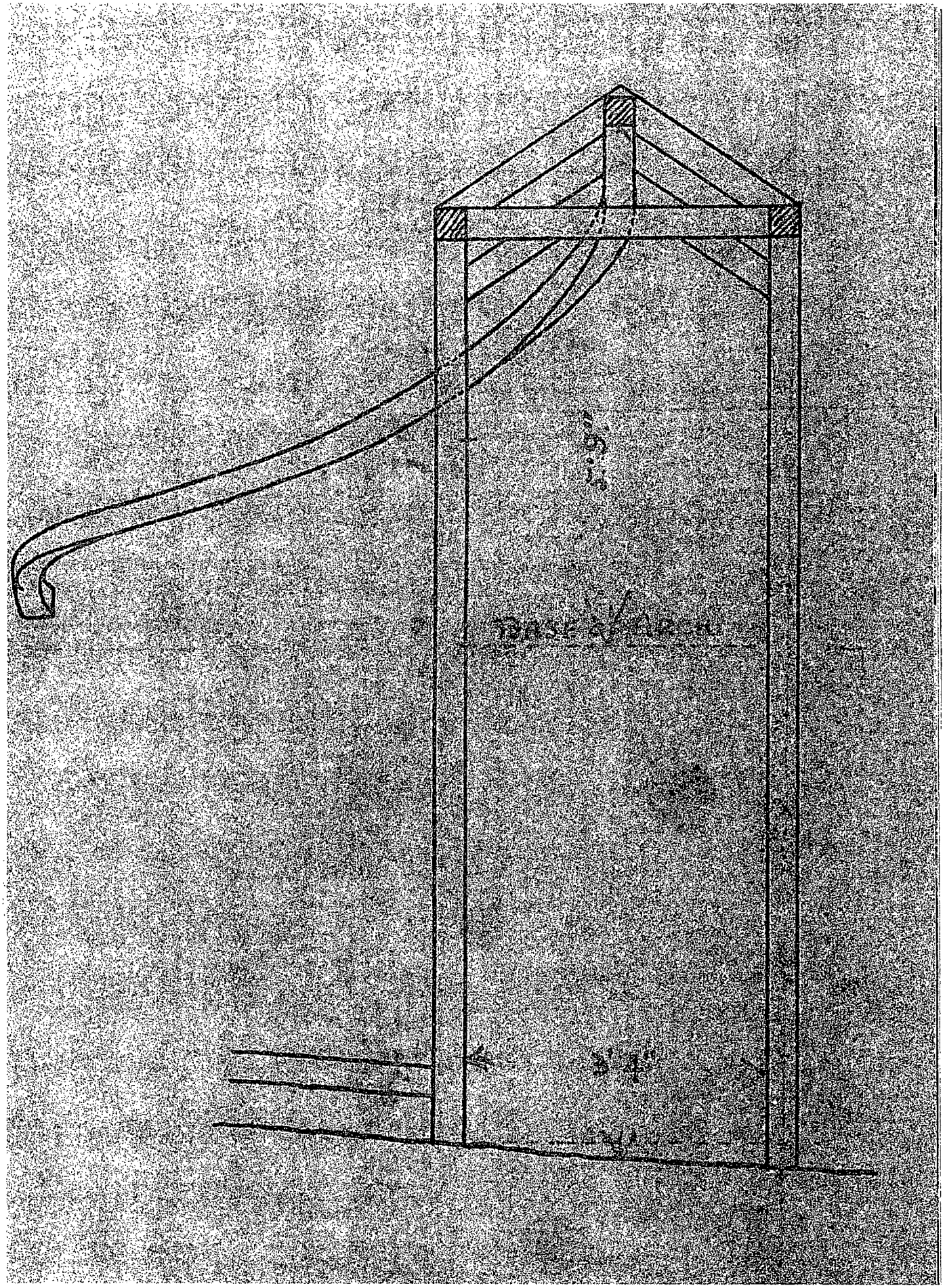
- when work is best carried out
- what the work is, i.e. prune, paint, etc.
- what part of the feature requires work
- how work is carried out, step-by-step
- what equipment is used
- what potential problems or safety precautions staff should be aware of
- what references should be consulted

g Potential problems or pests
Describe potential or existing problems that affect the feature; whether the problem can severely damage the feature; and where additional information can be found. Some of this additional reference material on specific problems, pests or diseases may be added to the Preservation Maintenance Plan notebook.

h Source(s) for repair, replacement parts, or propagation (for plants)
List sources for repair and replacement parts. Also list specialists that can provide assistance. If known, include address, phone number and person to contact. For plants that are significant and need to be propagated, list contact person and/or organization, method of propagation, and best time of year. For work carried out, note sources used in the next section, Record Keeping.

i Additional sources of information
List useful references. For texts, include the publisher and year. For specialists, include their name, title, organization, address and phone number.

Figure 23: Historic sketch of the spruce pole arch, c. 1883 (Courtesy Frederick Law Olmsted National Historic Site Archives).



Frederick Law Olmsted National Historic Site (a)

RECORD KEEPING - *feature:* Spruce Pole Gate, Arch & Fence

(b) Record notes on measurements, conditions, work performed, reason for removal, replacement or installation, propagation method and growing location, status of feature, or reference to a related report, etc.	(c) Measurement	Condition/ Problem	Major Work/ Change	Removal	Replacement	Installation	Propagation	Other	(d) Date and Initials Also note references for any additional information
Two trees in the hollow fell and damaged 3 sections of fence and the gate to the hollow during Hurricane Bob.		X							BH 8/20/91
Replacement spruce poles picked up from Joseph Richards, TSI, Greenville, ME (listed in sources on FEATURE DATA sheet)								X	EB, PL 10/15/91
Fence damaged during Hurricane Bob repaired.					X				LG, PL, SF 10/30/91
Fence section by arch damaged by skidding car, traveling at excessive speed during snowstorm. (photographs taken)		X							BH 3/21/92
Damaged section repaired.					X				LG 5/1/92
Replaced rotted poles by shed, and discovered evidence of brick driveway						X			BH, LG 9/15/92

Figure 24: Record keeping sheet for spruce pole gate, arch and fence.

