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Manassas National Battlefield Park
Manassas VA, 20109

Fence Lines, Fields, and Forests:

Manassas National Battlefield Cultural Landscape Report



June 2013

Resource Stewardship and Science
Division of Cultural Resources, National Capital Region



Cultural Landscape Report

Fence Lines, Fields, and Forests

Manassas National Battlefield Park

Prince William & Fairfax Counties, Virginia

Introduction

Site History

Analysis and Evaluation

Treatment

Prepared by:
Daniel Schaible
Cultural Resource Specialist

With substantial contributions from:
Jane Anderson
Judith Early
Saylor Moss
Nancy Sarai Vazquez

National Park Service, National Capital Region
Cultural Resources Program, Washington, DC
June 2013



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Cover Image: "Stripping a Rail Fence for Fire," illustration by Alfred R. Waud, created between 1860-1865, pencil and Chinese white on brown paper. (Image courtesy of the Library of Congress Prints and Photographs Division Washington, D.C.)

Title Page: Cannon-eye view, from Matthews Hill south towards Henry Hill (National Capital Region Cultural Resources Program, 2012).

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Executive Summary

As its title suggests, this report focuses on two central components of the Manassas Battlefield historic scene: fences and vegetation. During the Civil War, the distribution of forest cover and field along with the high density of agricultural fence lines influenced battlefield tactics and strategies. Today, these features are arguably the most visible and widespread markers within the Manassas Battlefield's cultural landscape, and provide the scaffolding in which the battles are commemorated and interpreted.

Both historically and in the present day, these critically important features require substantial outlays of labor and capital to construct and maintain. Thoughtful consideration regarding their siting, extents, and distribution is as important today as it was leading up to the Civil War. This report provides a framework for future restoration of fence lines and vegetative cover at Manassas, taking into consideration an action's historic and interpretive value relative to its cost and long term maintenance liability.

This report recommends the strategic expansion of fence lines and a corollary reduction in forest cover within the park to better reflect the battlefield's historic conditions and provide for enhanced interpretive opportunities. In total, this report calls for the conversion of 210 acres of second growth forest into its historically open condition, reducing the amount of forest cover within the park from 2,672 to 2,462 acres. In addition, it calls for the expansion of fence lines within the park, from the current inventory of roughly 29,000 linear feet to 39,500 linear feet. While both of these recommendations stop short of advocating for full restoration of historic conditions within the battlefield (it is estimated that historically there were 983 forested acres and 193,000 linear feet of fencing within the park), these interventions are intended to have a large impact on the battlefield's historic character while remaining financially feasible.

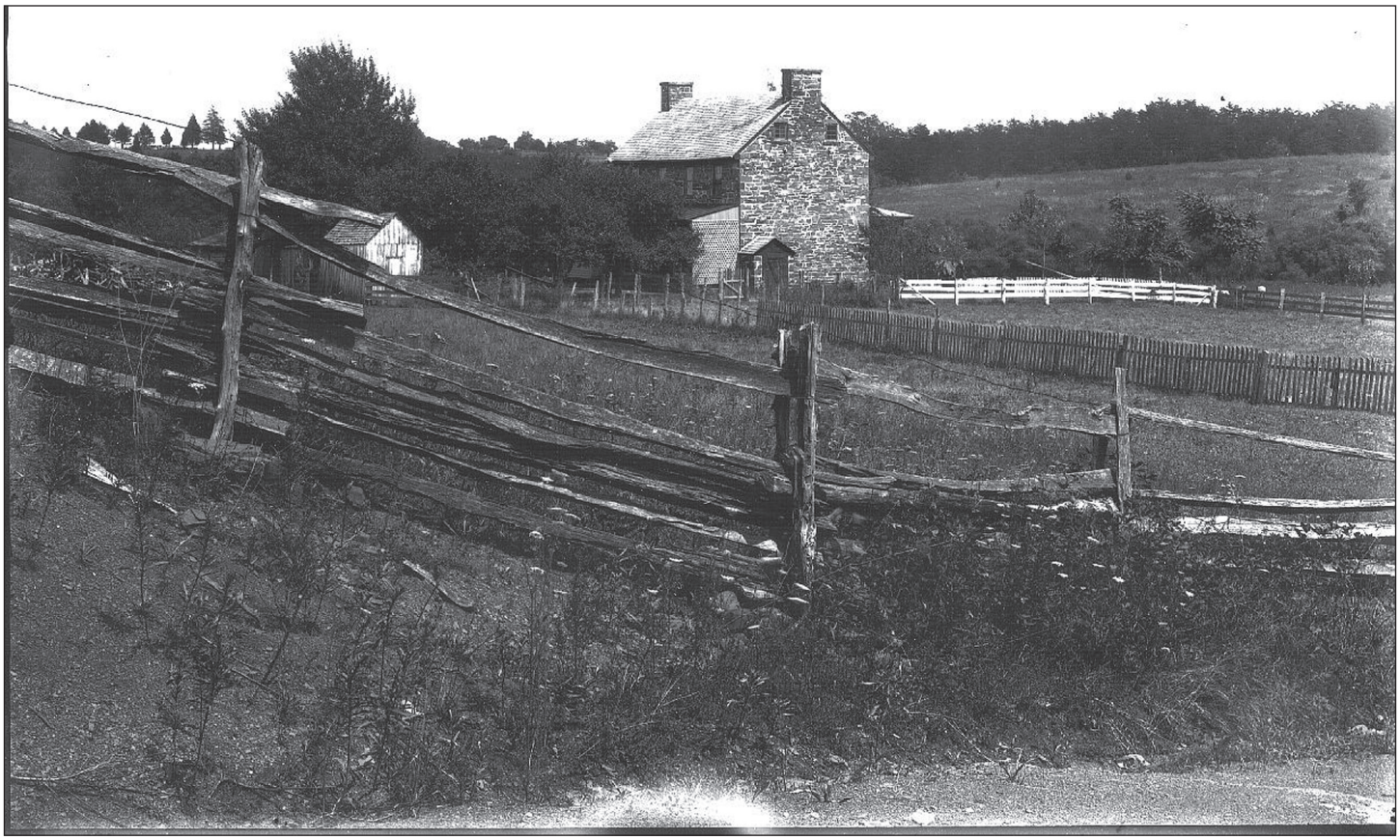
A number of supporting tables, maps, and graphics were prepared to help convey the findings and treatment recommendations within this CLR. These include a prioritization and cost estimate matrix (Appendix D), a set of design drawings for the historic fence types found at Manassas (Appendix A), and a robust group of maps, including existing condition maps and treatment plan maps.

Acknowledgements

This report was a collaborative undertaking between the National Capital Region and Manassas National Battlefield Park. The report was prepared by Daniel Schaible, Cultural Resource Specialist with the National Capital Region. On addition, this report received tremendous support from other National Capital Region employees in way of archival research, preparing the historic narrative, and producing hand-rendered and digital graphics. In particular, Jane Anderson, Judith Early, Saylor Moss, and Nancy Sarai Vazquez provided enormous assistance towards completing this report. In addition, the Chief of the National Capital Region Cultural Landscape Program, Maureen Joseph, provided hands-on project oversight and expert advice.

Furthermore, this report was the beneficiary of peer review and consultation with an array of NPS staff members from both Manassas National Battlefield Park and the National Capital Region. Specifically, we acknowledge the indispensable contributions made by Ray Brown, Jim Burgess, Ed Clark, Michael Commisso, Bryan Gorsira, Frances McMillen, Cynthia Wanschura, and Perry Wheelock.

Fence Lines, Fields, and Forests: Manassas Battlefield CLR



Part 1: Introduction

Part 1

Introduction

The Cultural Landscape Report (CLR) introduction provides an overview of the administrative context of the project, including a scope of work for the project, a summary of the sites' significance and integrity, an overview of ongoing and completed park plans, and a description of the project's boundaries.

Scope of Work and Methodology

The need for a park-wide Cultural Landscape Report (CLR) for Manassas was identified in the 2008 GMP, which states "A Cultural Landscape Report . . . is needed to . . . make specific landscape treatment recommendations [for] battlefield landscape and scene rehabilitation activities," and that the "preparation of a Cultural Landscape Report would precede the rehabilitation of the battlefield landscape."[1]

This study's scope of work, as developed through consultation between Manassas National Battlefield Park and the National Capital Regional Office, is to focus the CLR on eight areas within the park that are most frequently visited and that have the greatest interpretive value. These eight areas are the two primary circulation routes within the park (Sudley Road and the Warrenton Turnpike) and six primary interpretive nodes (Brawner Farmstead, Chinn Ridge, Deep Cut, Henry Hill, Matthews Hill, and Sudley/Thornberry). Furthermore, this CLR focuses its analysis and evaluation and treatment recommendation on a narrower list of landscape features than are generally examined within a CLR. Specifically, this report focuses only on vegetation management and fencing, which help preserve the desired setting and organization of the historic battlefield landscape.

The scope of work calls for completion of Parts 1 and 2 of the CLR, and will include the following tasks:

- Research using primary and secondary sources
- Preparation of historic contexts for agriculture and fencing
- Preparation of existing condition plans
- Completion of a field survey to inventory and document existing conditions
- Definition of the appropriate treatment approach for the project area
- Develop treatment recommendations that address the management and maintenance of cultural landscape resources with a focus on vegetation management and fencing
- Preparation of site plans and drawings to illustrate proposed recommendations
- Prioritization, cost, and maintenance needs for proposed treatment recommendations

The primary guidance used to prepare the CLR was "A Guide to Cultural Landscape Reports: Contents, Process, and Technologies", "The Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for the Treatment of Cultural Landscapes", and "Director's Order 28: Cultural Resource Management Guideline." These guides provide direction on the appropriate content, format, and level of detail for a CLR.

Significance and Integrity Summary

Significance

The Manassas Battlefield Historic District was originally listed in the National Register of Historic Places in 1981. The nomination was amended in 2006, primarily to include the boundary expansions that took place in 1988 with the incorporation of the Stuart's Hill tract into Manassas National Battlefield Park. The Manassas Battlefield Historic District is nationally significant in the areas of military, archeology, architecture and commemoration. The property encompasses roughly 6470 acres, of which 5073 acres are within Manassas National Battlefield Park.[2] It has a period of significance that spans 122 years

Chapter Image (used for all chapter breaks): Stone House, ca. 1908, showing numerous fence typologies. (Image courtesy of the Kern Collection, Montgomery County Historical Society, Dayton, Ohio.

Battlefields cannot be frozen in time. The cataclysmic event that gave the sites their significance created a highly unstable landscape of destruction.

beginning with the subdivision of the Carter family estate in 1820 and ending in 1942, the year that the Visitor Center on Henry Hill was completed.[3] Although the property primarily derives its historic significance from the short and bloody Civil War battles that occurred there in 1861 and 1862, the defined period of significance for the site spans roughly 40 years before and 80 years following the Civil War.

Manassas Battlefield Historic District is nationally significant because it includes the locations of the Battles of First and Second Manassas. Many park resources contribute to this national significance, as well as the public's understanding of the battlefield events and the social and economic impacts of the Civil War. These park resources include Civil War era buildings and structures, road traces, and archeological sites, as well as post Civil War monuments and visitor facilities.

- "The [Manassas National Battlefield] park, which is one of only a few Civil War battlefield parks that include the majority of the actual battlefield areas where troops formed, fought, and died, provides visitors with an opportunity to experience the features that shaped the two battles. These features include historic structures, road traces, sites, and cemeteries. Historic artifacts on exhibit from the park's museum collections and archeological sites within the park represent the Battle of First Manassas (July 21, 1861) and the Battle of Second Manassas (August 28-30, 1862).
- "The park contains cultural landscapes from the period of the battles (1861-1862) that contain historic features of the battles, as well as woodlands, fields, streams, rolling hills, and certain views or vistas that are representative of the physical setting that existed at the time of the battles. The park also contains post-Civil War cultural landscapes (1865- 1940) that commemorate the battles with monuments and other objects erected in memory of soldiers who fought there."[4]

Within the historic context of the Civil War, the two battles of Manassas are nationally significant because:

- "The Battle of First Manassas was the first major land battle of the Civil War, and it dispelled all preconceived notions of a short war. The 900 Americans killed on the battlefield were graphic proof that Civil War would be a protracted, bloody struggle.
- "The Battle of Second Manassas brought the Confederacy to the height of its power and opened the way for the first Confederate campaign into the North."[5]

Integrity

Historic integrity is most commonly defined as a property's ability to convey its significance. Put another way, historic integrity is the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic period.[6] A basic test of integrity for a battlefield is whether a participant in the battle would recognize the property in the form that it is in today. Historic integrity is determined by analyzing seven qualities of a historic property, typically referred to as the seven aspects of integrity. These seven aspects of integrity are: location, design, setting, materials, workmanship, feeling, and association. Although it is desirable for a property to retain all seven aspects of its historic integrity, it is not mandatory for all of the aspects to be present as long as the overall sense of past time and place is evident.[7]

In practice, absolute preservation of a historic battlefield is impossible, given the multiple ecological, geological, and anthropogenic changes that a landscape is susceptible to. The inherent challenge in battlefield preservation is best framed by Patrick Andrus in the National Register Bulletin on historic battlefields:

> *Battlefields cannot be frozen in time. The cataclysmic event that gave the sites their significance created a highly unstable landscape of destruction. Even where efforts to preserve the battlefield were initiated almost immediately, as at Gettysburg, it proved impossible to perpetuate the scene in the exact form and condition it presented during the battle.*[8]

Regarding the rapid changes to a battlefield's vegetative cover following a war, Andrus continues:

"The issue of a changing forestation on a battlefield is complicated by the fact that forest cover during a historic period may have changed dramatically in areas of intense extended fighting. In wooded areas, armies could use extensive amounts of wood for cooking, creating shelter, and in constructing defensive works. In areas where battles took place in cultivated fields, the abandonment of farms could be followed quickly by forestation."[9]

Despite these challenges, the Manassas Battlefield Historic District retains a remarkably high degree of integrity. Today, the battlefield is sufficiently intact and has vistas that closely resemble what was seen by the generals and soldiers of the First and Second Battles of Manassas. Although some incompatible changes have occurred outside park boundaries, the land has largely remained rural in nature. The battlefield retains integrity of location, setting, feeling and association to the historic events that took place on the property during the Civil War. With regards to the property's man-made resources, such as the dwellings, military embattlements, and the Unfinished Railroad, Manassas retains integrity of design, workmanship, and materials.[10] Most of the historic landscape resources from the Civil War are intact in remnant form above or below ground. By looking carefully at the landscape one can decipher the traces left from old farm roads, fence lines, woodlots, house sites, and even burial locations.[11]

Overview of Park Plans

Manassas General Management Plan/ Environmental Impact Statement (2008)
The purpose of the Manassas General Management Plan (GMP) is to define a direction for the park for the next 15 to 20 years. As conceived, a park GMP is the primary foundational document in which future park management decisions are expected to be subordinate to.

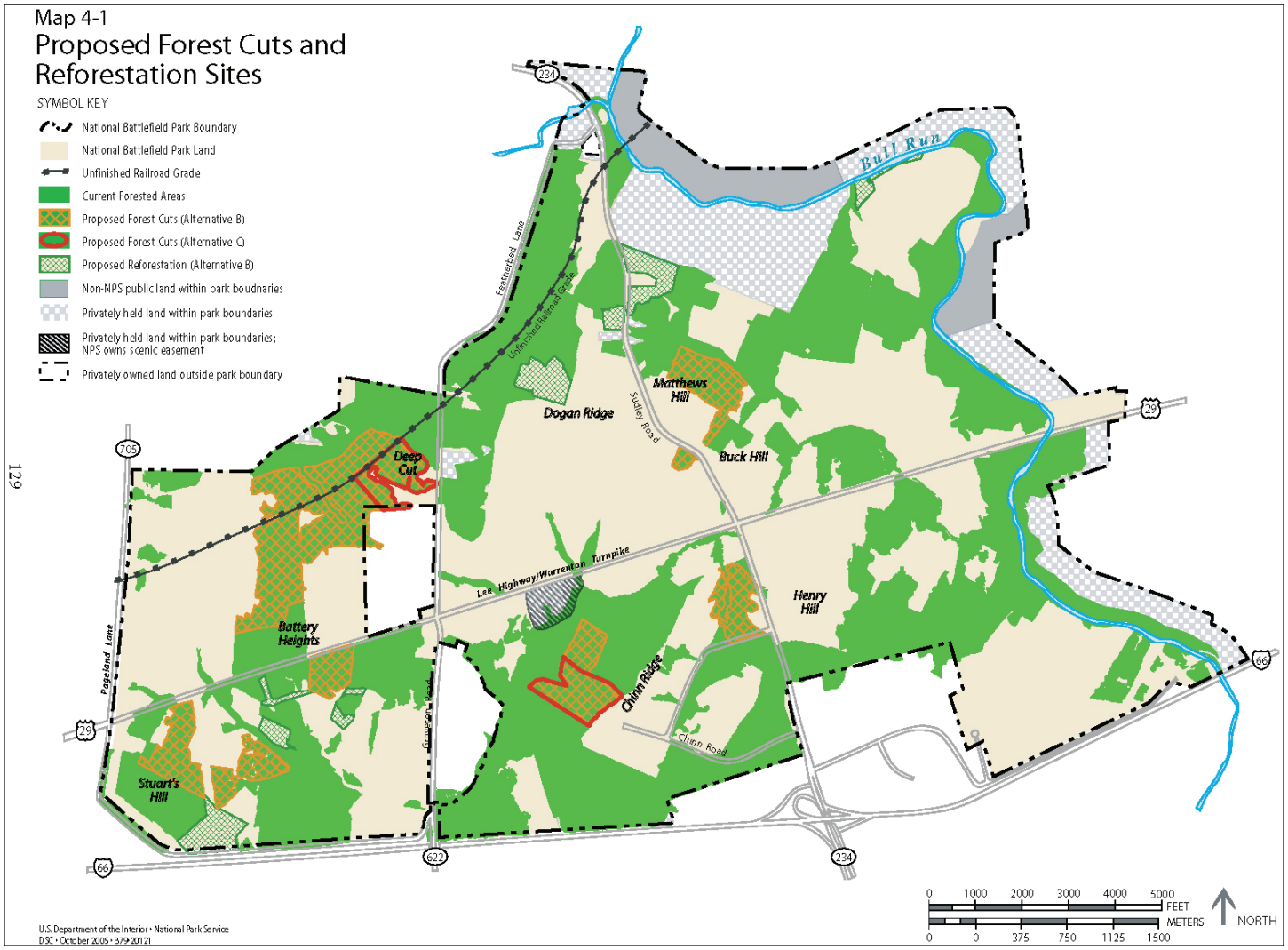


Figure 1.0. Map from the Manassas GMP (2008) illustrating proposed forest cuts and reforestation sites.