RECORD KEEPING

Ongoing record keeping is closely associated with gathering data for each feature. A Record Keeping sheet is included with each Feature Data section within the notebook. It is, in essence, a continuation of the history of the feature (Section 5A, Item e.) from the present, into the future. Maintenance staff should record detailed information related to changes in condition, form, major work performed, removal, replacement, propagation, and any other activities related to the condition and maintenance of landscape features. If time for record keeping is limited, at a minimum the staff should be encouraged to retain receipts, notes, and other documentation related to maintaining a landscape feature in the binder until such time that it can be recorded in the record keeping section of the Plan. As years pass and personnel changes, record keeping becomes an extremely valuable source of documentation of the history of the property *(Figure 24)*. Inspection forms are also a form of record keeping and should not be discarded.

a Feature name and field identification number
List as in previous sections.

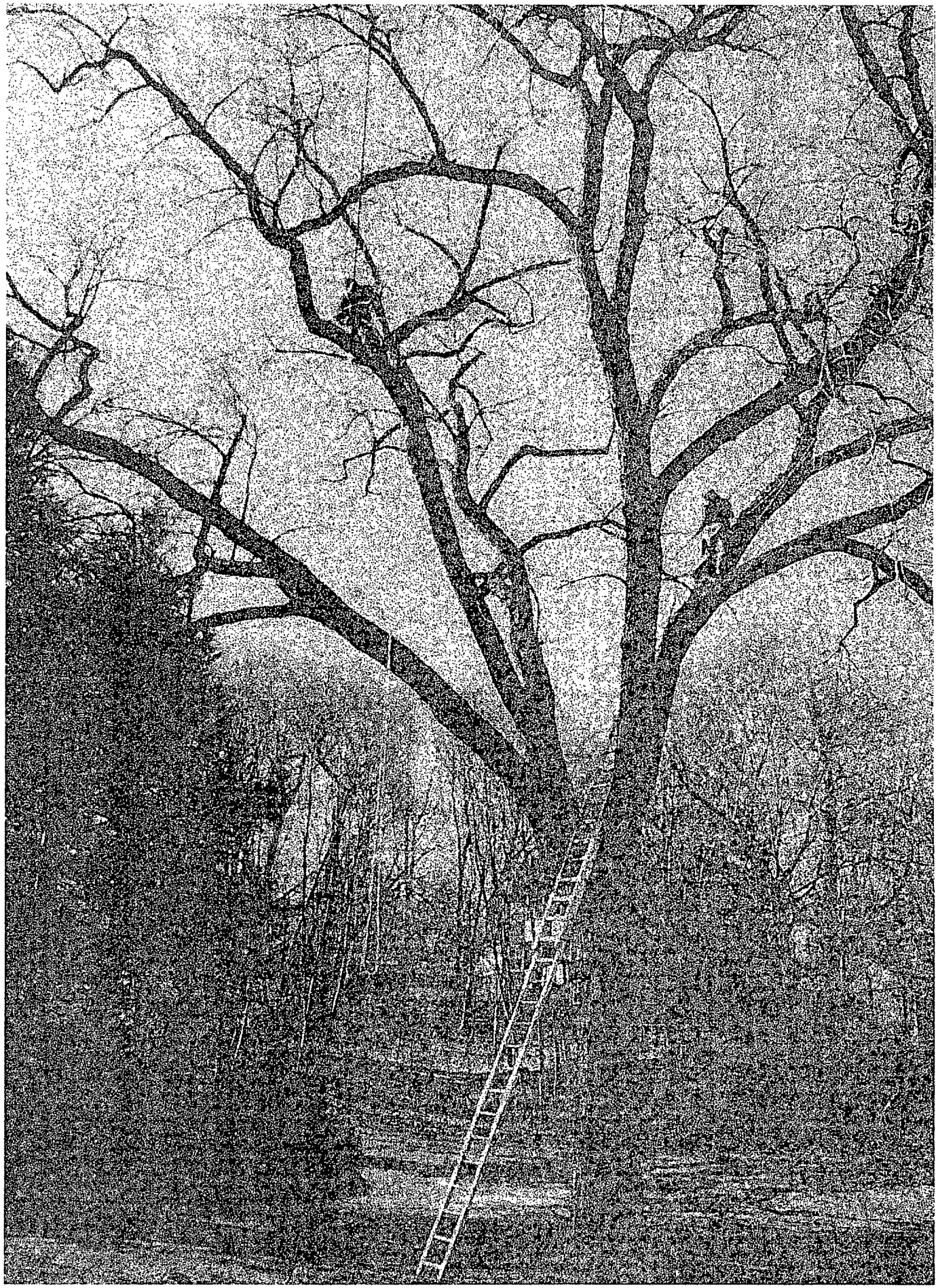
b Notes
Describe in detail any observations or events associated with the feature.

c Type of record
Mark the type of note, such as a measurement, a critical condition or problem, major work performed, a major change, removal, replacement, installation, propagation, or other observation.

d Date and initials
Indicate the date and name of the recorder. Also list any associated documents or correspondence.

Figure 25: Pruning American elm at Frederick Law Olmsted National Historic Site, 1981 (Courtesy Frederick Law Olmsted National Historic Site).

6 • SEASONAL CALENDAR



Frederick Law Olmsted National Historic Site

CALENDAR FOR INSPECTION AND WORK - January

Trees

American elm, *Ulmus americana* (4-1-1)

Prune out dead, damaged, and diseased wood as needed.

Eastern Hemlock *Tsuga canadensis* (1-1-5, 1-1-6, 1-1-7, 2-1-1)

Inspect hemlocks for pest and disease damage, particularly hemlock wooly adelgid and spider mite. Spray in April with a 2% dormant oil.

Shrubs and Vines

Common Lilac *Syringa vulgaris* (4-2-16, 5-2-3)

Prune out dead, damaged and diseased wood but carry out structural pruning after flowering in late spring.

Stone Walls and Steps

Cut field stone wall, rough field stone wall (1-5-1, 1-5-2)

Place snow stakes along edges of drive in early winter to facilitate snow removal and protect stone walls.

Paths

Crushed Bluestone path (4-6-1)

Place snow stakes along edges of walk to facilitate snow removal.

Fences

Spruce Pole Gate, Arch and Fence (2-8-1, 2-8-2, 2-8-3)

Apply sand to driveway during and after snow and ice storms to prevent cars to skidding into the fence, in particular near the south side of the arch.

After heavy snow storms, pile snow in front of this section as a buffer for skidding vehicles.

Best time of year to order spruce poles.

Frederick Law Olmsted National Historic Site

CALENDAR FOR INSPECTION AND WORK - May

Trees

American elm, *Ulmus americana* (4-1-1)

Lightening Cables. Check terminals every 2 -3 years to see if they need to be raised. Loosen cable as needed to prevent tree from growing over/around cable.

Inspect trees for any branches showing signs of Dutch Elm Disease. Signs include wilting, yellowing, or leaf drop. Prune out immediately, well back into healthy wood. Send in cuttings for identification and verification of Dutch Elm Disease.

Shrubs and Vines

Common Lilac *Syringa vulgaris* (4-2-16, 5-2-3)

Protect young replacement shoots at the base of the plant from string trimmer and mower damage. Instruct new staff not to remove young rejuvenative shoots from the base of the plant.

Rejuvenative Pruning is essential for maintaining the long-term viability of lilacs. Some pruning should be done each year in the late spring or early summer, immediately after blooms have passed. The lilac plant should contain several strong canes of various ages. Only the strongest young suckers should be encouraged to grow from the base, all others should be cut out from the base.

Renewal Pruning of old lilacs should be done gradually over several years. Never remove more than one third of the overall shrub. Cut old stems back to the point where the branches originate near the ground.

Structural Pruning should open up the center of the plant to improve light and air circulation.

Deadheading of flowers that have passed improves next year's bloom. Remove flowers promptly after they fade to brown to prevent seed development, which competes with the initiation of flower buds for the next year.

Paths

Crushed Bluestone path (4-6-1)

Rake surface with a fan rake to remove litter and debris.

Fences

Spruce Pole Gate, Arch and Fence (2-8-1, 2-8-2, 2-8-3)

Inspect the structural stability of the gate, arch and fence, particularly at joints. Examine each fence section for rotting, cracked wood, and loose nails.

Repair damaged sections of fence. When work is in progress, block off the area with safety caution tape and place orange cones along the street. (repair procedures outlined on page 3 of Feature Data)

Frederick Law Olmsted National Historic Site

CALENDAR FOR INSPECTION AND WORK - July

Trees

American elm, *Ulmus americana* (4-1-1)

Trunk protection. Take preventative actions to protect the base of each tree from string trimmer and mower damage. Train all equipment operators. Hand trim around tree bases.

Prune out watersprouts and sucker growth.

Inspect trees for any branches showing signs of Dutch Elm Disease. Signs include wilting, yellowing, or leaf drop. Prune out immediately, well back into healthy wood. Send in cuttings for identification and verification of Dutch Elm Disease.

Shrubs and Vines

Common Lilac *Syringa vulgaris* (4-2-16, 5-2-3)

Inspect lilacs for pest and disease damage.

To prevent pest and disease problems, maintain good drainage, good soil, good sun, and good air circulation. Prune out dead or scale infested wood.

Some Powdery Mildew can be tolerated since it does not have a serious effect on the vigor of the plant. In some years, the spread of the disease is heavier than others. To diminish, spray with a mix of 4 Tablespoons baking soda, 1 Gallon of water and several flakes of ivory soap. This solution changes the pH of the leaf surface so that it is unfavorable for the growth and spread of of the powdery mildew.

Paths

Crushed Bluestone path (4-6-1)

Rake surface with a fan rake to remove litter and debris.

Fences

Spruce Pole Gate, Arch and Fence (2-8-1, 2-8-2, 2-8-3)

Inspect the structural stability of the gate, arch and fence, particularly at joints. Examine each fence section for rotting, cracked wood, and loose nails.

Repair damaged sections of fence. When work is in progress, block off the area with safety caution tape and place orange cones along the street. (repair procedures outlined on page 3 of Feature Data)

Frederick Law Olmsted National Historic Site

CALENDAR FOR INSPECTION AND WORK - October

Trees

American elm, *Ulmus americana* (4-1-1)

Raking. Elms tend to drop a lot of small branches after wind storms.

Eastern Hemlock *Tsuga canadensis* (1-1-5, 1-1-6, 1-1-7, 2-1-1)

Inspect hemlocks for pest and disease damage, particularly hemlock wooly adelgid and spider mite. Spray in September or April with a 2% dormant oil.

Flowering Dogwood *Cornus florida* (1-1-4)

Rake up leaves and dispose off site to reduce the amount of overwintering spores of Dogwood Anthracnose.

Paths

Crushed Bluestone path (4-6-1)

Rake surface with a fan rake to remove litter and debris.

Fences

Spruce Pole Gate, Arch and Fence (2-8-1, 2-8-2, 2-8-3)

Remove accumulated leaves, soil, and vegetation from base of fence as it contributes to decay of the fence poles and posts.

Figure 26: Seasonal calendar format.

SEASONAL CALENDAR

The seasonal calendar is an aggregation of all feature-specific calendars developed in the Feature Data section. This calendar is extremely useful because it serves as a checklist for all inspections and work needed in the landscape for a particular time of year. It is also very easy to compile when preservation practices are organized by month for each feature (refer back to Section 5A, Item f). For example, all procedures for the spruce pole fence in January are combined with procedures for trees, shrubs, stone walls, and paths as illustrated in *Figure 26.*

a Calendar periods
Inspection and work needs are combined into a calendar of seasonal, monthly, biweekly, or degree-day periods.

b Categories, feature names and field identification numbers
Within each calendar period, organize instructions into categories and feature names as defined in previous sections.