The primary issues that are addressed in the 2008 Manassas GMP are:

- Heavy commuter traffic on portions of U.S. Route 29 (Warrenton Turnpike) and VA Route 234 (Sudley Road) that run through the park.
- The quality and amount of interpretation devoted to each of the two battles.
- The preservation and rehabilitation of wartime and other historic structures and sites.
- Current vegetation patterns at the park and its relationship to historic views and interpretive needs.

Through a public review process, The Manassas GMP looked at various solutions to the identified issues, including a "No Action" alternative. In the end, the park settled on "Alternative B, The Two Battles of Manassas" as its preferred alternative. Under this alternative, the park would focus on interpreting the two battles of Manassas as distinct military events where visitors would gain a thorough understanding of the first and second battles by visiting separate visitor contact areas at Henry Hill and Brawner Farm, respectively. In addition, a Manassas Bypass would be constructed that would remove heavy commuter traffic from within the park. Lastly, key interpretive views at Manassas would be preserved and recreated by removing second growth forests that have obscured historic sightlines.[12]

The GMP has specific recommendations for the clearing of non-historic wooded areas, and, to a lesser degree, the conversion of grasslands to forests in areas where forests either existed during the Civil War, or where they are desirable because they would screen non-historic obtrusions outside of the park. In total, the GMP calls for converting 278 acres of woods to grassland. Specifically, the GMP calls for:

- Clearing 100 acres of woods northeast of Brawner Farm to reestablish the view from Brawner Farm to Deep Cut
- Clearing 45 acres of woods along the west side of Chinn Ridge to reestablish the view between Chinn Ridge and the New York Monuments
- Clearing 25 acres of woods along the east side of Chinn Ridge to reestablish the view between Chinn Ridge and Henry Hill
- Clearing 30 additional acres along the current Stuart's Hill clearing to restore the view from General Lee's headquarters towards Centerville
- Clearing 40 acres of woods around the Cundiff House to restore views from Stuart's Hill to the Second Manassas battlefield
- Clearing 35 acres of trees from Matthew's Hill to return the land to historic vegetative conditions
- Clearing 3 acres of woods along the curve of Sudley Road to open up views from Chinn Ridge to Matthews Hill for a total of 278 acres of woods converted to grassland.

In addition the GMP calls for the reforestation of roughly 85 acres of land, including:

- Reforesting 20 acres south of Stuart's Hill to block views of the high voltage power lines
- Reforesting 15 acres around the Cundiff House to improve historic and ecological qualities
- Reforesting 20 acres along the central portion of Dogan Ridge and another 25 acres to the north of Matthew's Hill to restore historic forest patterns
- Reforesting 5 acres of land along Bull Run to the west of Poplar Ford to block views of development to the north of the park.[13]

Manassas Battlefields Viewsheds Plan (2009)
Due to threats to historic viewsheds surrounding the Manassas National Battlefield Park, Congress passed legislation in 1988 directing the Secretary of the Interior to cooperate with state and county government to promote visual protection for viewsheds associated with First and Second Manassas. The *Manassas Battlefields Viewsheds Plan* was prepared to achieve those results, by: identifying key viewsheds associated with the battlefields, both within and outside of the park; measuring and analyzing viewsheds significance; determining the extent of the threats to viewsheds; and lastly, crafting a strategy to protect these important viewsheds for future generations.[14]

The plan divided the historically significant viewsheds into two classifications: Public Vantage Points (PVPs) and Historically Based

Viewsheds (HBVs). The primary distinction between these two classes is that PVPs were subject to more detailed documentation and analysis than HBVs, largely because they had greater integrity at the time that the plan was initiated. In all, 10 PVPs and 15 HBV were selected. Included within the PVPs are the six landscape character area interpretive nodes that will be analyzed in this cultural landscape report: Brawner Farm, Chinn Ridge, Deep Cut, Henry Hill, Matthews Hill, and Sudley/ Thornberry. The viewshed plan goes on to recommend three types of general strategies for Manassas viewshed preservation: 1) public policy tools 2) private sector land control tools and funding sources, and 3) physical enhancement approaches.[15] The report is particularly thorough in assessing public policy tools, but offers a noticeably less robust suite of strategies for viewshed preservation through private sector land control tools and physical enhancement approaches.

The plan does suggest that Prince William County is the most likely location for future adjacent development, as Fairfax County is already largely built out. As such, vegetative screens should be considered from historic viewpoints that look out towards land in Prince William County.

White-tailed Deer Management Plan and Environmental Impact Statement (Draft, 2012)

The White-tailed Deer Management Plan, which is incomplete at this time and in draft form, seeks to address the associated impacts of the current unnaturally high density of deer extant at three Civil War battlefields in relatively close proximity to each other: Manassas, Antietam, and Monocacy. Although relatively rare at the turn of the twentieth century, white-tailed deer populations in the Mid-Atlantic region have grown during recent years. Deer thrive on food and shelter available in the "edge" habitat conditions created by suburban development. The size of deer herds and population density has increased substantially over the years at all three battlefields. Current deer densities are larger than commonly accepted sustainable densities for this region and are estimated at about 15–25 deer per square mile. Results of vegetation monitoring in recent years have documented the negative effects of the large herd size on forest regeneration in all three battlefields. In addition, deer browsing has resulted in damage to crops and associated vegetation that are key components of the cultural landscapes of the battlefields.[16]

At this point, the Deer Management Plan is incomplete and the parks have not selected a preferred alternative. However, the parks are currently giving consideration to the following alternatives

- Alternative A, the "No Action Alternative," would see limited existing deer management continue at the three battlefields, including deer and vegetation monitoring, data management, research, limited fencing, and limited repellent use. No new actions would be taken to reduce the effects of deer over-browsing.
- Alternative B, the "Non-lethal Deer Management Alternative," would incorporate a combination of non-lethal actions to address the impacts of high numbers of deer on vegetation. These actions include the construction of large-scale deer exclosures for the purposes of forest regeneration and the use of nonsurgical reproductive control of does to restrict population growth.
- Alternative C, the "Lethal Deer Management Alternative," would use lethal deer management actions to reduce the herd size. Direct reduction of the deer herd would be accomplished mainly by sharpshooting with firearms, although capture and euthanasia of individual deer may be needed in limited circumstances.
- Alternative D, the "Combined Lethal and Non-Lethal Deer Management Alternative," would incorporate a combination of lethal and non-lethal actions. Lethal actions (including sharpshooting, with limited capture/ euthanasia) would be taken initially to reduce the deer herd numbers. Population maintenance would then be conducted via reproductive control methods, if they meet NPS criteria for use; if not, sharpshooting would be used as a default option for maintenance.[17]

Manassas National Battlefield Park Bypass Draft Environmental Impact Statement (2005)
This study evaluates a variety of transportation improvement alternatives in the vicinity of the Manassas National Battlefield Park to alleviate traffic and congestion within the park. The plan develops alternatives that will allow for a rerouting of the portions of US Route 29 and VA Route 234, which currently transect the Manassas Battlefield. These efforts would improve circulation, historic character, and visitor experience within the park by removing commuter and truck traffic from the state and federal highways in the park and rededicating the roads for park use only.[18]

In all, the plan looks at six alternatives, comprised of a single No-Action alternative and five Build alternatives. Following analysis and public review, Alternative D was selected as the preferred alternative. Alternative D follows an alignment that begins east of the park at the Luck Stone Quarry, then moves north, bisecting the northeast corner of the park, and proceeds between Bull Run and the Fairfax National Golf Course, before connecting with Route 234 northwest of the park at Catharpin. Alternative D was identified as the preferred alternative because it:

- Minimizes impacts to existing residential areas.
- Has a relatively minimal presence within the amended Manassas Battlefield Historic District.
- Will allow for future collocation with planned improvements along Route 234 and the Tri-County Parkway.
- Has the least impact on visual resources within the Manassas National Battlefield Park.[19]

In 2006, a modified Alternative D was approved by the Virginia Commonwealth Transportation Board. The modified Alternative D would be routed around the northeast corner of the Manassas National Battlefield Park rather than bisecting it. It would also reduce the number of Bull Run crossings from two to one.

Tri-County Parkway Location Study, Draft Environmental Impact Statement (2005)
The plan involves the construction of a new north-south transportation link to connect the city of Manassas with I-66 and the Dulles corridor. The study area presently lacks adequate north-south transportation capacity with heavy congestion occurring around the a.m. and p.m. peak periods.[20]

The plan analyzed the following four alternatives:

- No Build Alternative: This alternative would not involve the construction of a new north-south highway; rather it would continue routine maintenance and ongoing operation of the existing roadway network in the study area.
- The "West Two" Alternative runs north from its point of origin at the I-66 and VA 234 junction, along the western periphery of Manassas National Battlefield Park. Early analysis estimates the cost of this alternative at $201 million, and it has the least impacts to floodplains and historic sites. It also has the second lowest impacts to neighborhoods, public parks, and wetlands. However, this alternative does not serve the community linkage needs as well as the other two build alternatives.
- The "West Four" Alternative follows the same alignment as the West Two alternative, heading north from the I-66 and VA 234 junction, but this route turns markedly east near the small unincorporated town of Catharpin. Early analysis estimates the cost of this alternative at $176 million, and it has the benefits of impacting the least amount of neighborhoods, and is second lowest in its effects to historic resources. Qualitatively, this alternative is the second best at meeting system community linkage needs.
- The "Comprehensive Plan" Alternative has a completely different alignment than the other two build options and is markedly more expensive. This route starts southeast of the other alignments, at the junction of VA 234 and VA 26. From here, the route runs northeast through the Bull Run Regional Park, before skirting northward along the eastern periphery of Manassas National Battlefield Park. The estimated cost for this alternative is $547 million. This plan has the fewest number of impacts to historic sites, but has the greatest impacts to floodplains, parks, and wetlands, and has the second highest neighborhood impacts.

This alternative would, however, best meet the social and economic community linkage needs.[21]

Following public review and extensive inter-agency consultation, the "West Two" alternative was selected as the preferred alternative.[22] Since this date, the NPS and the Virginia Department of Transportation have consulted on the potential collocation of the Tri-County Parkway and the western leg of the Manassas Battlefield Bypass, resulting in a draft agreement between the federal and state agencies.

Manassas National Battlefield Park Wildland Fire Management Plan (2009)
This plan is the primary planning document directing park wildland fire management activities at Manassas. These activities include preparedness planning and activities, fire staffing and training, prevention, and suppression. The plan lays out the following six goals for wildland fire management:

- Make firefighter and public safety the highest priority of every fire management activity.
- Suppress all wildland fires, regardless of ignition source, to protect the public, private property, and natural and cultural resources at Manassas.
- Manage wildland fire suppression efforts in concert with federal, state, and local air quality regulations.
- Facilitate reciprocal fire management activities through the development and maintenance of cooperative agreements and working relationships with pertinent fire management entities.
- Reduce wildland fire hazard around developed areas and areas adjacent to cultural and historic sites.
- Educate employees and the public about the scope and effects of wildland fire and wildland fire management.

Notably, the plan emphasizes that prescribed fire is not currently an option at Manassas, as the requisite pre-planning and compliance have not been completed.

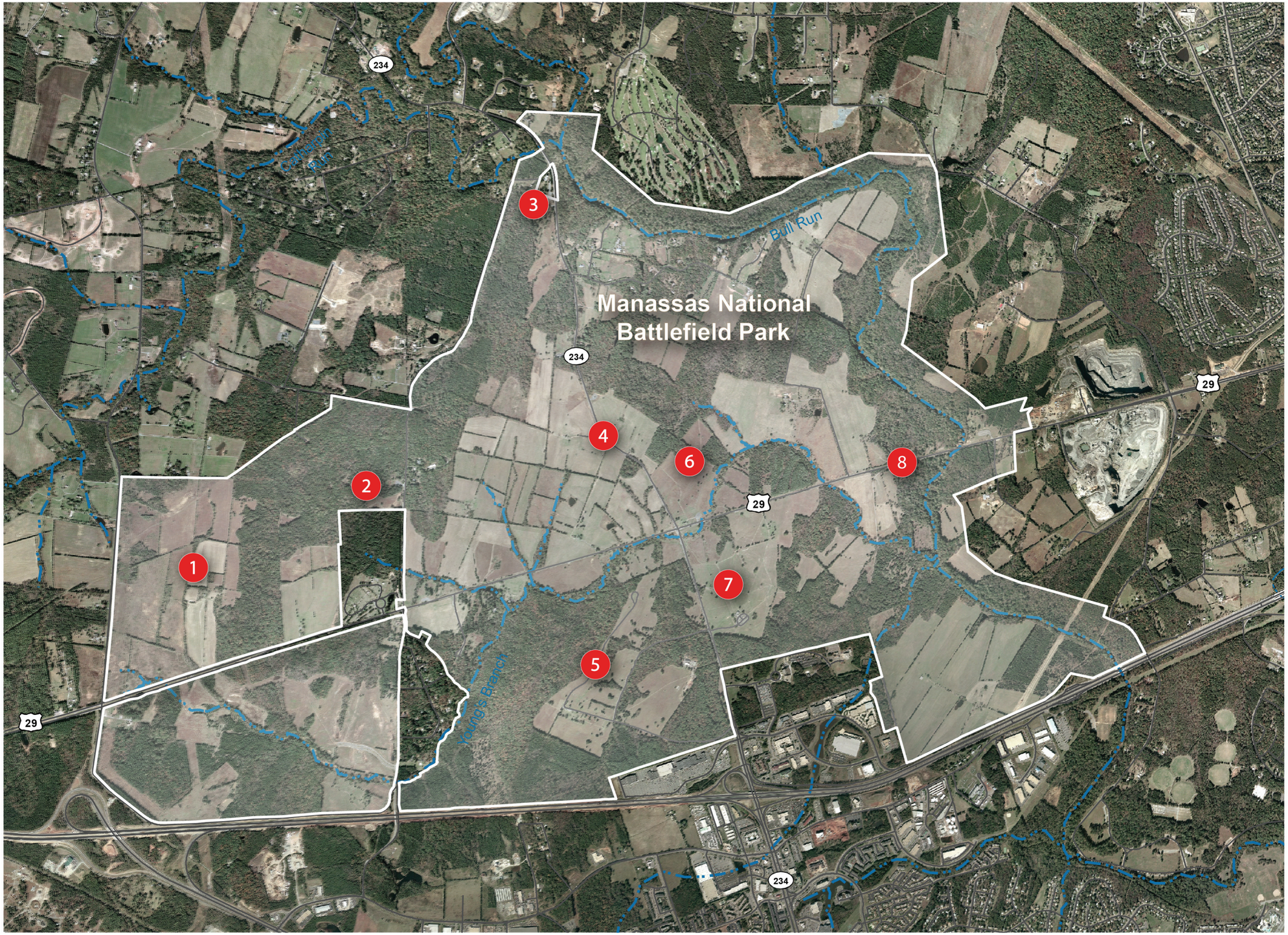
Park Operations Plan (2009)
Following the completion of the General Management Plan (GMP) in 2008, Manassas prepared a Park Operations Plan to serve as an interim plan while the GMP is being implemented. This concise plan lists the goals that are desired to be completed or initiated within the next three years and assigns a staff person to be responsible for achieving those goals. These goals are divided into four priority categories: 1) Immediate Attention Needed, 2) Ongoing/Operational, 3) Intermediate/As Opportunities Arise, and 4) Long-Range. Along with calling for the preparation of this CLR, the Park Operations Plan contains many goals that relate directly to this CLR, including direction to "protect viewsheds" and to "preserve and protect … the historically significant cultural landscape."[23]

Description of Study Boundaries

The study boundary for this CLR is the entire Manassas National Battlefield Park, with a specific focus on eight primary interpretive nodes and circulation routes. The park is located in the Piedmont region of Virginia, which stretches from the falls of the Potomac, Rappahannock, and James Rivers to the Blue Ridge Mountains. With a translation of "foot of the mountain," the Piedmont extends eastward from the Blue Ridge Mountains, and consists of gently rolling hills that were used historically for agriculture but have seen increasing residential development, particularly in the northern Virginia Piedmont. The park resides primarily in Prince William County, with a lesser amount in Fairfax County, and is approximately 25 miles west of Washington. D.C. Of the park's 5,071 acre legislative boundary, the federal government owns approximately 85 percent and private owners hold the remaining 15 percent. Interstate 66 borders the park to the south, Pageland Lane (VA 705) borders the park to the west, Bull Run (including a buffer that captures land on the north and east side of Bull Run) defines the boundary on the east, and a combination of Bull Run, Catharpin Run, and Featherbed Lane (VA 622) largely define the boundary on the north. [24]

This CLR focuses on the park's primary circulation corridors and interpretive nodes. As the majority of the park is visible from these discrete locations (or, in many instances, was historically visible from these

locations) treatment recommendations will extend well beyond the selected interpretive nodes and circulation corridors. Treatment recommendations will not be made for the private and publicly held land that is visible outside the park boundary, nor for the 15 percent of land within the park that is in private ownership. Although treatment recommendations will not be made for the lands outside the park boundary or the 15 percent of land under private ownership, this CLR identifies appropriate areas for vegetative screens within the park to obstruct intrusions outside of the battlefield, when necessary.



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National
Battlefield Park
Manassas, Virginia

Site Plan With Landscape Character Areas

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Terrain Basemap
2. 2012 GIS Aerial Basemap
3. 2005 IRMA Geospatial Dataset (2167348)
4. 2012 Manassas NBP Park Map
5. 2012 Manassas NBP Historical Map

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

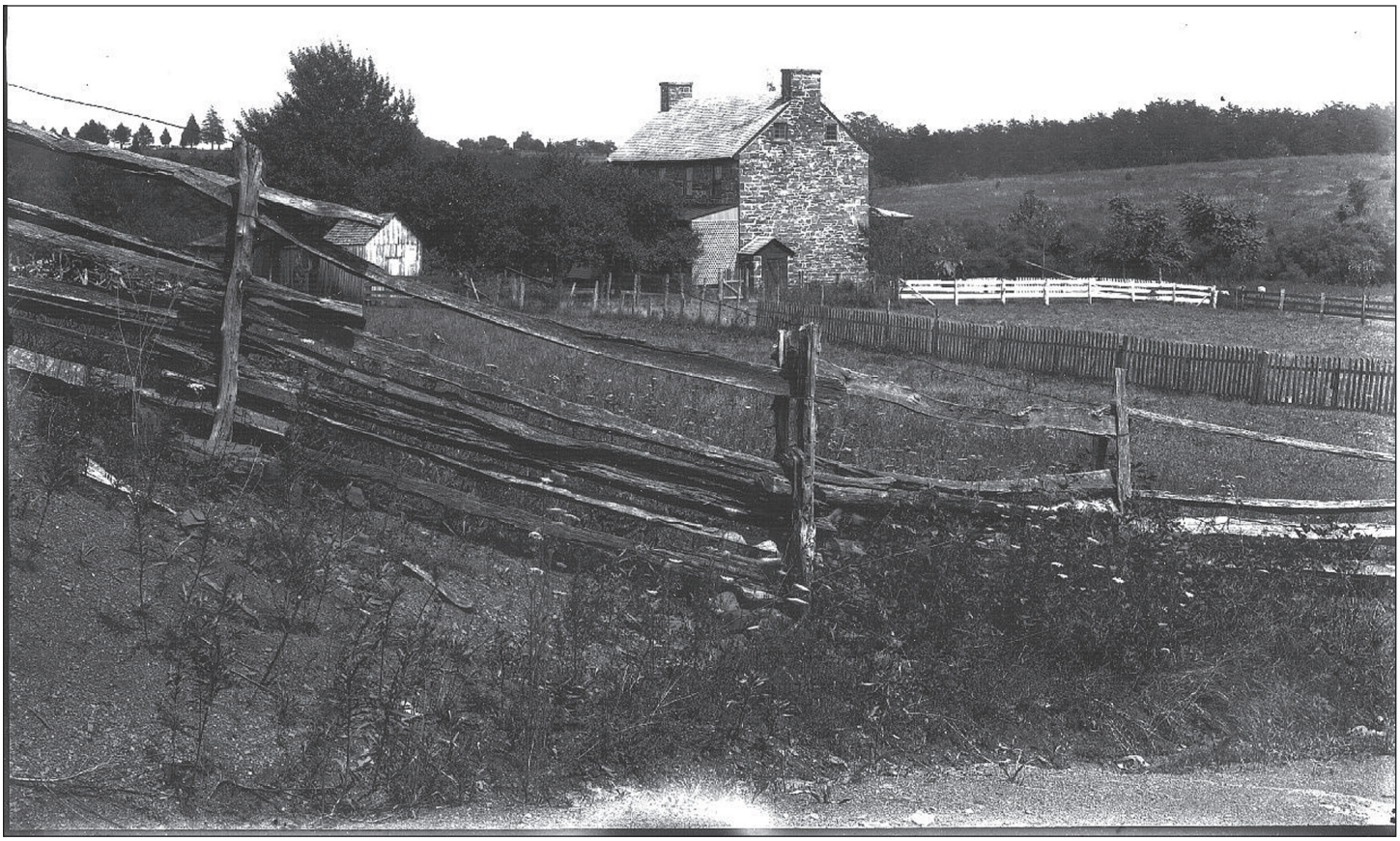
1. Brawner Farmstead
2. Deep Cut
3. Sudley/Thornberry
4. Sudley Road (VA Highway 234)
5. Chinn Ridge
6. Matthews Hill
7. Henry Hill
8. Warrenton Turnpike (US Highway 29)

Vehicular Road
River/Stream

North
Scale: 1: 40,000

Drawing 1.0

Fence Lines, Fields, and Forests: Manassas Battlefield CLR



Part 1: Site History

Site History

Pre-European Settlement

It is estimated that American Indians first inhabited Manassas National Battlefield Park between 10,000-14,000 years ago.[25] In the Virginia Piedmont, American Indian villages were usually situated along water courses or near sources of water. Evidence of prehistoric camps in the form of lithic scatters exists in numerous locations within the park.[26]

Early Settlement

The earliest European visitors to the Virginia Piedmont area were most likely Spanish explorers in 1588 who were in search of English settlements. John Smith, the English explorer and sea captain, visited the area in 1608 when he sailed up the Potomac River to the falls and noted American Indian villages along its banks. The indigenous populations Smith encountered belonged to the Nanticoke people.[27]

The requirement for virgin, fertile land for tobacco cultivation pushed early Virginia settlers from the Virginia Tidewater into the Piedmont. In 1724 Robert "King" Carter purchased two land patents known as the "Great Bull Run" and the "Lower Bull Run" and in 1729 purchased a third tract known as "Middle Bull Run."[28] These three tracts encompassed almost 50,000 acres of land, including all of the present Manassas National Battlefield Park property. Several descendants of Robert "King" Carter inherited and divided the Great Bull Run tract, leaving Robert Carter II in possession of the Lower Bull Run tract and Landon Carter, Sr. in possession of the Middle Bull Run tract.

The heirs of Robert "King" Carter began to steadily improve the land through the end of the 1700s. John Carter built a large manor house around 1760 in the area that would become known as Sudley. John Carter also built a large flour mill, known as Sudley Mill, along Catharpin Run at this time. A saw mill was also likely built at this time, as well as a blacksmith's shop and general store, all of which helped to boost the region's economy.[29]

By the end of the 1700s, 50 grist and saw mills were operating in Prince William County.[30] These grist and saw mill sites were often located at crossroads and served as social hubs for the surrounding community and often included a few dwellings, a church, and the shops of merchants and farmers. The community of Sudley developed around its mills. River fords were created at low spots to allow passage across the typically steep and high banks of Bull Run.[31]

Large landholders dominated agriculture in the Sudley area until the mid-1800s. Most of the landowners were Carter relatives or descendants, including the Henrys, Balls, and Chinns. Land in the Sudley area had been primarily cleared of forest and cultivated for agriculture since the early 1700s. Tobacco and staple crops were tended by enslaved people, although some families, primarily those that had relocated to the south from the north, engaged in farming without relying on slave labor.[32]

Landowners in Virginia typically relied on two methods to manage large tracts of land. They would either establish small plantations of about 1000 acres in size that would farm a staple money crop or the land would be divided into tracts for tenant farming. Wooded areas, or woodlots, were left along streams and in rocky areas and provided essential timber for the construction of buildings and fences as well as firewood to burn or sell.

Much of the Carter property in the Sudley area was subdivided after 1800, with some of the land sold outside the family. More modest houses were built on these smaller tracts, including Peach Grove, Meadowville, Portici, Spring Hill Farm, Hazel Plain, Rosefield, and Bachelor's Hall, all of which stood on lands within the present boundaries of Manassas National Battlefield Park.[33]

During this period, the majority of the

Tobacco and staple crops were tended by African American slaves, although some families engaged in farming without relying on slave labor.

The first major land battle of the Civil War occurred in the Sudley area on July 21, 1861, a battle that is now commonly referred to as the First Battle of Manassas.

more modest farm properties in the Sudley area were similarly organized. Near the main dwelling stood slave quarters and various outbuildings. Each farm typically had an orchard and vegetable garden, areas for livestock, and a family cemetery, all surrounded by typically split rail fencing that partitioned the various land uses.[34] As farms passed down through generations, they generally were subdivided and shrank in size.[35]

The population of eastern Virginia dropped rapidly after 1820, in part because of declining agricultural yields caused by soil erosion and soil exhaustion from unsustainable farming practices and exclusively growing tobacco, which depletes soil vitality. Many Virginians migrated west into the Piedmont, the Shenandoah Valley and beyond. The population in Virginia plummeted further following a financial panic in 1837 that heavily affected agriculture. The state of Virginia had been the most populous in the United States until 1820, but by 1860 it had fallen to fifth.

Eventually Virginia agriculture began to flourish once again in the 1840s and 1850s as a result of improved agricultural techniques. Deep plowing, crop rotation and diversification and the use of gypsum, guano, marl and other fertilizers led to a marked improvement in farm productivity. Tobacco was supplanted by grains, including wheat, corn, rye and oats. Additionally, farmers raised more livestock for meat, dairy products and wool, kept bees for honey and planted orchards.[36]

First Battle of Manassas

At the start of the Civil War in April 1861, the Confederates began with a victory at Fort Sumter in South Carolina. Most Americans expected the conflict to be brief, and for the north to quickly quell the Southern rebellion. The first major land battle of the Civil War occurred on July 21, 1861, along the Bull Run drainage to the south of the small mill town of Sudley. This battle is now commonly referred to as either the First Battle of Manassas or First Battle of Bull Run. Consequently, the battlefield landscape experienced rapid and lasting change.

Federal forces believed that to end the war quickly they needed to begin an advance on the Confederate capital at Richmond. The largest field army ever assembled in North America left the Union headquarters in Washington, D.C. led by Brigadier General Irvin McDowell. Meanwhile, the Confederates established themselves near Manassas Junction to protect the important railroad center, located to the south of Sudley. Supplies were limited for the Confederate army, and the railroads served as an essential lifeline. For both armies, inexperience would prove to be a significant factor in the outcome of the impending battle.

The Confederate troops positioned themselves on the west side of Bull Run. They constructed fortifications to the east of the Lewis family farm of "Portici," south of the turnpike. In some areas, the high banks of Bull Run proved to be a good defensive position for the Confederate army. In other areas, several established fords crossed Bull Run, making it hard to guard effectively. The Federals planned to cross Bull Run at two points, Sudley Ford along the Sudley Road, a north-south passage that connected Sudley to the nearby Dumfries, and at a stone bridge on the Warrenton Turnpike, an east-west toll road paved with crushed stone. The strategy was to have a small, diversionary force engage the Confederates at Stone Bridge, while a larger force crossed north at Sudley Ford, which could then ambush the enemy from the left flank. However, as the reflection of sunlight off of Union muskets and artillery was seen by Confederate scouts, the ambush failed to materialize as hoped for.

The Confederates positioned their artillery southeast of the Van Pelt farmstead, known as Avon, to protect the Stone Bridge crossing, along the eastern boundary of the present day park. Confederate Colonel Evans established his headquarters at Van Pelt's house. Between a ridge on Van Pelt's land and the Stone Bridge, the soldiers felled trees to open the view. Confederates defended the Stone Bridge crossing point from Van Pelt's house to the mouth of Youngs Branch. Soldiers were positioned on the edge of the woods fronting an abatis (protective fortification using felled trees, pointing the sharp edges toward the enemy). The Confederates positioned their

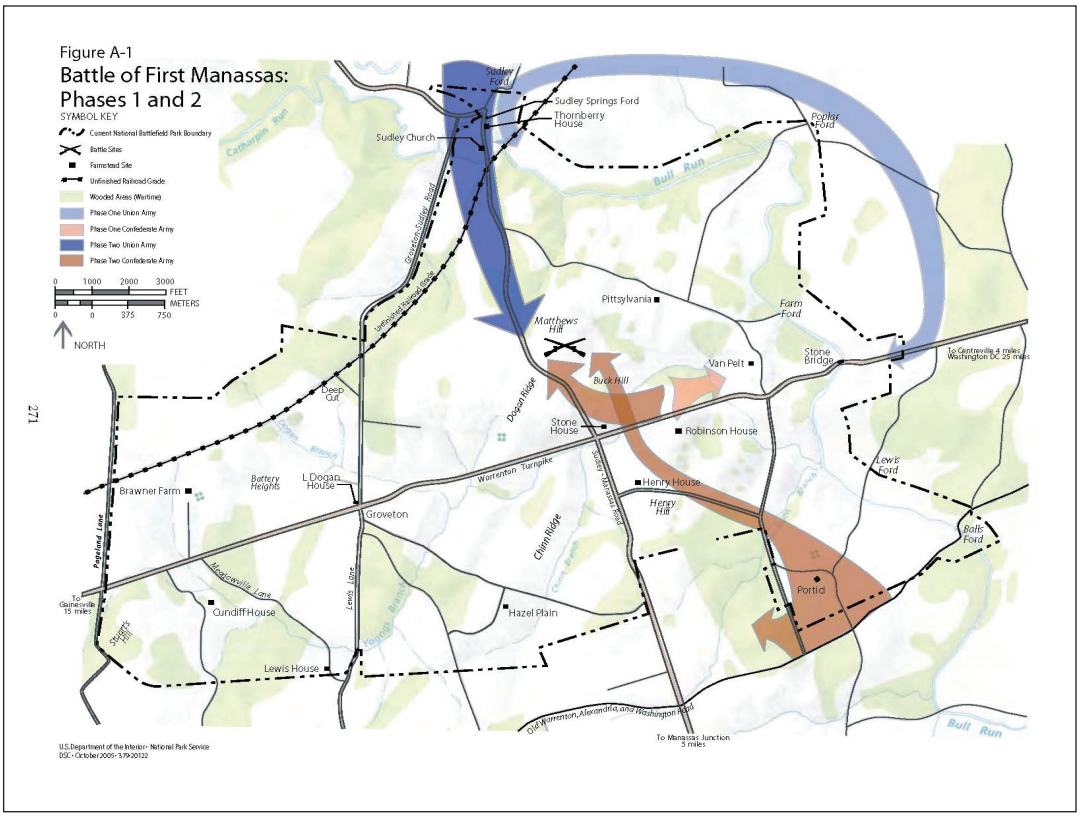


Figure 1.1. Battle of First Manassas: Phases 1 and 2. Illustration from Manassas GMP, p 271.

artillery to the southeast of the Van Pelt house, south of the Warrenton Turnpike. Opposite the Confederate line, the Union Army positioned troops on the east side of Bull Run, 1000 yards from the bridge. The troops were "sheltered partly in a hollow, covered by a ridge and wood in front, and partly by the edge of the timber lying between" them and the run.[37] The first cannon fire of the battle ensued at the Stone Bridge when the Federal Army fired a 30-pounder Parrott rifle "upon a house across Bull Run [at] about a mile and a half range."[38]

Union forces crossing at Sudley Ford followed Sudley Road (a north-south road that connected Sudley to the nearby town of Dumfries) south:

> *[The troops] emerged from the woods one mile south of the ford, and came upon a beautiful open valley about one and a quarter miles square, bounded on the right or west by a wooded ridge, on the east by the rough spurs or bluffs of Bull Run, on the north by an open plain and ridge, on which our troops began to form, and on the south by another ridge [Henry Hill] on which the enemy were strongly posted, with woods behind their back. Upon the left of this open space was a small house with outbuildings belonging to a man named Matthews. Sloping down to a piece of woods in front was a large cornfield.*[39]

A few Confederate troops waited near the Martin Matthews house, concealed by a small oak and hickory stand. Due to the defensive positioning of the Confederates at the Stone Bridge, Federal support troops decided to cross over north of the Stone Bridge at a farm ford. To help the Federal line on the Matthews farmstead, the advancing troops set up a line "in front of the Carter house, on the brow of the hill overlooking the valley of Youngs Branch," roughly one half mile from their Union compatriots on Matthews Hill.[40]

The battle erupted just after 10 a.m. on Matthews farm between the approaching Federals and the awaiting Confederates. Hearing the sounds of a fire fight, Confederate troops left their positions at the Stone Bridge and headed to the Matthew farm. The troops followed the farm road north through Van Pelt's land toward Pittsylvania and then through a field to a woodlot on the Pittsylvania farmstead's western boundary. Briefly, they positioned a six pound battery 100 yards northeast of Pittsylvania. Another Confederate unit was located on Buck Hill, north of the Stone House. Four companies were left in reserve to guard the Stone Bridge. Confederate support troops arrived to assist

The losses from both sides amounted to nearly 4700 (killed, wounded, or missing) out of approximately 60,000 soldiers who fought at First Manassas.

the broken Confederate line, but without success. The Confederate forces started to retreat across Youngs Branch and Warrenton Turnpike, suffering heavy casualties along the way. The Federal army launched a charge on the retreating Confederate force, advancing through the Matthews woodlot "which were about twenty rods long and full of dead bodies."[41]

The smaller Confederate force retreated south, to the next ridge occupied by the Henry farmstead. They held a line along the edge of pine thickets to the southeast of Henry House. Confederate artillery was positioned on a small ridge. The gunners placed themselves "under shelter, behind the undulations of a hill" about 150 yards north of Henry House.[42] The battle continued between the two armies, with the Federal army positioned on Matthews Hill. Confederate troops left the Stone Bridge and advanced to Henry Hill, following a farm road south of the turnpike.