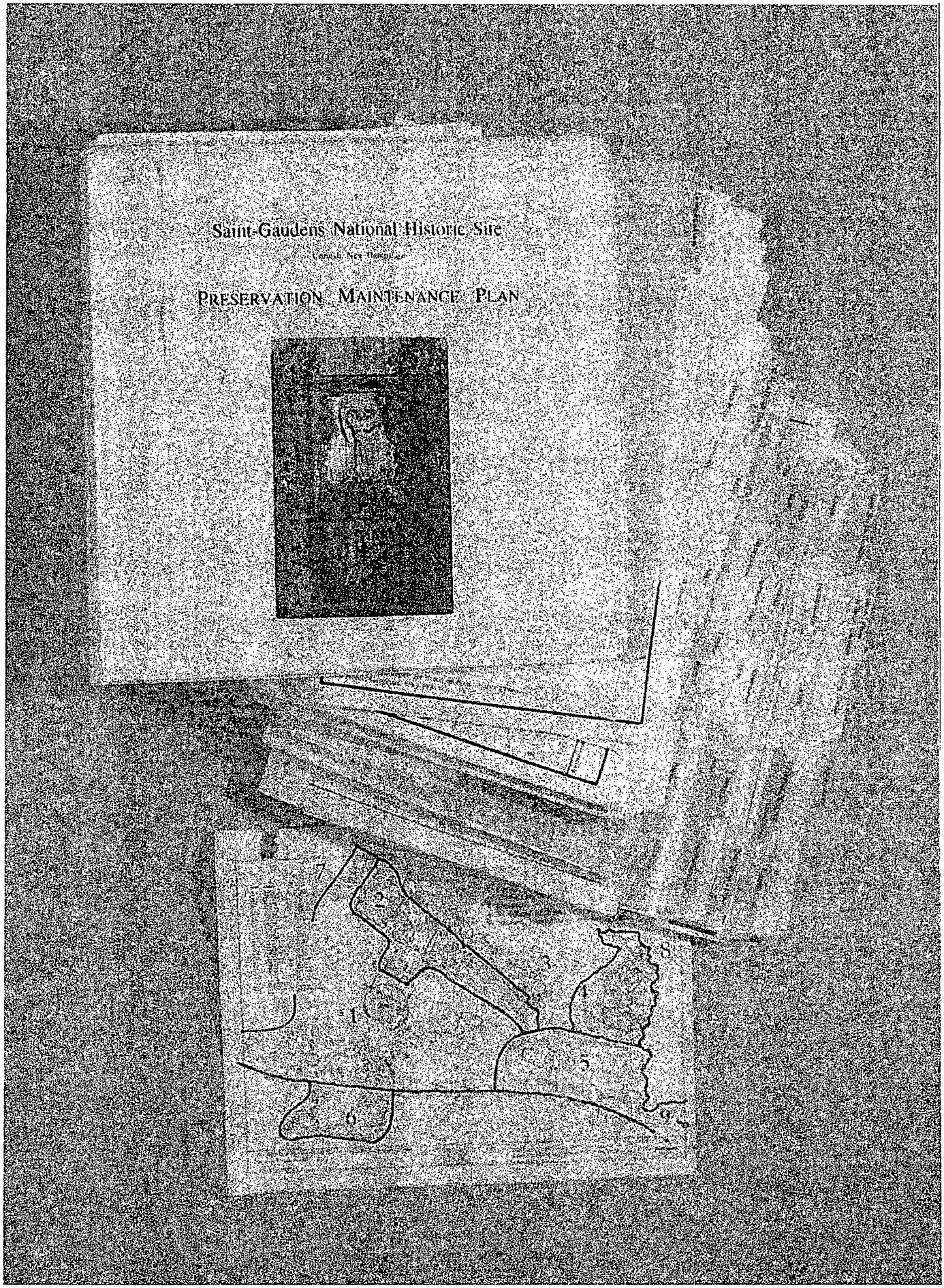
c Inspections and work needed
Compile all of the feature-specific procedures developed in Section 5A, Feature Data, Item f. If Feature Data sheets were not developed, interview maintenance staff and gather information on inspections and work performed from previous maintenance records, references, and guidebooks, including those listed in Appendix C.

d References
Most instructions require additional information. Put sources of additional information in parenthesis at the end of a recommendation when appropriate.

e Additional space
Where possible, leave blank spaces on each page of the calendar so that additional information can be added. By using the calendar and adding to or modifying it each year, it becomes increasingly valuable as a site-specific maintenance plan.

Figure 27: Preservation Maintenance Plan notebook.

CONCLUSION


Saint-Gaudens National Historic Site
PRESERVATION MAINTENANCE PLAN

CONCLUSION

A complete Preservation Maintenance Plan notebook serves many functions. The maps of areas and inventory organize and clarify maintenance operations. For example, the named areas within the landscape at Olmsted National Historic Site allow for communication between all divisions and all staff in different management areas. A comprehensive inspection and list of work needed can serve as the scope for funding a major work project. For example, at Edison National Historic Site in West Orange, New Jersey, the inspection of 450 trees resulted in a pruning project to remove hazardous limbs in 60 trees. A map indicated the trees to prune in priority order, which allowed the large field crew to move quickly. A series of inspections over several years is useful for monitoring the extent of pest damage. For example, at Saint-Gaudens National Historic Site in Cornish, New Hampshire, the extent of damage caused by bronze birch borer has been documented for four years. This information was essential for deciding whether pest control was necessary and effective.