Meanwhile, Confederate General Joseph E. Johnston established his headquarters at Portici, a strategic location from which he could view Bull Run, the Stone Bridge, and his troops near Manassas Junction. It was also from this location that General Johnston deployed reinforcements to the field.

Around noon, six hundred South Carolinians of Hampton's Legion took possession of the ground immediately around the Robinson House.[43] The 7th Georgia Regiment occupied a position halfway between the Robinson House and the turnpike. Finding these locations too exposed to Union artillery fire, the two Southern regiments formed a new line in the Warrenton Turnpike to the east of Robinson's gate, where they were joined by the remnants of the 8th Georgia Regiment.[44] There they made a futile attempt to stop the Union advance. An attack made by the 2nd Maine and 3rd Connecticut of Keyes' brigade eventually pushed the Confederates back to the Robinson's yard.[45]

A Confederate soldier describes the landscape as he remembers it:

> *Standing where I did just on the edge of the woods, and then advancing as our line had advanced in 1861, I noted the thin, wiry grass barely covering the slaty, poor land; the washing on the hillside; the occasional little pine brushes; the tops of the Henry and Robertson [Robinson] Houses. . .*[46]

As the battle dragged on and advanced toward Henry Hill, the inexperience of the Federal troops was evident. The Union side took control of the Stone Bridge once the Confederates left the site. The retreating Confederate forces left obstructions on the roadway and bridge, which were removed to provide easy access by Federal troops advancing the battlefield from the east. Confederate reinforcements arrived at Henry Hill from the south to support the line using a farm road from Manassas Junction to Portici. Several charges by the Union army weakened the Confederate line, but never broke it.

Sudley Road was one path used by the Union troops to arrive at the battlefield on Henry Hill from Matthew's Hill. Colonel Sherman reported that the Sudley Road "was worn deep enough to afford shelter" from Youngs Branch up to the Henry farm entrance road.[47]

During the last phase of the battle, an engagement took place on Chinn Ridge and Bald Hill, where General Howard's right flank was located. This position was soon broken by Confederate reinforcements, including General Jubal Early's brigade. During the waning hours of the afternoon, the Federal army retreated from the fight on Henry Hill and formed a line on the opposite heights of Buck and Matthews hills. As the Federal brigades on the right began to crumble, the Confederates launched a direct offensive. The Union took a disorderly retreat toward Sudley Ford and farm ford, the same routes used to arrive on the battlefield approximately 12 hours before. During the retreat, the Federal army left behind an abundance of equipment and artillery for the victorious Confederates.

Most of the standing structures encountered during the battle were used as field hospitals, including Hazel Plain (Chinn Residence), Stone House (Matthews Residence), and Sudley Church, which became the main Union field hospital. Under the direction of Dr. John Thompson Darby, a Confederate field hospital was established at Portici to care for wounded Confederates as well as captured

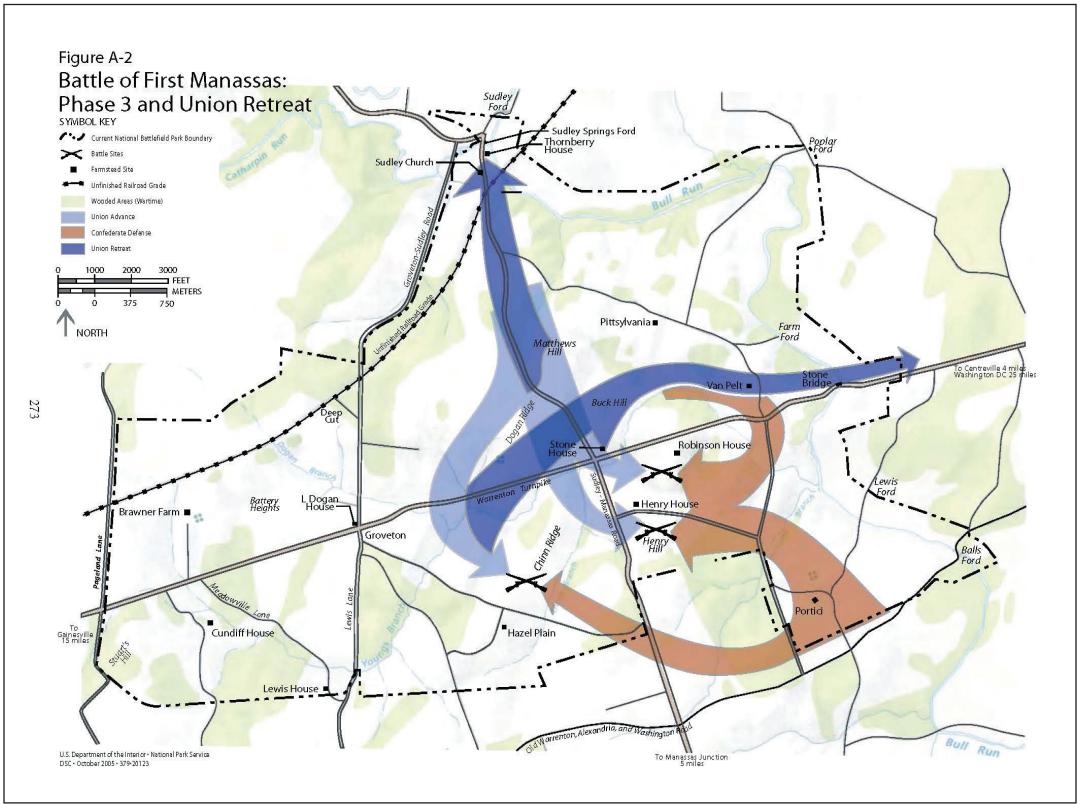


Figure 1.2. Battle of First Manassas: Phase 3 and Union Retreat. Illustration from Manassas GMP, p 273.

Union soldiers.[48] The losses from both sides amounted to nearly 4700 (killed, wounded, or missing) out of approximately 60,000 soldiers present at First Manassas.

Despite its location amidst the fighting, the Robinson House escaped major damage. As the battle raged closer, James Robinson sent his family to the Van Pelt house where they took refuge in the cellar. Unable to join them, Robinson himself hid under the turnpike bridge over Youngs Branch with silverware from Portici that had been entrusted to his care by the Lewis family. After the battle, Robinson reportedly found thirteen dead Confederates in the yard of his house, six from Hampton's Legion.[49]

A civilian casualty occurred at the Henry House during this first battle. On the afternoon of July 21, 1861, Mrs. Judith Henry, the 84-year-old bed-ridden owner of the property, was fatally wounded when Ricketts' guns were turned on the house to flush Confederate sharp shooters from the structure. During the shoot out, the house was also damaged beyond repair. A family cemetery was established near the ruined house shortly after First Manassas. The small plot is surrounded by a wrought iron fence and currently contains the graves of Judith Henry and two of her children.

In the woods near Portici, Confederate troops camped from December 1861 to March 1862.[50] A series of log huts with stone chimneys were built to house members of the 38th Virginia, using timber from the surrounding woodland. The 38th Virginia left the camp on March 10, 1862. Shortly after their departure, members of the 20th New York State Militia arrived in the area. At this time, officers of this group stayed at Portici while approximately 300 soldiers took over the abandoned camp.[51]

A few weeks following the First Battle of Manassas, Confederate soldiers from Colonel Francis S. Bartow's Brigade erected a marble column on Henry Hill to honor the colonel.[52] The memorial may have been erected around September 5, 1861 by soldiers from Bartow's Brigade. The memorial was inscribed with Bartow's last words, "They have killed me boys, but never give up the fight."[53] Today only the base of the original Bartow monument remains near the location of a replacement monument dedicated in 1936.

After the battle, the Van Pelt farmstead was occupied again by Confederate troops with "three or four Confederate officers boarding" in the main house and others encamped on the farm during the winter 1861.[54] Neighbors believed the Van Pelt's were abolitionists so "reported" them. Elizabeth Van Pelt said that

"[t]he soldiers were sent there to encamp on our place to watch us to keep us from harbouring [sic] spies." [55]

In March 1862, when Confederate forces evacuated the Manassas and Centreville areas, they destroyed the Stone Bridge. In its place a makeshift timber bridge was built using the original stone abutments.

Second Battle of Manassas

In August 1862, the two armies, now more seasoned, met again on the battlefield of Manassas. Unfortunately, the community was not yet recovered from the first battle. Farmers who had suffered great losses in the first battle had replanted most of their fields. When the second battle started at the end of August, many of the new crops were ready for harvest.

Day One

General Robert E. Lee scored a succession of victories in the Virginia Peninsula and succeeded in keeping the Union army out of Richmond. Union General John Pope's newly formed Army of Virginia hoped to cut off supply lines to Richmond by threatening the Virginia Central Railroad. Lee would have to strike General Pope's army before Federal reinforcements could arrive from the Virginia Peninsula. If they did not strike his Confederate army would be outnumbered two to one. Lee ordered Thomas J. "Stonewall" Jackson around Pope's right flank to strike the Orange and Alexandria Railroad. Once there, Jackson's men destroyed the Federal army's depot at Manassas Junction. Then Jackson moved north and waited on Stony Ridge for support from Major General James Longstreet. Meanwhile, General Pope tried to locate Jackson and his troops.

Jackson's troops took position in the woods and fields on Stony Ridge north of the Warrenton Turnpike. Jackson's right was situated on the property of Augusta Douglas's and William Dogan's heirs. A Confederate soldier recalled that "they were packed like herring in a barrel," with their talk and laughter "sound[ing] like the hum of a beehive on a warm summer day."[156] Unknowingly, on August 28, a Federal division marched along the Warrenton Turnpike toward Centreville to the east, past Jackson's position. Union General John Gibbon broke from his column and rode up to a knoll on William Dogan's farm. He surveyed the ground to the north, where Jackson's line was located, but only noticed the Douglas farmstead, then occupied by the Brawners, and the cultivated fields of the surrounding land. Gibbon recalled that a substantial forest was along a ridge to the north but did not see any Confederate troops.

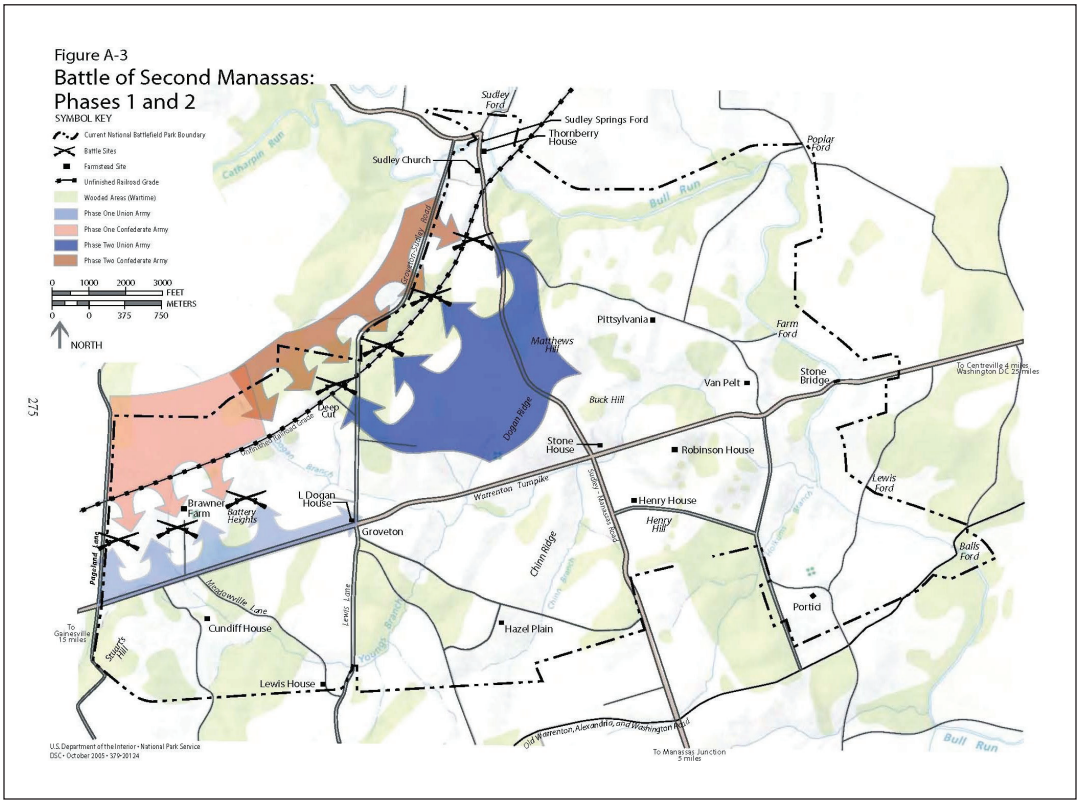


Figure 1.3. Battle of Second Manassas: Phases 1 and 2. Illustration from Manassas GMP, p 275.

Just then Jackson's artillery rode into view and fired on Gibbon's troops. Some troops took cover within a woodlot on the Douglas farm to the north of the Warrenton Turnpike. Gibbon led the Second Wisconsin regiment through the woods to an open slope on the north edge of the woodlot, while the other three units in the brigade soon extended the line. The Brawner farmstead was located to the left of the Union lines.

The Confederate lines emerged from the woods by the Unfinished Railroad and took cover behind a fence, 80 yards from the Federal line. The first engagement of the battle was noted as "one of the most intensely concentrated fires of musketry… ever experienced by any troops in this or any other war."[257] What were likely worm fences provided the only cover during this intense fight. After dark the battle ended in a stalemate, and King's Division withdrew south down Pageland Lane during the night.

Day Two

Federal cannons were positioned near the ruined shell of the Henry House, which was destroyed during the First Battle of Manassas. Jackson placed his troops along the Unfinished Railroad and positioned his left flank on a rocky knoll on the Cushing farm not far from Sudley Church. To the northwest of the troops' position a worm fence surrounded a cornfield.[358] The right flank overlooked the Lucinda Dogan farm, while the middle of the line was in a woodlot.

Longstreet arrived at noon on August 29 to support Jackson. Longstreet's line extended south across Warrenton Turnpike to the Manassas Gap Railroad, through John Cundiff's property south of the Douglas land. On the morning of the 29th the Union advance started toward Groveton, and ended in a skirmish along Pageland Lane and around the Cundiff farmstead. Another Union advance occurred at the center of Jackson's line through the Dogan woodlot (owned by John D. Dogan and Catherine Dogan) along Groveton-Sudley Road. On the northeastern flank, yet another skirmish occurred in a drainage ditch along the property line of Cushing and John D. Dogan.

The Confederates continued to use the battlefield topography to their advantage, including natural features like the Stony Ridge and the Rocky Knoll, as well as man-made features, like the unfinished railroad embankment. As the engagement intensified, they charged and broke the Federal line. The Federals scrambled through the woods to the open Dogan field with the Confederates in pursuit. Once out in the field, a line of cannons fired upon the approaching Confederates. The Confederates retreated to the rocky knoll. The volley of bullets continued for hours in this area with no ground won or lost.[59]



Figure 1.4. "Defeat of the Army of the Genl. Pope at Manassas on the Old Bull run battle[gr] ound", Illustration by Alfred R. Waud, created August 30, 1862, pencil and Chinese white on olive paper. (Image courtesy of the Library of Congress Prints and Photographs Division, Washington D.C.)

Later that day, north of Groveton, Federal troops again advanced on Jackson's line in an area called "the dump." In this drainage area, a railroad trestle was proposed to bridge the ravine between the fills. Nearly 100 yards wide, the dump marked a no-man's land between the competing factions, which was easily broke by Colonel James Cantwell's Division. However, no reinforcements were sent to support the Federal charge so they fell back, and many Federals died in the process, including Colonel Cantwell.[60]

At 2 p.m., the skirmishes continued along the Unfinished Railroad. The Federals again led an assault on Jackson's line in Catherine Dogan's woodlot and on William Cundiff's property, hoping the cover of the oak woods would conceal them from the Confederates. The Confederates were protected on the north side of the railroad embankment. Again the Federals broke through the Confederate line and again reinforcements were nonexistent.