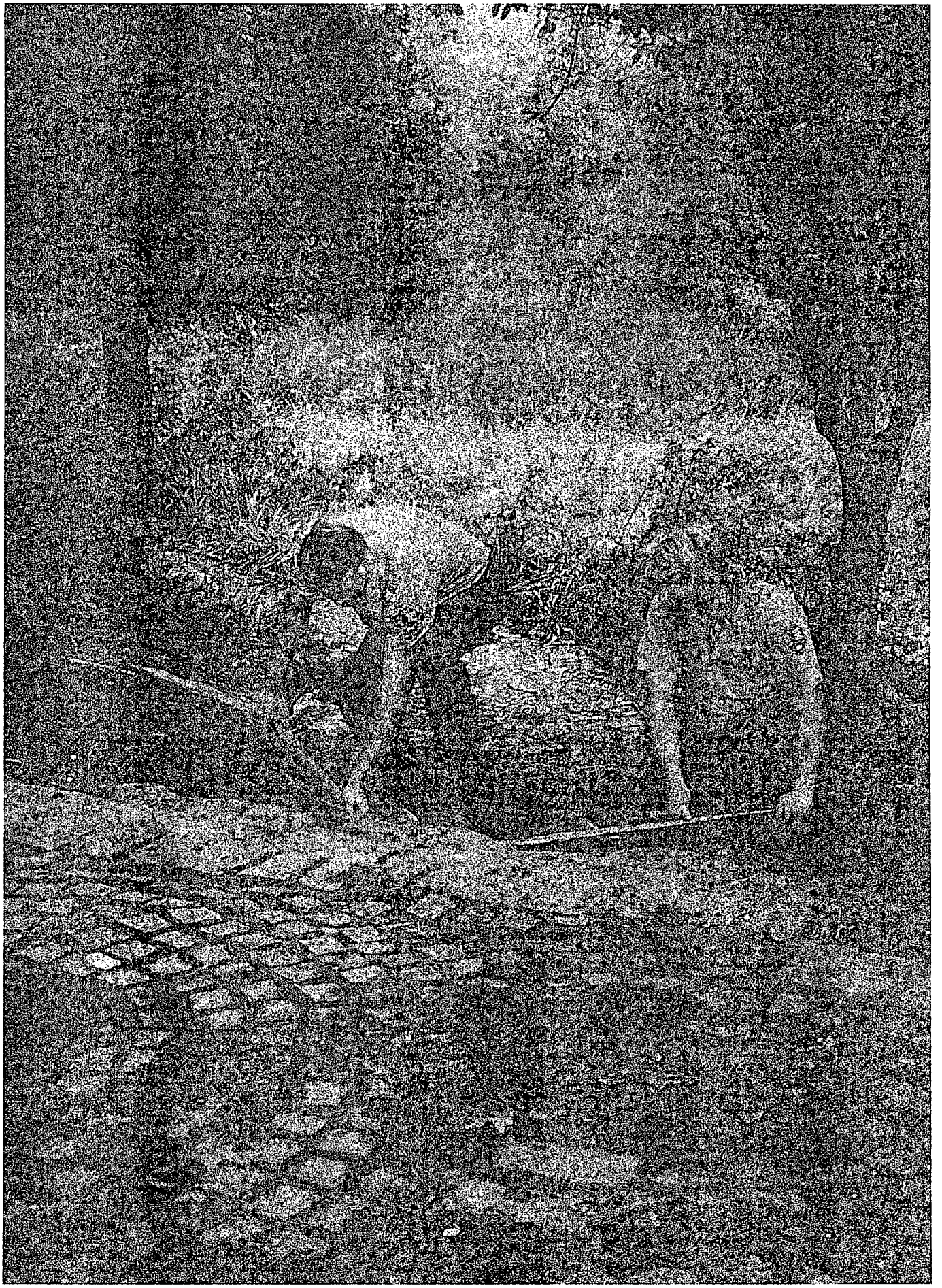
The Plan is a repository for information that might otherwise be lost. For example, at Adams National Historic Site in Quincy, MA, several fruit trees have been propagated. The date, location and contact person for these plants was recorded in the notebook. This will eliminate confusion when it is time for the plants to be replaced. Information is often lost when there is a change in personnel. The calendar section is particularly useful for new maintenance staff to understand the timing and range of maintenance work to be accomplished. Historians will also find the Preservation Maintenance Plan very useful as a source of information on how the landscape has changed.

A Preservation Maintenance Plan is built from the ground up. It is an aggregation of large amounts of detailed information. Although the format presented herein can be replicated and adapted to many historic landscapes, an actual Plan is very site-specific. The value of the Plan increases over time as memories fade and we rely increasingly on written and graphic documentation. To be most effective, a Preservation Maintenance Plan needs to be updated and amended regularly. This documentation of the ever-changing landscape will be used by many people in the years ahead.

Additional information on setting up a Preservation Maintenance Plan may be requested from the Olmsted Center for Landscape Preservation, 99 Warren Street, Brookline, Massachusetts, 02445.

Figure 28: Resetting steps at Minuteman National Historical Park, 1994 (Courtesy of Lindsay Self).

APPENDICES



APPENDIX A. TERMINOLOGY AND RELATED PROGRAMS

Cultural and Historic Landscape Types

Cultural Landscape: a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.[12] Types of cultural landscapes include:

Historic Landscapes are defined as types of cultural landscapes and include:

Historic Site: landscapes significant for their association with important events, activities, and persons. Examples include battlefields and presidential homes.[13]

Historic Designed Landscape: a landscape that was consciously designed or laid out by a landscape architect, master gardener, architect, or horticulturist according to design principles, or an amateur gardener working in a recognized design style or tradition. The landscape may be associated with a significant person(s), trend, event in landscape gardening or architecture; or illustrate an important development in the theory or practice of landscape architecture. Aesthetic values play a significant role in designed landscapes. Examples include parks, campuses, and estates.[14]

Historic Vernacular Landscape: a landscape that evolved through use by the people whose activities or occupancy shaped that landscape. Through social or cultural attitudes of an individual, family or a community, the landscape reflects the physical, biological, and cultural character of those everyday lives. Function plays a significant role in vernacular landscapes. They can be a single property such as a farm or a collection of properties such as a district of historic farms along a river valley. Examples include rural villages, industrial complexes, and agricultural landscapes.[15]

Ethnographic Landscape: a landscape containing a variety of natural and cultural resources that associated people define as heritage resources. Examples are contemporary settlements, religious sacred sites and massive geological structures. Small plant communities, animals, subsistence and ceremonial grounds are often components.[16]

Preservation Maintenance Terminology

Character describes the physical appearance and use of a landscape as it relates to its period of historical significance. Certain features in the landscape are likely to play a larger role in portraying the unique character and use of a landscape, such as a bridge, a single specimen tree, or a fountain. These are described as character-defining features.[17]

Historical Significance is a term used to describe the role of a physical feature in the landscape in relation to an event, activity, person, design concept, tradition, custom, or other pattern of settlement or land use. In some cases historical significance may be ascribed to more than one period on a landscape's physical and cultural evolution.[18]

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[12] Birnbaum, Charles. *Preservation Brief #36: Protecting Cultural Landscapes, Planning, Treatment and Management of Historic Landscapes.*, U.S. Department of the Interior. National Park Service Cultural Resources. Preservation Assistance Division, Washington DC, 9/1994, p.1.

[13] Ibid, p. 2.

[14] Ibid, p. 2.

[15] Ibid, p. 2.

[16] Ibid, p. 2.

[17] National Park Service. *NPS-28: Cultural Resource Management Guidelines, release #4*. Washington D.C.: U.S. Dept. of the Interior, NPS. July 1994, p. 93.

[18] Ibid, p. 96.

Preservation Maintenance: the act or process of mitigating wear and deterioration of a historic property without altering its historic character; including the practice of monitoring change, controlling growth, replacing in-kind, and minimizing disturbance in the landscape to ensure that features, such as vegetation, paths, walls, and other landscape furnishings, are not lost and the character of a place is not compromised. Most maintenance activities are divided into two types:

> *Routine Maintenance:* maintenance procedures that are repeated at regular and predictable intervals, such as sweeping, raking, oiling, pruning, etc.
>
> *Cyclic Maintenance:* maintenance procedures that are performed less frequently than annually and usually involve a major adjustment or change, such as resetting steps, replacing a tree, or resurfacing of paths and drives.

Stabilization: the act or process of applying measures necessary to reestablish the stability of an unsafe, damaged, or deteriorated site while retaining the essential form as it exists at present.

Treatment: work carried out to achieve a historic preservation goal. Selecting a treatment is based on many factors, including historic and proposed use; historic significance and integrity; existing physical conditions; operational and code requirements; staffing and maintenance; and cost. A treatment plan, in combinationwith a preservation maintenance plan, provides long-term guidance and specifications for the management and maintenance of a property.[19] Four approaches to treatment are defined in *The Secretary of the Interior's Standards of the Treatment of Historic Properties* (1992) as follows:

> *Preservation:* the act or process of applying measures necessary to sustain the existing form, integrity, and material of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-related work to make properties functional is appropriate within a preservation project.[20]
>
> *Rehabilitation:* the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical or cultural values.[21]
>
> *Restoration:* the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by removing features from other periods in its history and reconstructing missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical and plumbing system and other code-required work to make properties functional is appropriate within a restoration project.[22]
>
> *Reconstruction:* the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.[23]

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[19] Portions of this definition extracted from: Birnbaum, Charles. *Preservation Brief #36: Protecting Cultural Landscapes, Planning, Treatment and Management of Historic Landscapes.* U.S. Department of the Interior. National Park Service Cultural Resources. Preservation Assistance Division, Washington DC, 9/1994, p. 11-12.

[20] Ibid, p. 13.

[21] Ibid, p. 13.

[22] Ibid, p. 13.

[23] Ibid, p. 13.

Related Site Documents

Cultural Landscape Report (CLR): A comprehensive report that includes the documentation and analysis of all periods of the landscape's history and significance, an evaluation of the existing conditions and integrity, and treatment recommendations. A more detailed definition is contained within NPS-28.

General Management Plan (GMP): A document that provides a broad framework for the management, development, and use of a park for its legislatively defined purposes.

Resource Management Plan (RMP): A plan that describes the park's natural and cultural resources, documents their status, and sets forth a comprehensive management program. The RMP includes a series of project directives to complete research and documentation of the park's resources and to develop integrative programs to preserve, protect and interpret those resources.

NPS Computerized Information and Management Systems

Cultural Landscape Inventory (CLI): A computerized, evaluated inventory of historic sites, historic designed landscapes, and historic vernacular landscapes in which the National Park Service has, or plans to acquire, any legal interest. The CLI will gather information on cultural landscapes within the national park system, including their location, historical development, character-defining features, and management. Once completed, the CLI will assist park managers in defining their cultural landscape resources.

Cultural Resources Management Bibliography (CRBIB): A computerized multi-disciplinary inventory of all professional reports, books, articles, and other publications that address cultural resources in the National Park System. The CRBIB contains information on title, author, date, report location, and number of reports, and is organized by discipline and geographic area.

Inventory and Condition Assessment Program (ICAP): A computerized methodology developed for all properties within the National Park Service for inventorying, assessing conditions, identifying maintenance and major deficiencies, and for providing corrective work recommendations for all site features.

Maintenance Management Program (MM): A computerized program developed for all maintenance divisions within the National Park Service properties. The program is designed to assist maintenance managers to plan, organize and direct park maintenance programs. MM provides detailed documentation of maintenance workload and helps to identify when specific activities should be performed. ICAP has been developed to complement the MM program.

Historic Properties Preservation Database (HPPD): A computerized database containing technical information on the treatment of historic and prehistoric structures and cultural landscapes. It is used to develop work procedures (skill requirements, work considerations, material and equipment selection, and work instructions) for the ICAP - MM program, and to provide information for rehabilitation and restoration.

APPENDIX B. INSPECTION CRITERIA

The following are a sample of inspection criteria for the Field Inspection section. More specific monitoring criteria (i.e. what time of year, where to look, and what to look for) are listed in the Feature Data section under preservation practices.

For trees - Inspect overall condition, leaves, shoots, twigs, branches, cables, trunk bark, trunk flare, roots, soil, flowers, fruits, pest & disease problems, whether tag is present.

For shrubs - Inspect overall form, overhead shading, adjacent crowding, leaf, shoots, twigs, branches, support cables, base, roots, soil, rejuvenative growth, flowers, fruit, weeds, pest and disease problems.