Without reinforcements, the Federal regiment retreated through the woods to the open fields of John D. Dogan's farm. In this engagement, another 500 men were lost on the Federal side.[61] At 4 p.m. John Pope ordered a brigade "to clear a large wood from whence our artillery was annoyed by the enemy's sharpshooters."[462] Again a Federal brigade was sent through Catherine Dogan's woodlot. The Federals surprised the Confederates in a railroad cut and fired a volley at them. The ones that could retreat out of the cut withdrew to the north through the woods. Again the Confederates responded and closed their line on the Federal brigade, which retreated to an open field on John D. Dogan's farm. The Federals then assaulted Jackson's left at Sudley, in the same area where a previous skirmish had occurred earlier in the day. The Federals overtook the Confederates and claimed the rocky knoll they had been guarding all day. Confederates sent reinforcements to help the weary forces that had engaged in their third skirmish of the day. Again the advance by the Federals was not supported by reinforcements, and they were forced to withdraw.

Later that evening, General Pope sent orders for a division to follow the Confederates travelling along Warrenton Turnpike. To the advancing divisions' surprise, a Confederate brigade rose from a swale on Lucinda Dogan's land north of the turnpike and east of Groveton. Another fire fight erupted south of the turnpike. The Confederates captured a battery on a ridge to the south of Dogan's Branch. A Federal battery, led by Captain Jacob Roemer, retreated to John D. Dogan's estate, Rosefield, northeast of their location. Union cannons were positioned along a ridge to the north of Rosefield. West and north of the main house were the apple orchard and garden. The fence, possibly post-and-rail, surrounding these two features was removed to position the artillery. "To save time in getting the battery in position, I ordered the cannoneers to the front with axes. After cutting down chicken-coops, hog-pens, corn-cribs, etc. the battery went through the door yard into a fine orchard, which gave the battery a splendid position."[63] In response, the Confederates withdrew from the field, back to the cover of the woods.

Day Three

August 30, 1862, General Pope still anticipated a Confederate retreat; but the Confederates held their line from the previous day. They reinforced this line between Longstreet and Jackson with a battalion of eighteen guns under S.D. Lee positioned on the ridge northeast of the Brawner farmhouse, called "Stony Ridge." An additional battalion of guns led by artillery Major Shumaker held the right of Jackson's line on the high ground northeast of Brawner Farm. Pope believed the Confederates were retreating and ordered an assault on the left and center of Jackson's line. Skirmishing occurred throughout the morning and afternoon. Reports suggested that the Confederate line was pushing the Union troops south of the turnpike. The Federals positioned a division on Chinn Ridge, a high point that overlooks the surrounding area north of Hazel Plain. Meanwhile, Union General Porter waited in the Dogan woodlot before initiating an assault on Jackson's center.

Between Jackson's and Porter's line lay an open pasture that would provide no cover for the Federal advance toward the railroad grade. At the edge of Dogan's open pasture stood the Groveton school house. Little is known about how or even if this structure was used during the battle. The Confederate cannon positioned

on Stony Ridge, northeast of Brawner's farm, overlooked the open pasture area. Only one feature would provide any protection as the Federals advanced: a shallow wet-weather stream midway across the field.

Federal artillery was placed on a ridge to the southeast of Groveton to support Porter's advance to the northwest. At 3 p.m. Porter's Corps broke out of the woods into the open Dogan pasture. The Confederate cannons fired upon the Federals. Two lines of infantry formed on the Confederate side, one along the unfinished railroad and the other 200 yards behind the grade to the north, along the edge of the woods. The Federals reached the railroad embankment and were bombarded with musket fire and artillery fragments. The force of the Federal surge nearly broke the Confederate position.[64]

It was a confusing fight for both sides. The smoke from the artillery fire disoriented the soldiers and in some cases they may have been firing on their own men. In one instance some of the Confederates ran out of ammunition and resorted to throwing stones from the embankment to defend themselves. The Federals, not sure what to do, picked up stones and threw them back. A few minutes later, Confederate reinforcements shot back at the stone-throwing Federals. Slowly, the Union forces retreated to the safety of the John D. Dogan house, "Rosefield."[65]

At the Rosefield farmstead, two outbuildings were located along the ridge northeast of the main house and an orchard stood to the northwest. The Confederates attempted to follow, but were shelled by Federal guns located to the north of the Federal line. Longstreet's Confederates easily overran the weak Federal line just south of Groveton. The Federal line south of the turnpike retreated to the Henry property, on the other side of Sudley Mill Road.

The primary concentration of the Federal army was to the north of the turnpike, around Rosefield. A Confederate brigade continued to advance to the southeast of Youngs Branch, and took a Union brigade positioned on a knoll. The Confederates soon took over Chinn Ridge, after claiming hundreds of lives. The Federals finally fell back off of Chinn Ridge after more than 90 minutes' resistance, in what proved to be the costliest action of the battle. Pope positioned a defensive

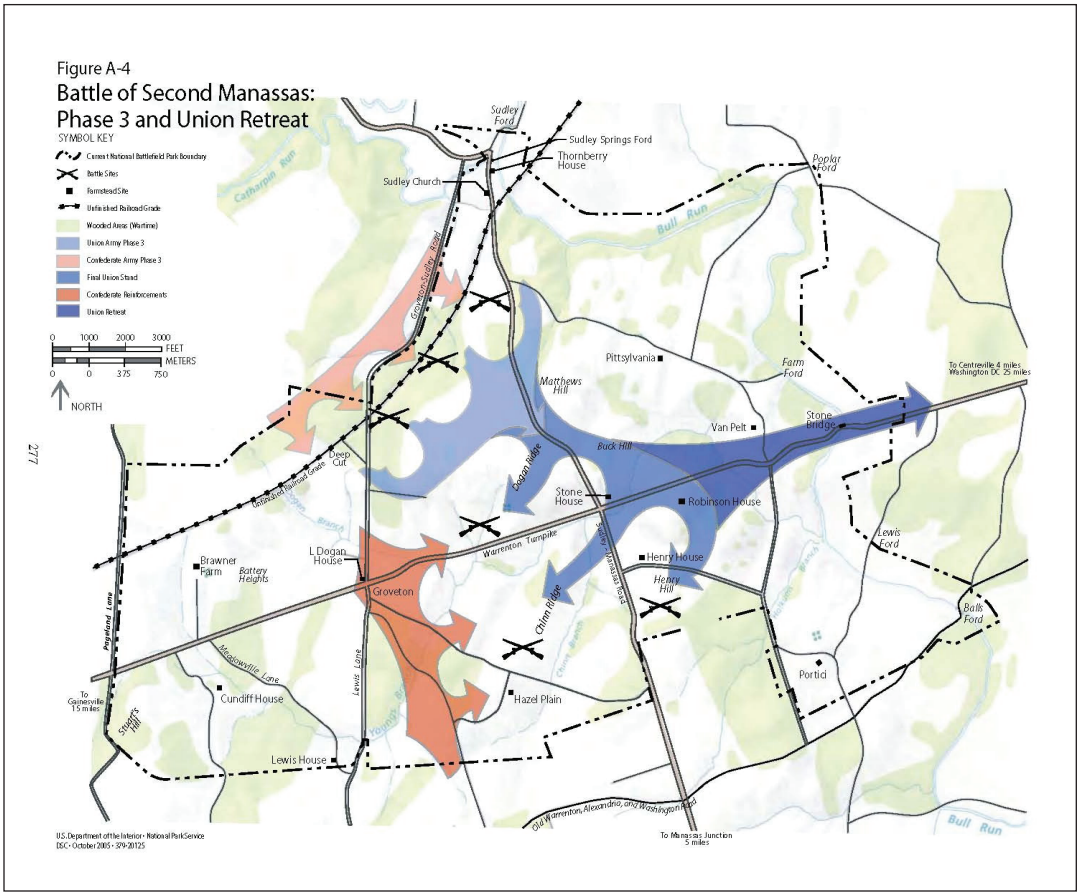


Figure 1.5. Battle of Second Manassas: Phases 3 and Union Retreat. Illustration from Manassas GMP, p 277.

line on Henry Hill, while the Confederates approached the intersection of Warrenton Turnpike and Sudley Mill Road. The approaching Confederates were fired upon by the Federal guns on Henry Hill. Intense fighting took place along Sudley Mill Road near Henry Hill. During this time, Jackson's line remained behind the Unfinished Railroad grade. As he advanced from his position to the southeast, the Federals withdrew.

Pope ordered a retreat after dark toward the Bull Run crossings, and as his forces withdrew they pillaged a number of homes. Pope's Army of Virginia had suffered one of the worst beatings of the war, with 1700 dead, 8400 wounded, and 4200 missing or captured. Lee's Army of Northern Virginia lost 1500 lives, had 7800 wounded, and 100 captured or missing. This victory would start Lee's 1862 Maryland Campaign.[66]

After the Battles

After the battle most of the standing structures in the area served as field hospitals for the thousands of wounded. Mass and individual graves were dug for hundreds of dead. Most were buried where they fell in their ranks. Troop movements continued in the Groveton area after the two major engagements of 1861 and 1862. Theft of crops by passing troops of both sides is reflected in war claims. The general destruction and impact of the two battles was felt for years afterwards in the Groveton and Sudley areas.

A description of the area gives a general account of the destruction of the countryside as viewed in 1865:

From Alexandria to the battlefield is one wide area of desolation. Fences are utterly swept away. Here and there a dilapidated house shelters a few squalid inmates and occasionally a small patch of wheat or corn is passed, but the whole face of the country is changed. Scrub oak and pine are springing up everywhere. The first Bull Run field has been stripped clear by relic hunters except in the matter of horse bones. The battlefield of Groveton, two miles beyond toward Warrenton, is more distinctly marked with traces of battle. Here the shot and shell are thickly strewn, the trees splintered and in many places the forest looks as if having been visited by smallpox.

The bones of soldiers of both armies are scattered over the fields and one may find



Figure 1.6. Dedication of the Groveton Monument at Deep Cut, Manassas, June 10 1865. (Image courtesy of The Library of Congress).

"the battlefield is one wide area of desolation. Fences are utterly swept away ... Scrub oak and pine are springing up everywhere."

enough skulls to build a monument.[67]

An article from *The Rebellion Record* for 1862 gives a similar account:

> *Most of the fences have been demolished. The race of fences, in this part of Virginia, seems to have expired – some are in a primary state of decay, some are in a secondary state, which most of them have passed away, and left no token. . .*
>
> *When we came to Bull Run, we found the massive stone bridge, which had been the scene of a fierce conflict in the early part of the contest, blown up. The timbers were shattered, broken, and scarred with powder. The stream [Bull Run] is deep, rapid and impetuous. On the opposite bank a high bluff arises, covered with scanty foliage, and overhung in some places with trees and shrubbery.*
>
> *Crossing a broad and open field, we came to Blackburn's Ford. We can see traces of the conflict in shattered trees broken trunks, limbs and boughs. The grass is long, the ground is uneven and marshy, and in some places traversed by streams of water.*[68]

Sometime before 1864, countless houses were burned down by Union forces. Among those destroyed were Pittsylvania, Sudley mansion, Portici, and Rosefield. The once-grand houses of the Carter family were in ruin, with only stone foundations and chimneys left to mark their locations.

By the latter part of the 1800s, preservation of the battlefield progressed in the form of commemoration to those who had fought there. Commemoration of the Manassas battlefield was initiated just six weeks after the Battle of First Manassas on September 4, 1861. On this date, members of the Georgia 8th placed a white marble pillar on the site where their fallen leader, Francis Bartow, was mortally wounded at First Manassas. With General Lee's surrender and the war's conclusion on April 9, 1865, Union forces placed their first monuments at the Manassas battlefield. Known as the Bull Run Monument, a brownstone monument was placed on Henry Hill, just east of the Henry House site, to commemorate the First Battle of Manassas. A complementary sixteen-foot monument was placed along the unfinished railroad grade near Deep Cut, an area that had seen heavy fighting during Second Manassas. Both monuments display the inscription "In memory of the patriots who fell."[69]

Historic Context of Fencing

Introduction

The fence was a prominent feature in the historic American landscape, and often served as the first visible sign of Euro-American occupation in a previously unsettled area. Fences tested the ingenuity of farmers; farmers needed to construct miles of fences quickly and cheaply, using only materials that were locally available, and build them strong enough to withstand livestock, trespassers, and severe weather. They divided fields and farmyards and impacted how the landscape was perceived and used. They required tremendous outlays of money and labor but were critical to the success of agrarian pioneers; fencing costs consumed one third to one half the income of early farmers.[70] Above all, they were ubiquitous in the rural American landscape; in 1871 over 5 million linear miles of fences crisscrossed America, mostly made of wood.[71] Stretching end to end, this would be enough fencing to cross the United States from the Pacific to the Atlantic Ocean over 1650 times.

Little more than a year apart, the First and Second Battles of Manassas took place in rural northern Virginia across a handful of farm fields and woodlands. Each battle played a significant role in the Civil War; the First Battle of Manassas, the first major land battle of the war, dispelled the notion that the war would end quickly while the Second Battle of Manassas brought the Confederate Army to the height of its power and allowed the first Confederate campaign into the North. To fully appreciate the setting of those two battles in July 1861 and August 1862, respectively, one must understand the agrarian landscape that existed at the time. Fences were a major feature of that landscape, one that soldiers from both sides would use to mark battlefield gains and losses, use as protection from artillery and musket fire, and burn for warmth and cooking.

Context

Early rural American fencing was utilitarian in nature. Fences marked property boundaries, restricted the movement of livestock, and kept out predators and unwelcome humans. Pioneer fences were constructed out of materials available—stones in the Northeast, where fields had to be cleared before land could be cultivated; and timber, which was used sparingly on the plains, and abundantly in wooded country like Virginia. Where neither timber nor stones were available, sod, mud, adobe walls, and ditches were used.[72] Whatever fence type, pioneers made sure they were "horse high, hog tight, and bull strong."[73]

Laws regulated fences in Virginia as well as other colonies. The Virginia Act of 1632 ensured that "every man shall enclose his ground with sufficient fences or else to plant upon their own peril." Another Virginia Act in 1646 defined a "sufficient fence as one four and a half feet high and substantial down to the bottom."[74] In the south, livestock were allowed free range well into the nineteenth century, while cropland was enclosed. However, as grain and crop farming supplanted ranching as the primary enterprise of southern farmers, fencing laws began to change as well. The agricultural reform movement that began around 1820 gradually changed laws over the next half-century to place a greater emphasis on keeping livestock fenced in, rather than fencing off grains and crops from livestock.[75] Once adopted, the practice of fencing in livestock and allowing unenclosed croplands persists to this day.

Different types of wood were preferred for different fencing purposes. For posts, wood must be hard and resistant to rot. Red cedar was most prized for use in posts, along with chestnut and black locust. White oak was also considered a good wood for posts, but most thought it inferior to cedar, chestnut, and locust. Rails were also typically cut of chestnut and locust. Pine was best for boards and pickets. Its light weight prevented rails from sagging over time. Painting or whitewashing picket and board fences extended the life of the otherwise fast-rotting wood.[76]

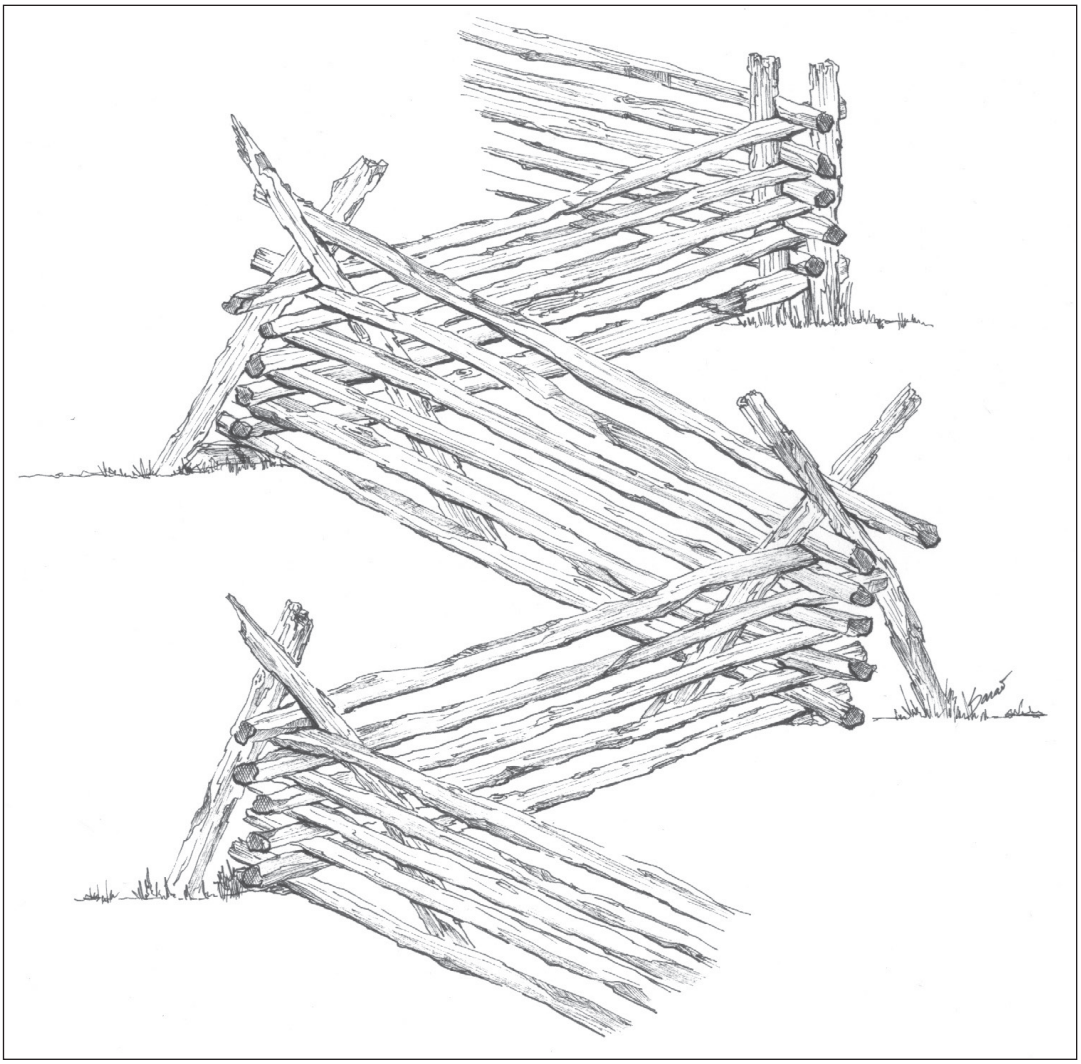
Although many different types of wood were used in rail fence construction, the length of the split rails was generally a consistent eleven feet. This was a convenient dimension for surveyors, who traditionally used a Gunter's chain of sixty-six feet in length for measuring acreage and fence mileage. As the standard length of a rail was typically eleven feet, a surveyor could simply count the number of fence sections and divide this figure by six, and thereby come up with an accurate estimate of a property's area or length.[77]

The following fence types are known to have existed at the Manassas battlefield during the Civil War: worm fence, post-and-rail fence, post-and-board fence, picket fence, and stone fence. In addition, barbed wire fence and iron fence were used on the battlefield a short time after the close of the Civil War.