For vines - Inspect overall form, condition of trellis or climbing support structure, weight, overhead shading, leaf, shoots, base, roots, soil, rejuvenative growth, flowers, fruit, pest and disease problems.

For hedges - Inspect overall form, batter, overhead shading, adjacent crowding, density at bottom, density at top, branches, cables, base, roots, soil, water stress, snow & ice damage, weeds, pest and disease problems.

For lawns - Inspect for holes, ruts, erosion, drainage problems, wilting, browning, mower damage, excessive thatch layer, debris on surface, pest and disease problems, weeds, compaction, soil type, pH and nutrient analysis.

For garden beds with flowering annuals and perennials - Inspect for wilting, vandalism, dead flowers, dead plants, fallen or broken stems, undefined or altered edge of garden bed, crowding, pest and disease problems, weeds, soil type, pH and nutrient analysis.

For fences and walls - Inspect for surface, finish, supports, base, deterioration, cracks, water damage, leaning, collapsed, loose or missing parts, and accumulated debris or leaf matter.

For paths, drives, and parking areas - Inspect surface for potholes, puddling, cracks, soft areas, deterioration, edge, weeds and debris.

For trails - Inspect for debris, encroaching vegetation, holes, soft areas, obstacles, and slope instability.

APPENDIX C. REFERENCES

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APPENDIX D. DATABASE STRUCTURE

Trees

LOC	Location/Area	Character	7
ID	Field ID#	Numeric	10
SCINAME	Scientific Name	Character	50
COMNAME	Common Name	Character	50
FORM	Overall Form	Character	5
LEAF	Leaf, Shoots	Character	5
BRANCH	Branches	Character	5
CABL	Cables	Character	5
TRUNK	Trunk	Character	5
ROOTS	Roots, Soil	Character	5
FLOWE	Flower, Fruits	Character	5
PESTS	Pests, Diseases	Character	5
TAG	ID Tag Present	Character	5
DBH	Diameter	Numeric	10
COMMENTS	Comments on Condition	Memo	200
DIAG	Further Diagnosis Needed	Character	5
WORKREQ	Work Needed	Character	5
STAB/REP	Stabilize and/ore Repair	Character	5

APPENDIX E. FEATURE DATA EXAMPLE—CEDAR GROVE

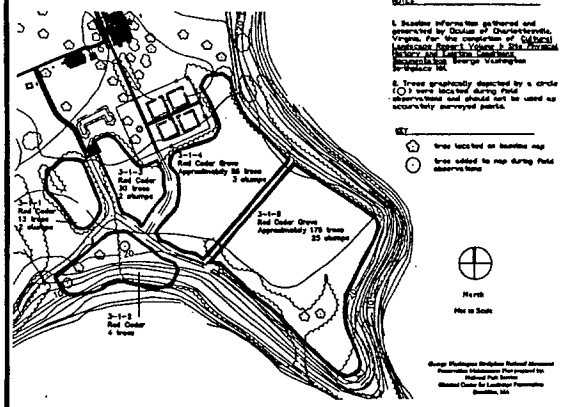
George Washington Birthplace National Monument
FEATURE DATA: Cedar Grove

Category: Vegetation

Feature Name & Field ID # (s):			
	cedar grove	3-1-1	13 trees; 2 stumps
	cedar grove	3-1-2	4 trees
	cedar grove	3-1-3	30 trees; 2 stumps
	cedar grove	3-1-4	55 trees; 3 stumps
	cedar grove	3-1-5	175 trees; 25 stumps

Source of Name: Preservation Maintenance Plan, 1996.

Location Map:



Descriptive Characteristics:

Eastern Red Cedars - Their habit is densely pyramidal when young and slightly pendulous in old age, variable in wild from columnar to pyramidal.

Grove Boundaries - The cedar grove is located on Burnt House Point. The boundaries of the grove extend from the waters edge around the point to near the edge of the Colonial Garden. The boundaries of the grove are critical and maintaining them is imperative in order to maintain the spatial quality of the historic core which existed historically.

Historical Appearance, Design or Significance

The cedar grove potentially has historic significance. According to an early history of Westmoreland County, Popes Creek was once called Cedar Island Creek because of the abundance of cedar trees on the islands and banks (*DRAFT George Washington Birthplace National Monument Cultural Landscape Report*, 1996, p. 2-10-2-11).

George Washington Birthplace National Monument
FEATURE DATA: Cedar Grove

Preservation Practices and Work Procedures

Winter

Prune out dead, damaged, and diseased wood as needed. Red Cedar normally accumulates dead foliage over time. This can be removed in areas where it is unsightly.

Remove snow from young plants promptly to avoid broken and mis-shapen limbs.

Inspect structural form of tree to determine if cables are needed. Cables may be needed to repair damage caused by snow and ice.

Monitor for Cedar Apple Rust and remove galls.

Spring

Take preventative actions to protect the base of each tree from string trimmer and mower damage. Train all equipment operators. Hand trim around tree bases.

Transplant new replacement plants. Eastern Red Cedar transplants balled and burlapped readily.

Monitor for pests and diseases. Prune out Cedar Apple Rust Galls and infected foliage as they appear, especially in warm rainy weather. Spruce Spider Mite prolific in cool weather causing foliage to appear stippled yellow or grayish and dirty. Two-spotted Spider Mites develop in hot dry weather.

Summer

Take preventative actions to protect the base of each tree from string trimmer and mower damage. Train all equipment operators. Hand trim around tree bases.

Prune out broken limbs or unwanted growth, but leave foliage to maintain a natural appearance.

Water newly transplanted trees so that they receive one inch of water every 10 days.

Monitor for pests and diseases.

Fall

Monitor for pests and diseases.

Water newly transplanted trees so that they receive one inch of water every 10 days.

George Washington Birthplace National Monument
FEATURE DATA: Cedar Grove

Preservation Practices and Work Procedures (continued)

The cedar grove is a historically important feature of the landscape. Each tree in the grove is not individually significant, it is the character, size and area of the grove as a whole that is important.

Replacements -

If replacement is necessary and

a. there are 6 or more hours of sunlight per day, the tree(s) should be replaced in-kind, in or close to its original location. This option has the least visual impact and retains the best original character of the site.

b. there is less than 6 hours of sunlight per day, the following four treatment options can be considered to increase available sunlight before replanting - in descending order:

1. record the removal and wait until adjacent trees need to be removed
2. reduce the canopies of adjacent trees by removing deadwood
3. selectively prune living branches and thin adjacent tree canopies
4. clear a section of the grove and replace all trees

It is critical to maintain the existing shape and size of the grove. When replacements are made, they should be made within the existing boundaries of the grove.

Stump removal -

The stumps resulting from tree removal should be treated in one of the following ways:

1. No Action - Wherever possible, stumps should be cut flush to the ground and left to decompose naturally.

2. Accelerated Decomposition - Decomposition may be enhanced by drilling 1" diameter holes to a 6" depth into the stump, spaced every 2-3" in a honeycomb or diamond pattern. The holes should be filled with a mixture of 1 part finely screened compost, 1 part sand to enhance drainage, and 1 part high-nitrogen fertilizer such as a slow-release synthetic fertilizer or a 100% organic fertilizer such as dried blood (see below for other sources of high nitrogen fertilizer).

3. Stump Grinding - In some cases, stump grinding may be necessary to provide sufficient planting space for the replacement of missing historic vegetation. Grind stumps to a depth of 12-24" depending on the anticipated size of new plantings. The depression should be backfilled and leveled using parent soil found onsite or a new material that closely matches the existing soil composition.

4. Roots Cut at Trunk Flare - In some cases, tree stumps need to be removed mechanically to allow for planting. They should be removed by a) washing the soil from the tree base to expose lateral roots at the trunk flare; b) cut lateral/stabilizing roots as close to trunk flare as possible; c) remove trunk; d) backfill hole with parent soil found onsite or with a new material which matches the existing soil composition.

George Washington Birthplace National Monument
FEATURE DATA: Cedar Grove

Recommended replacement materials:

seedling replacement or transplant from the vicinity
nursery stock or other off-site source

Sources of replacement materials:

Seedlings are freely produced wherever mature trees occur.

Eastern Red Cedars are common stock at many nurseries.

Additional Sources of information:

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APPENDIX F. BLANK FORMS

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

AREAS & CATEGORIES OF FEATURES

Property map:	Area# - Category#		Names

Sources:

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

INVENTORY OF LANDSCAPE FEATURES

*Category:*____________________ *Inventory conducted by:*____ *Date*____________

Feature name	*Field ID#*	*Field Tag(y/n)*	*Size*	*Origin & Age (if known)*

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

SUMMARY OF WORK NEEDED

Season	*Work Needed, Field ID#s, Feature names (optional)*	*Field notes, Hours spent, & Date completed*

Special considerations for historic appearance, design, or significance:

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

INSPECTION - SPECIMEN TREES

Feature Name and Field ID#:	Overall form	Leaf, Shoots	Branches	Cables	Trunk	Roots, Soil	Flower, Fruit	Pests, Diseases	Tag Present (y/n)	Comment on size, age, condition, field diagnosis and work needed:	Further Diagnosis Needed (y/n)	Work Needed (X) Critical Work (*)	Replace Immed (I) Plan for Repl (P)	Action Completed (date)

Recommended Equipment for Inspection:

- hand pruner
- binoculars
- insect jars

Inspected by:

Date:

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

INSPECTION - SHRUBS, VINES, & ROSES

Category: Areas: Feature Name and Field ID#:	Overall form	Overhead Shading	Adjacent Crowding	Leaf, Shoots, Twigs	Branches, Cables	Base, Roots, Soil	Rejuvenative Growth	Flower, Fruit	Pests, Diseases, Weeds	Comment on condition, size, age, field diagnosis and work needed:	Further Diagnosis Needed (y/n)	Work Needed (X) Critical Work (*)	Replace Immed (I) Plan for Repl (P)	Action Completed (date)

Recommended Equipment for Inspection:

- hand pruner
- binoculars
- insect jars

Inspected by:

Date:

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

INSPECTION - MASONRY

Category: Area: Feature Name and Field ID#:	Deteriorated	Cracked	Loose/missing mats.	Leaning	Collapsed	Veg. in contact with	Veg. growing from	Veg. causing disturb.	Other	Comment on condition and work needed:	Further Diagnosis Needed (y/n)	Work Needed (X) Critical Work (*)	Replace Immed (I) Plan for Repl (P)	Action Completed (date)

Recommended Equipment for Inspection:

- hand pruner
- hand trowel
- gloves
- camera

Inspected by:

Date:

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

INSPECTION - FENCES & WALLS

Category: Areas: Feature Name and Field ID#:	Deteriorated	Cracked	Damaged	Leaning	Collapsed	Loose, missing parts	Accumulated debris	Needs refinishing	Other	Comment on condition, field diagnosis and work needed:	Further Diagnosis Needed (y/n)	Work Needed (X) Critical Work (*)	Replace Immed (I) Plan for Repl (P)	Action Completed (date)

Recommended Equipment for Inspection:
- hand pruner
- hand trowel
- gloves
- camera

Inspected by:

Date:

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

INSPECTION - ROADS & PARKING AREAS

Category: Areas: Feature Name and Field ID#:	Potholes	Loss of surface	Puddling	Drains	Soft areas	Weeds	Debris	Edge damage	Other	Comment on condition, field diagnosis and work needed:	Further Diagnosis Needed (y/n)	Work Needed (X) Critical Work (*)	Replace Immed (I) Plan for Repl (P)	Action Completed (date)

Recommended Equipment for Inspection:

- hand trowel
- gloves
- camera

Inspected by:

Date:

OLMSTED CENTER *for* LANDSCAPE PRESERVATION

RECORD KEEPING - FEATURE: _____

Record notes on measurements, conditions, work performed, reason for removal, replacement or installation, propagation method and growing location, status of feature, or reference to a related report, etc.	Measurement	Condition/ Problem	Major Work/ Change	Removal	Replacement	Installation	Propagation	Other	Date and Initials