Worm Fence or Virginia Rail

The most commonly built fence in the United States around the time of the Civil War was the Virginia rail or worm fence, a zigzag line of split rails laid one on top of the other. Due to its distinctive zigzag form, this fence acquired a litany of nicknames, including snake fence, jig-jag fence, rick-rack fence, crooked rail fence, and lazyman's fence.[78] Indeed, the fences zigzag form was the object of derision and concern. French Creole colonist Moreau de St. Mery wrote that "The fences add to the depressing outlook … the fence is a series of projecting and inverted angles,"[79] while the U.S. commissioner of agriculture wrote that he was concerned about the popularity of the worm fence as it has an "awkward appearance not at all indicative of the straight-forwardness of the American character."[80]

The worm fence's chief advantage was its absence of posts, which required no digging of postholes and no nails to attach rails. Most worm fences were simply alternating stacks of eight or nine rails set at 120-degree angles to the next section of rails, and stood four-and-one-half or five feet high. The heaviest rails were laid on top, both to weight the fence down and to prevent breaking of the rails by anyone that would climb over the top.[81] Some farmers added "stake-and- riders," eight-foot long stakes wedged into the ground and locked over the topmost rail, allowing fences to stand as high as six feet.[82] Many of the historic and reconstructed fences at Manassas battlefield are worm fences with stake-and-riders. Photographs of the Manassas area



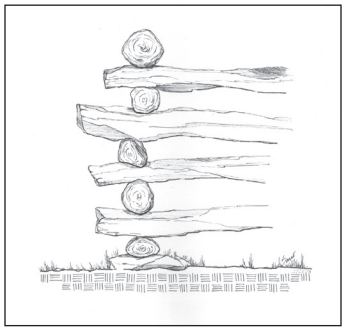
Drawing 1.1. Worm Fence, depicting the "stake and rider" variation in the middle section, and an alternate rail anchoring technique in the upper section, where horizontal rails are sandwiched between vertical posts. These posts were likely not dug into the ground, but were rather bound to each other by wire or wooden cuffs. Illustration by Nancy Sarai Vazquez, 2012.

dating to the Civil War show some stake-and-rider worm fences in which the top rails or riders sit in the fork of branched posts that are roughly four inches thick.[83]

Although folklore credits Virginia with the invention of its eponymous rail fence, the earliest documented Virginia rail fence is in Massachusetts in 1685.[84] However, it is indisputable that the worm fence was most widely used in the southern and midwestern states where wood and land were generally abundant. By 1870 it accounted for over 70 percent of all fences in Virginia and an even higher percentage further south.[85]

Worm fences could be constructed quickly compared to other fencing types. A person handy with an ax and a wedge could cut 150 to 200 10-foot rails in a day; at the same time their coworker could convert those rails into 200 yards of fence. In the same amount of time, two wall builders might have laid only ten feet of stone wall. Another advantage of worm fences was their impermanence. Fences could be disassembled quickly and moved, which was especially useful before the widespread use of fertilizers and crop rotation. Tobacco farmers would often abandon their exhausted fields for virgin land, taking their fences with them. By 1871, sixty percent of all fencing in the United States was worm fencing.[86]

Despite its widespread use, the worm fence had a number of significant faults. It required prodigious quantities of wood: roughly nine miles of rail for every mile of fence.[87] As such, if a farmer was not careful to maintain an adequately sized woodlot, this fence type could be prohibitively consumptive. Because of the zigzag path of the fence, the swath of land taken up by the fence stretched to nearly ten feet wide, totaling one-and-two-tenths acres for every mile of worm fence. This swath of land was impossible to cultivate, and became a place for weeds and woody growth to flourish and harbored pests such



Drawing 1.2. Worm fence section, showing the bottom rail resting on a stone surface to retard wood rot, and the heavier rails placed on top of the fence. Illustration by Nancy Sarai Vazquez, 2012.

as raccoons and woodchucks. Sometimes this characteristic would be beneficial as it would create windbreaks, which could be used to protect orchards or farmyards. Even the most preferred fencing woods, chestnut and cedar, rotted within thirty years, and softer woods would rot within five to ten years, so upkeep of fences was ongoing and labor intensive.

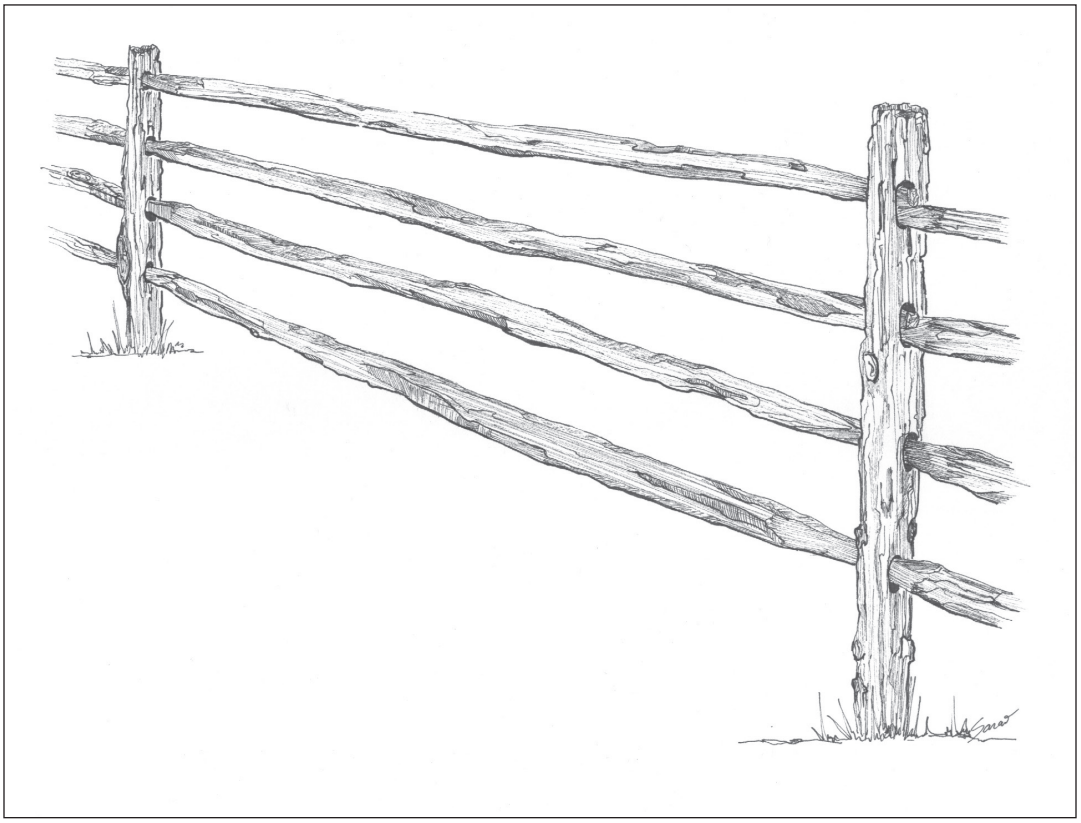
Farmsteads always included woodlots to be used as a resource for fencing, building materials, and firewood. By the 1850s, woodlots averaged 15 acres, smaller than previous decades due to the increasing use of wood stoves, which burned wood more efficiently than fireplaces. The huge amount of timber used for this type of fencing created shortages of wood in some areas, especially after the Revolutionary and Civil Wars. During these wars, many fences were burned for fuel. When it came time to rebuild, many farmers found themselves without enough trees.[88] Timber shortages continued to plague farmers until the advent of barbed wire. Having enough supply of the right kind of timber for fencing became problematic for many farmers when it came time to replace fencing that had been put up when the land was first cleared. Some farmers were forced to mortgage their properties to raise money for fence rails.[89]

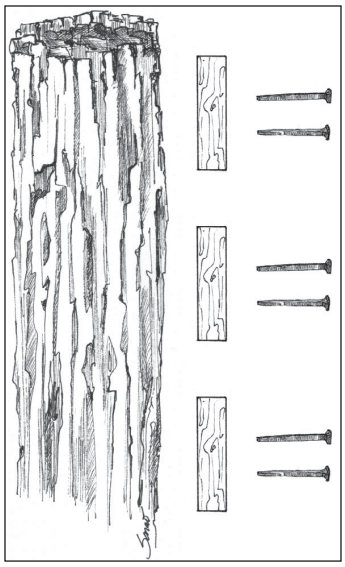
Post-and-Rail Fence

The second most popular fence in Manassas around the time of the Civil War was the post-and-rail fence. The number of these fences increased as forest acreage decreased, and they tended to be used to enclose tilled fields and farm yards.[90] Post-and-rail fencing required more hours to erect than worm fencing, but it wasted little space and used much less timber and no nails. It took 15,000 rails, ten rails per ten-foot section, to enclose a 160-acre square with a worm fence, but only 8,800 rails to do so with a post-and-rail fence.[91] The post-and-rail consisted of split rails fit into the mortises of upright posts. Typically, posts were cut six or seven feet long, round or sawed, set two-and-one-half foot in the ground, eleven feet apart, with three or four mortises for the rails. The ends of the posts were typically burned at the bottom and left charred to prevent decay. Rails were cut to twelve feet and sharpened.[92] In order to prevent decay, posts were typically cedar or black locust and charred on the bottom, although rot was always an issue.

In 1871, the post-and rail fence was in widespread use in Virginia, and although it made up a relatively small percentage of overall fencing compared to the ubiquitous worm fence, its use was ascending because

Drawing 1.3. Post-and-rail fences gained popularity as wood became more scarce from deforestation. Illustration by Nancy Sarai Vazquez, 2012.





Drawing 1.4. Post-and-board section, showing dimensioned lumber boards attached to split rail posts. Boards were typically whitewashed and secured to the posts with cut nails. Illustration by Nancy Sarai Vazquez, 2012.

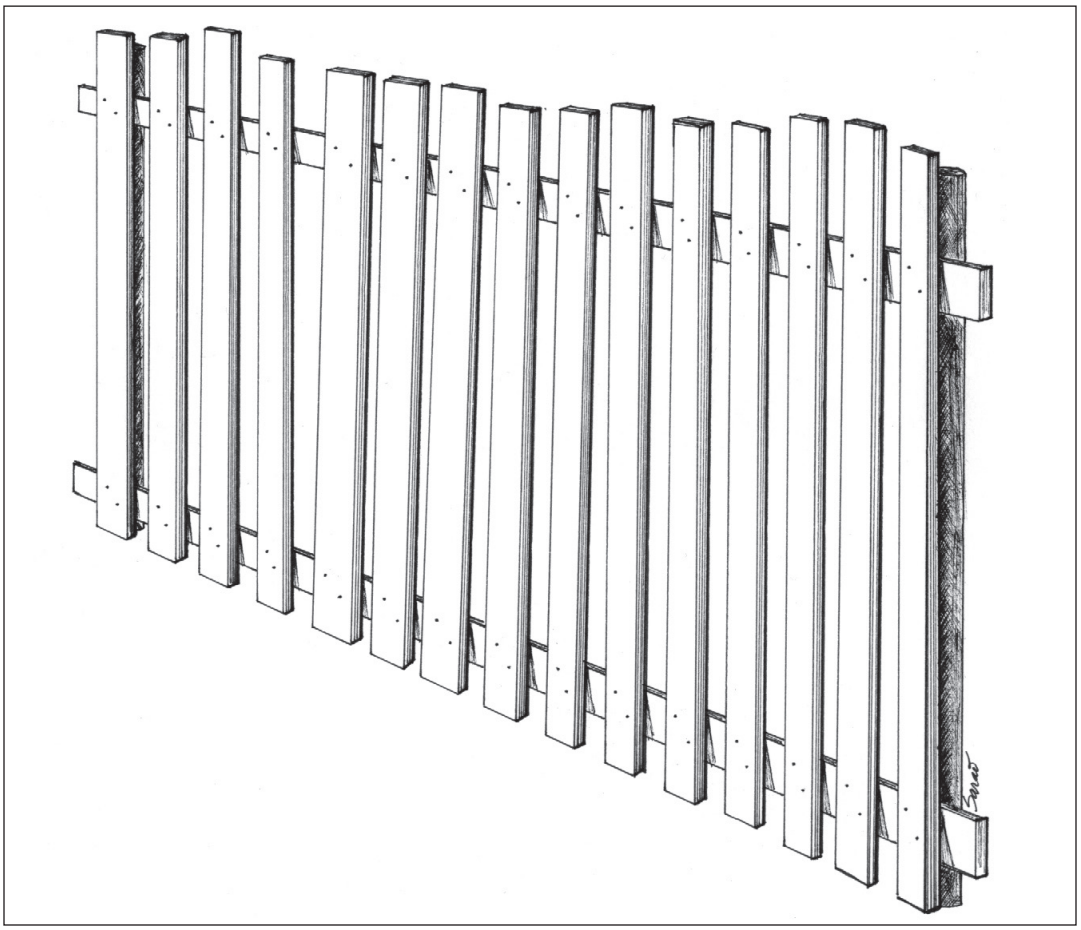
it required less wood than the worm fence.[93] By 1959, however, the post-and-rail fence was extinct as a genuine farm fence in Virginia while the worm fence was still abundant there.[94] This may be because, with the post-and-rail fence, once the posts have rotted the entire fence would need substantial work in order to keep it functional, whereas with the worm fence, if the bottom rail rots, the existing rails could simply be reconfigured in order to preserve the fence's overall utility.

Post-and-Board Fence

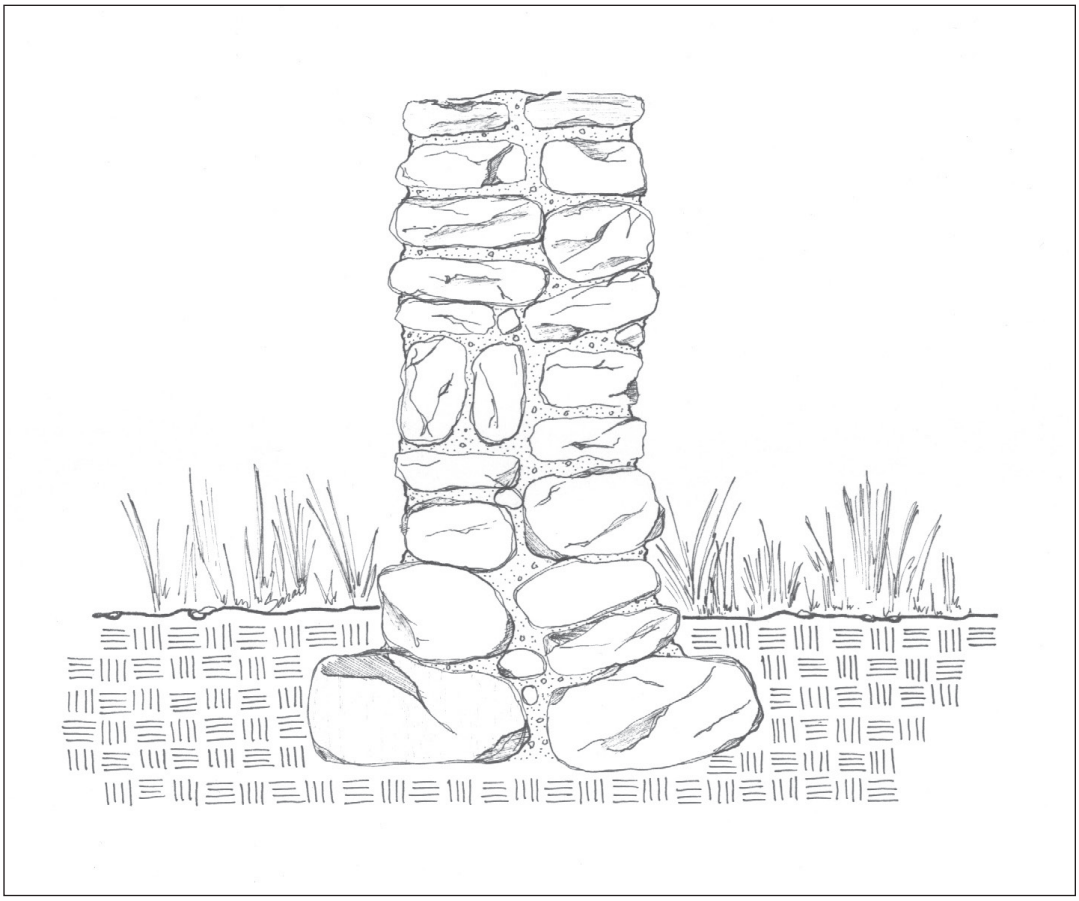
Post-and-board fences were similar to post-and-rail fences, but used dimensioned lumber in place of rails and typically used nails (rather than mortise and tenon joints) to secure boards to posts. This type of fence was used only after the advent of dimensioned lumber and the perfection of nail mills to produce nails in large quantities in the early nineteenth century.[95] Post-and-board fences were typically used to enclose gardens, orchards, and animals, especially horses, cows, and pigs.[96] Locust and cedar posts were preferred, with boards typically of pine. Most board fences were five boards high and sometimes capped. Board fences were often whitewashed or painted.

These fences were often found in close proximity to the farm house for a number of reasons. As they were often used to corral livestock for the purpose of veterinary treatment or loading, the more solid screen created by the board fence would help alleviate the nervousness of the closely penned animals. In addition, the board fences were considered more refined and aesthetically superior to many of the other fence options. [97]

In 1871, the post-and-board fence was uncommon but could be found in some locations in the Mid-Atlantic area.[98] Indeed, historic photographs of the Manassas battlefield show multiple examples of post-and-board fences. By 1959, with only a few exceptions, the post-and-board fence had largely disappeared from areas north of the Mason-Dixon Line, but maintained a strong presence in Maryland and Virginia. This fence, which is regarded as status symbol, confers social ranking within the elite class of landed gentry. It is now typically associated with gentleman or hobby farms, and remained



Drawing 1.5. Picket or paling fences were often used around the farmhouse. The narrow gaps between the pickets made this fence practical for enclosing poultry. Illustration by Nancy Sarai Vazquez, 2012.



Drawing 1.6. Stone fences can only be found at Manassas around cemeteries. The fences were originally dry-stacked; mortar was added by the NPS at a later date. Illustration by Nancy Sarai Vazquez, 2012.

quite common in 1959 in the northern Virginia Piedmont.[99]

Picket or Paling Fence

Paling or picket fences were often used close to the farmhouse, often enclosing farm yards, and were useful to keep in poultry. Posts were typically set eight feet apart with two horizontal two-by-four inch boards attached with nails. Posts would have been rot resistant cedar or locust and pickets would have been made of pine, whose light weight would minimize sagging within the fence. The pickets were typically whitewashed or painted to extend the life on this otherwise fast-rotting wood.[100] Palings were nailed to the boards within three inches of each other. Often strips of horizontal wood were added to a height of one foot along the bottom of the fence to further prevent the escape or infiltration of poultry, rabbits, or vermin.

Although not widely used within the area that encompassed the Manassas battlefield, the picket fence was historically present, generally in close proximity to the farmhouse. Historic photographs of farmsteads show picket fences located around the Henry House, Matthews House, Thornberry House, and Van Pelt House.

Stone Wall or Stone Fence

While stone walls were the most common of fences in New England, few were built in Virginia to enclose fields or livestock. Although the Manassas battlefield is renowned for its association with Thomas "Stonewall" Jackson, the only actual stonewalls there can be found at small stone enclosures that demarcate family cemeteries. Stone walls were used for cemetery enclosures because the material was long-lasting and appropriate for a final resting place. These stone cemetery walls at Manassas are built out of locally available sandstone. Existing stone walls at Manassas date from the late 1800s to the 1930s.

Building stone walls consumed vast quantities of time and human energy. An experienced wall builder could set twenty-four to sixty-four feet of wall a day but only if the stones were already gathered along the fence line. Moving the stones to the site was by far the most arduous task. Stones were gathered from fields that needed to be cleared for cultivation. To build the wall, a foundation of at least a foot was dug. Foundation stones were the

largest, with long stones placed crosswise upon them. Small stones or chips off of larger stones were packed between gaps. Long bindstones were placed at regular intervals for additional strength and the fence would often be topped with flat, close-fitting stones.[101]

Virginia was the historic southern terminus for the use of stone walls; in 1871 stone fences were only infrequently found throughout Virginia, while no stone fences were documented south of Virginia.[102] Although widespread stonewall construction never took hold in Virginia, their virtues were espoused by famous Virginian Thomas Jefferson, who acknowledged that wooden fences represented a "great and perishable work."[103]

Iron Fences

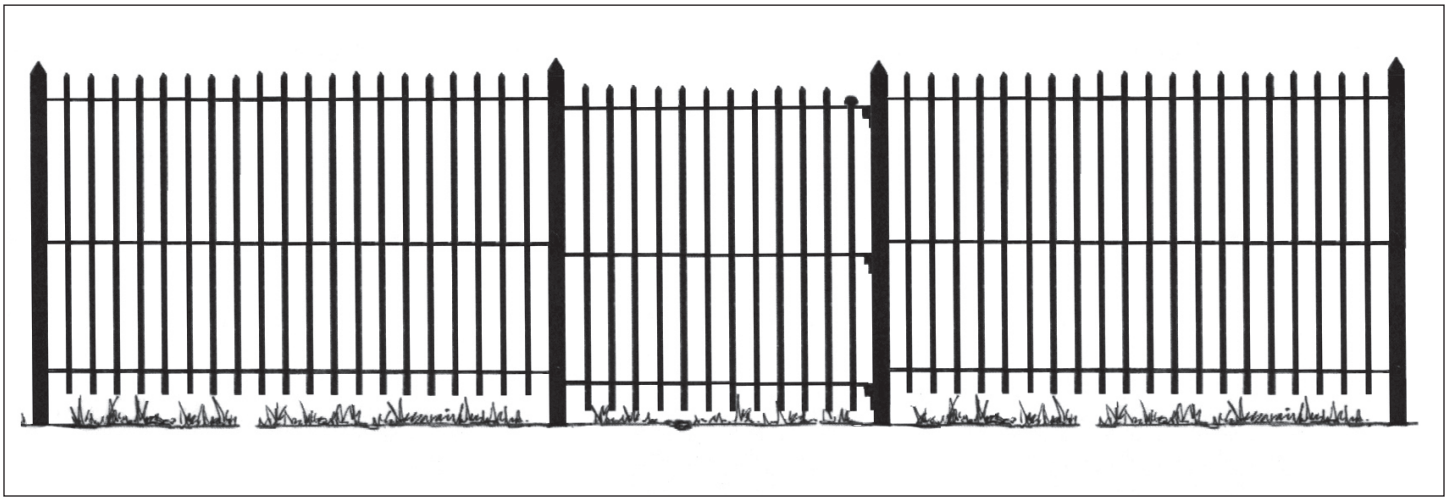
By the second half of the 1800s, techniques of the Industrial Revolution led to the mass production of ornamental ironwork and fencing, as cast iron (formed in molds) largely replaced wrought iron (hand-forged).[104] Although iron fencing was not used at Manassas for agricultural purposes, following the Civil War it was frequently used for commemorative purposes. Iron fencing at Manassas is found exclusively at Civil War cemeteries and monuments. It is now the second most common fencing type found at Manassas, second only to worm fencing.

While the fabrication process between cast iron (molds) and wrought iron (hand-forged) is different, the primary physical difference between the two types of iron is the amount of carbon present in the metal. Cast iron typically is comprised of two to six percent carbon, while wrought iron has less than one percent carbon.[105] The higher carbon content of cast iron gives it a lower melting point so that it can be easily poured into molds. Conversely, wrought iron, with its low carbon content, is very resistant to corrosion and readily malleable.[106]

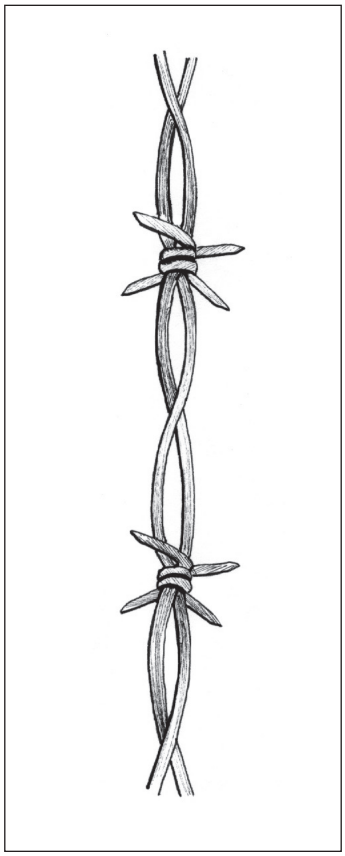
It can be difficult to tell wrought iron from cast iron. Wrought iron has the potential for more delicate members and can thusly be fabricated into more fantastic shapes. Cast iron is relatively thicker and is usually employed when details were repeated. Cast iron is more likely to be painted than wrought iron, as wrought iron is naturally resistant to rust. When broken, cast iron has a crystalline texture while wrought iron has a fibrous texture.[107]

There are six sections of iron fencing within the park. Of these six iron fences, two of them encompass cemeteries, and the other four are at Civil War monuments. The small Henry cemetery features a simple iron fence, with iron posts set in concrete blocks, and a hinged iron gate. The fence around the Groveton Cemetery has a simple patterned iron fence similar to the Henry fence, although the entrance to the cemetery has double gate with ornamental scrollwork and the words "Confederate Dead 1861 1862" in an arc over the top of the gate. It is unknown if these cemetery fences are wrought or cast iron.

There are an additional four iron fences at the New York Monuments. These fences were installed in 1906 by the state of New York to commemorate the New York volunteer soldiers that died at Manassas. This assemblage of monuments features an ornamental entrance gate along New York Avenue and three granite obelisks that



Drawing 1.7. Iron fences at Manassas are found exclusively at Civil War monuments and cemeteries. This drawing depicts the simple iron fence that surrounds the Henry Cemetery, while iron work in other locations is more ornamental. Illustration by Nancy Sarai Vazquez, 2012.



Drawing 1.8. Barbed wire detail. Barbed wire at Manassas typically features two twisted wires with barbs every 5-6 inches. Illustration by Nancy Sarai Vazquez, 2012.

commemorate different regiments of New York soldiers that fought at Manassas. The entrance gate features large iron posts with the letters "5th New York Volunteer Infantry" at the center of the double gate. One of the posts is no longer in its original location, as a modern widening of the road required its relocation. The monument fences have a series of iron panels that are roughly six feet long, with ornamental posts at the corners and at the gated entrance. The pickets and posts of these fences have cast iron balltip finials at their upper termini. At their respective gates, the monument fences feature a small shield with the lettering "The Stewart Iron Works, Cincinnati Ohio" emblazoned across it. It is believed that the New York Monument and gate fencing is cast iron, because they have been painted (and show rust in the locations where the paint has chipped), because they were fabricated by a large foundry (Stewart Iron Works), and because they have panels where the fence design and dimensions are repeated.

Barbed Wire Fence or Barb Wire Fence

With the high cost and massive investment of labor required to build wood and stone fences, farmers were ready to try new materials that would reduce these outlays. The need for new fencing material was particularly pronounced in treeless areas that were being settled, such as the Great Plains and prairie dominated Midwest. The solution to these fencing hardships came in 1874 when Joseph Glidden of DeKalb, Illinois successfully patented, manufactured, and marketed barbed wire fencing. This invention made Joseph Glidden one of the richest men in America and also revolutionized the ranching and farming industries.[108]

Barbed wire typically consisted of two strands of wire twisted together, interspersed with barbs. Two strands of wire were used for added strength and to resist sagging from temperature fluctuations. Barbs were generally placed every five to six inches on the wire.[109] The fence itself consisted of two, three, four, or five strands of barbed wire. Compared to wood fences, posts for barbed wire fences could be widely spaced; typical recommendations for post spacing are fifteen to forty-five feet apart. The wire would be pulled tightly on a spool and then stapled to the wooden posts.[110]

Barbed wire fences can be found at the Manassas battlefield, particularly on the Brawner Farmstead. However, these barbed wire fences do not date to its historic battles, as barbed wire had not been invented by 1862. The barbed wire at Manassas typically overlaps the same alignment of earlier rail fences, simply replacing rails with barbed wire once they were rotten or in need of repair.

Historic Context of Agriculture

Introduction

Through the antebellum period, the south was the country's leading agricultural center. Agriculture in the south was centered on the plantation house and the labor to run the plantation was typically provided by enslaved Africans. Slavery and plantations had different characteristics in different portions of the south. In the Upper South, including the Virginia Piedmont, the majority of slaveholders owned ten or fewer slaves, whereas in the Deep South, plantations were generally larger and had more slaves.[111] In the Upper South, the shift away from labor intensive tobacco farming in the late 1700s resulted in excessively large slaveholdings, and planters began selling slaves in the internal slave trade.

Prior to the Civil War, Manassas was a quiet, moderately prosperous agricultural community. Composed of estates that were typically several hundred acres in size, the residents of Manassas were primarily farmers, and animal husbandry and growing grains were their most common pursuits. Some of the farms used slave labor, some were let to tenant farmers, and some were farmed exclusively by the families that owned the farm. Most farmsteads were multi-generational, and subdivisions would often occur as the farms were passed down to younger generations.

The park's current vegetation is a patchwork of open fields and forest communities representing various historic land uses, successional stages, and ecological conditions. The open fields are maintained through agricultural hay leases and mowing by park personnel. Many of these grasslands contain

No grain could rival corn for its adaptability, yield, and ease. Corn was often the first crop to be planted by pioneers; it could be successfully grown in fields of stumps, downed timber, and girdled snags.

native grass communities, particularly Indian grass/little bluestem. Grasslands cover about 35 percent of the park. The forest communities, which cover approximately 50 percent of the park, are primarily deciduous stands of oak-hickory, pine/cedar forest, mixed pine/hardwood stands, and bottomland hardwood stands.

Context

The first Europeans in Virginia settled in the Tidewater area of the coastal plain. Typically land in this area was granted in patents of 500 to 5000 acres or more. Large tobacco plantations formed the economic basis in the rural south, including colonial Tidewater Virginia. Tobacco farming was widespread as the commodity was highly transportable; it could be dried and sent to market in the Northeast and Europe. However, such widespread and monocultural tobacco planting led to exhaustion of the soil, through depletion of soil nutrients and a likely proliferation of microorganism pests. But, as land was relatively abundant, depleted lands were simply abandoned and farming operations moved to unplowed lands with more fertile soil.[112]

As farmers moved west into the Virginia Piedmont, they established more diverse farms with generally smaller landholdings. While Piedmont farmers grew tobacco for cash, they grew an abundance of other crops as well, including corn; wheat; smaller amounts of other grains like oats and rye; they raised vegetables, tubers, and had orchards for personal consumption; and they were heavily engaged in animal husbandry.[113] By the mid-eighteenth century, Virginia saw a rise in the production and export of wheat, and a significant decrease in tobacco farming, particularly in the Virginia Piedmont. Many communities, including Sudley, constructed water-powered grist mills to convert wheat into flour. Once milled into flour, wheat could be transported over land or river. By 1777, tobacco farming was in rapid decline in Virginia and Maryland and by the start of 1800, there was virtually no commercial farming of tobacco in the Virginia Piedmont.[114]

No grain, however, could rival corn for its adaptability, yield, and ease. Corn was often the first crop to be planted by pioneers; it could be successfully grown in fields of stumps, downed timber, and girdled snags. In comparison, wheat was more difficult to harvest than corn and its yield was considerably less. In addition, by the mid-1850s wheat fields in northern Virginia were ravaged by jointworm, which stunts the onset of the grain, and may have led many farmers to reconsider growing wheat.[115] By the time of the Civil War, virtually all farmers at Manassas dedicated some of their land to corn farming, while a much smaller subset grew wheat. Corn was the staff of life for high and low alike and the principle grain fed to livestock.[116]

By 1840, in the midst of an agricultural depression, much of the previously cultivated lands in the Piedmont had been abandoned as farmers migrated further west to find soils that were not exhausted. Travelers to Fairfax County, Virginia in 1840 remarked on the "oppressive air of desolation" and "where there had been fields of tobacco, wheat, and corn…now pine forests, abandoned fields, briars, and sedge grass."[117] By the mid-1840s northerners, many of them Quakers, purchased and farmed previously abandoned farmlands in the northern Piedmont. Through enhanced farming methods, including crop diversification and deeper plowing, the northerners were able to reclaim these abandoned lands. During this time, many newspapers spoke admiringly of the changes brought to the Piedmont by the northern farmers. Important to the northerners was providing an example of how farming could be profitable without relying on slave labor.[118]

The population of Virginia, particularly the eastern Tidewater and Piedmont portions, dropped rapidly after 1820, largely due to declining agricultural yields due to soil erosion and nutrient depletion. Virginia's proportion and relative influence within the U.S. was also on the decline: "Until 1820, Virginia had the largest population in the Union, but in that year it fell to second place, and by 1860 had skidded to fifth."[119] Eventually, new and experimental agricultural techniques and increased access to markets allowed for productive farming on land that had previously been abandoned. These new techniques included using cover crops to replenish the soil and prevent erosion, using deeper plows to better till the soil, utilizing

crop rotation, and using new sources of fertilizer and conditioners, like marl, guano, and gypsum.[120]

Although there are no statistics available, it is known that some of the farmers in the northern Virginia Piedmont were tenant farmers. Based on the work of historian Cecil Gray, tenancy farming in the post-colonial Virginia was less prevalent than during its colonial period, as there are few references made to it.[121] Regardless, it is known that tenancy did exist in this area, most notably at Brawner Farm. Renting of farm land to tenant farmers was usually done on a yearly lease. In exchange for the right to farm private land, tenant farmers would give their landlords a percentage of the harvest. The percentage of the harvest that went to the landlord was generally contingent on the quality of the land: poor land generally rented for 1/3 of the grain and small crops, land of better quality rented for 2/5 of the grain and 1/3 of the small crops, while high quality farm land rented for ½ of all crops.[122] Tenants would typically provide their own animals, seed, and tools, and would labor in hopes of gaining enough capital and experience to purchase their own land.

During the battles of First and Second Manassas, the agricultural landscape composed of gently rolling fields, pasture, fencing, riparian corridors, and woodlots played a significant role in how the battles were fought and which battlefield strategies were employed. Ridges and hills provided high ground on which artillery position, reconnaissance, and battle lines could be established. Agricultural fences, drainages, and woodlots provided defendable obstacles that would prevent or divert the movement of military forces. These same features could be used to provide cover from enemy fire and concealment from enemy observation. The agricultural landscape also provided a ready source of nourishment for the troops at a substantial cost to the local farmers. Following the war, many farmers submitted claims for reparations from the tremendous damage that was inflicted on farms by the transitory armies.

The following agricultural land uses are known to have existed on and around the Manassas battlefield:

Agricultural Fields (grains, tobacco, beans, potatoes, kitchen gardens etc.)
Prior to the onset of the Civil War, the vast majority of land within the present day battlefield was under agricultural cultivation. The main cash crops that were farmed at this time were corn and oats. These two staple crops were augmented by other crops as well, but were often grown for subsistence rather than commercial use in kitchen gardens. Not much evidence remains at the Sudley/ Groveton area, but it is believed that the preponderance of farmers there maintained personal kitchen gardens in addition to their commercial farming.

In 1860, farms in the Sudley/Groveton area grew a combined 5030 bushels of Indian corn, 3900 bushels of oats, roughly 700 bushels of wheat, 465 bushels of rye, 235 bushels of Irish potatoes, over 150 tons of hay, 47 bushels of buckwheat, 40 pounds of tobacco, 16 bushels of barley, 15 bushels of sweet potatoes, 12 gallons of wine, and 3 bushels of peas and beans.[123] A comparison of the 1870 agricultural census reveals that while the agricultural productivity of the area recovered in the years following the war, the overall diversity of crops grown diminished, and a greater emphasis was placed on growing the cash crops of corn and wheat: 10550 bushels of Indian corn; 2875 bushels of oats; roughly 3195 bushels of wheat; 23 bushels of rye; 290 bushels of Irish potatoes; over 83 tons of hay; 0 bushels of buckwheat; 0 pounds of tobacco; 0 bushels of barley; 5 bushels of sweet potatoes; 10 gallons of wine; and 5 bushels of peas and beans.[124]

This agricultural diversity has disappeared within the present-day park boundaries; the only current agricultural endeavor within the park is the letting of hay leases, which are currently let for roughly 1,518 acres of land within the park. Another 50 acres of land is mowed, which helps preserve the pastoral character of the landscape but provides no agricultural yield.

Animal Husbandry (Meat, Dairy, Eggs, Wool etc.)
Animal husbandry was a core part of operations of many southern farms, including those in the Virginia Piedmont. As land was less densely developed than in the north,

farmers would utilize the open space with free range livestock. In addition, livestock was valuable to southern farmers for their fertilizing manure.[125] Livestock that was historically present includes horses, donkeys, mules, cows, oxen, sheep, chickens, swine, and sheep. The profusion of livestock that were historically present had a dramatic effect on the character of the landscape, resulting in an open, pastoral setting with expansive views interrupted only be discrete pockets of forests. Today, the only grazers that remain are wild white-tailed deer.

Many cattle that passed through the area originated in the Appalachian Mountains, and were driven to grain raising farmers in the Virginia Piedmont who would fatten them for market. These cattle were customarily purchased at three or four years of age, were "roughed" through the winter on a diet of cornstalks and wheat straw, fattened in the summer on clover and grain, and then driven to the markets of Baltimore and Philadelphia.[126] Like cattle, pigs were left to run at large and were encouraged to pick up food and roots where they could find them. Their diet was supplemented with corn, which would help keep them domesticated and would be used to fatten them for market.[127]

In 1860, farms in the present day battlefield possessed a combined total of 81 horses, 74 milk cows, 20 working oxen, 131 beef cattle, 213 sheep, and 205 pigs and produced 881 pounds of wool and 3275 pounds of butter.[128] A comparison of the 1870 agricultural census reveals that animal husbandry recovered at the battlefield following the war, with significant expansions in sheep and dairy operations, and reductions in other livestock: 62 horses, 87 milk cows, 20 working oxen, 99 beef cattle, 343 sheep, and 185 pigs and produced 1040 pounds of wool and 5674 pounds of butter.[129] In 1880, an agricultural census was prepared for Prince William County that counted poultry and egg production, and lists a total of 525 poultry and production of 3875 dozen eggs.[130]

Woodlots

Woodlots were essential components of farmsteads in the Virginia Piedmont. They provided two necessities for survival for the area's farmers: fuel and fence material. In addition, wood was used as a building material and would be cut and sold to raise revenue. When Wormley Carter died in 1815, much of the land that now comprises the present day battlefield was subdivided among his heirs. Significantly, each parcel of land included a woodlot. These subdivisions persisted more or less intact through the Civil War and into the twentieth century.[131]

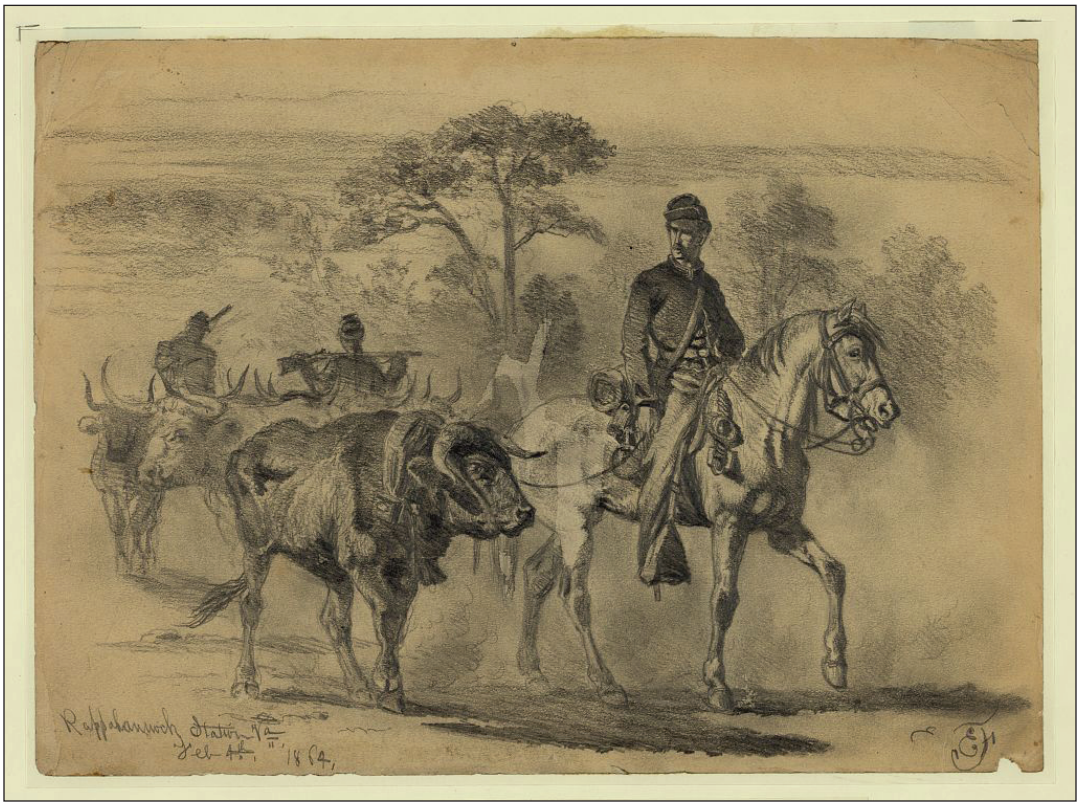


Figure 1.7. "Beef for the Army - On the March", Illustration by Edwin Forbes, created on February 4, 1864, pencil on paper. Both Union and Confederate armies procured much of their rations through raiding nearby farms for grain and livestock, including the farmers that occupied the Manassas Battlefield. (Image courtesy of the Library of Congress Prints and Photographs Division, Washington D.C.)

Woodlots were raided during the Civil War and both armies freely burned fence rails. To replace destroyed fences and buildings, land owners were forced to further deplete their timber resources.

Wasteful use or involuntary destruction of woodlots could have dramatic consequences: it has been shown that many southern farmers were forced to migrate to new lands when all of their woodlands were exhausted.[132] At Manassas, farmers felt the destructive effects of the battle well into the 1900s. Woodlots were raided during the Civil War and both armies freely burned fence rails. To replace destroyed fences and buildings, land owners were forced to further deplete their timber resources. After many decades, timber resources rebounded at Manassas, and in the absence of grazing, are now overrepresented at the present day battlefield.[133] Historic woodlots are now identified as Oak-Hickory forests, while more recent woodlands are comprised of earlier successional species.

Woodlots were typically located along streams and in rocky areas that were not ideal for croplands. They were managed by their owners to provide materials for a variety of uses, including hard wood for fuel, soft, smooth wood for lumber and construction, rot-resistant wood for fence posts and rails. Through clearing and grazing, the woodlots floor was kept clear of most underbrush and downed timber, which lead to an appearance that was more orderly than a natural woodland. The combination of an enclosed forest canopy with a cleared understory made the woodlots strategically valuable in both First and Second Manassas. Woodlots were used to conceal armies from view, to provide a place of rest and shade for the soldiers, and, in some cases, they presented obstacles for the rapid movement of troops.[134]

Early agricultural census records for Prince William County do not account for the amount of timber that was cut from the various estates. However, later records such as the 1880 Agricultural Census do itemize these farm operations. In 1879, farmers in the area cut roughly 225 cords of wood with a value (in 1880 dollars) of $225.[135]

While the early agricultural census records for Prince William County do not provide figures for the amount of timber harvested, the census records do distinguish between "improved" and "unimproved" land on a given farm. Improved land is defined as "cleared and used for grazing, grass, or tillage" while unimproved "may be a woodlot or … the timber or range of which is used for farm purposes."[136] This distinction between improved and unimproved land does provide a useful metric regarding the amount of land in active agricultural use versus more passive use, such as a woodlot. In 1860, farms in the present day battlefield possessed a combined total of 3,563 acres of improved land and 1,336 acres of unimproved land, or roughly 1 acre of unimproved land (of which some subset would have been a woodlot) for every 2.67 acres of improved land.[137]

Orchards

The 1800s are known as the "golden age of pomology," the period in which pomology – the science and practice of fruit growing- produced hundreds of new and diverse varieties of fruit. During this period, grafting became standard practice for starting an orchard rather than sowing from seed, marking a transition from orcharding that was largely suitable for only cider production to one of edible table fruits. Orchards took a more geometric, symmetrical form in the 1800s as well, with less variety of tree form in an orchard planted from clones than one planted from seedlings. [138]

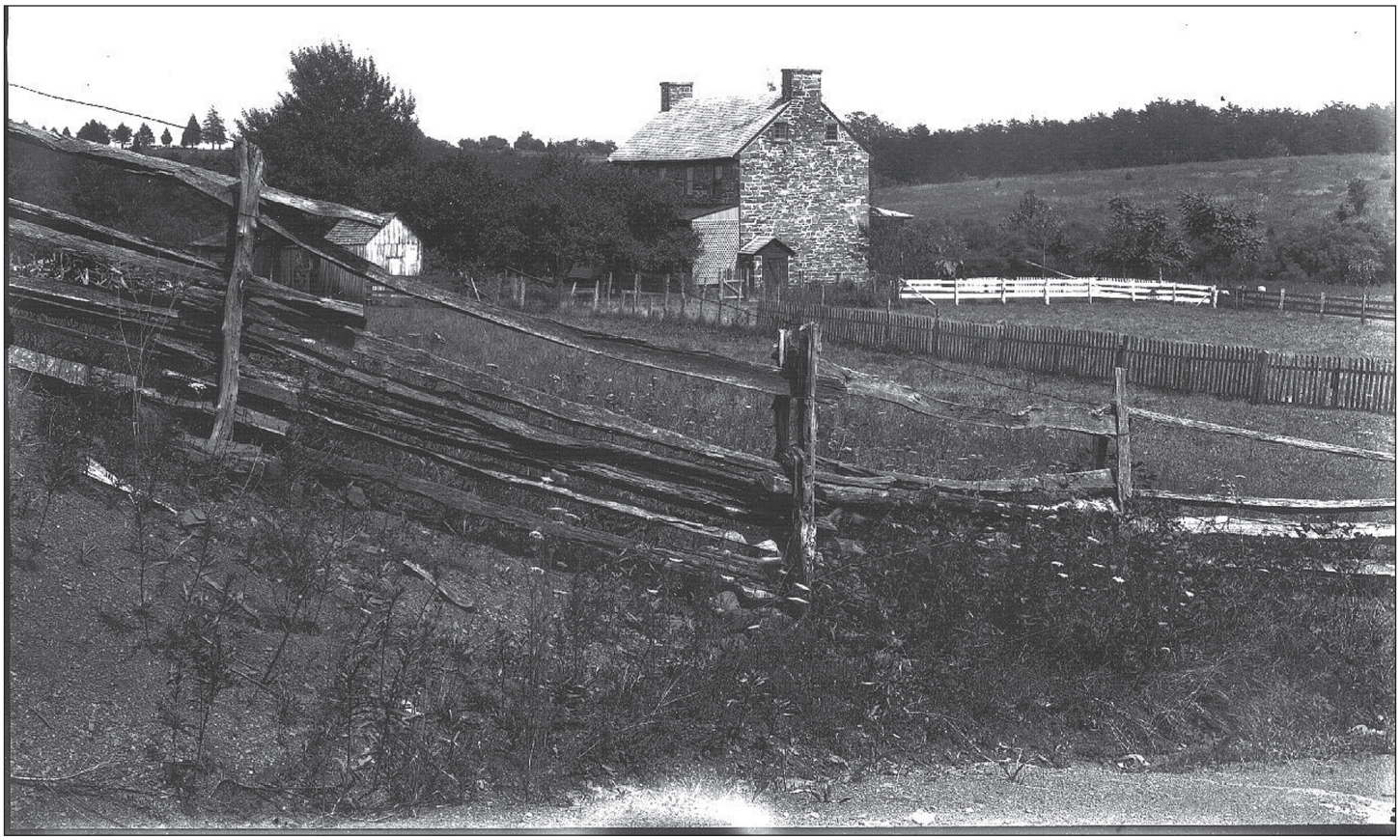
While orchards were historically present at Manassas, they represented only a small percentage of the land in cultivation. Between 1755 and 1785, leases were let out by the Carter family in which the lessors were required to build within three years "a good dwelling … and plant fifty apple trees and fifty pear trees and the same enclose with a lawful fence."[139] Unfortunately, none of these Carter era orchards still remain at Manassas.

While orchards were present during the war, they were small in size and grown for subsistence uses. Fruit could be eaten fresh, canned or dried for winter consumption, made into hard cider, or used as livestock feed. Surplus fruit could be sold or traded. Rationale for the scarcity of orchards was likely a combination of the difficulty of transporting them to market and the tradition of frequently migrating to new land. Farmsteads that were known to have orchards during the Civil Warm include Brawner, Van Pelt, and John Dogan. Many of the orchards, including the Brawner orchard, provided

cover and concealment to the troops. Although the fighting in 1862 destroyed the Brawner orchard, in 2011 12 trees were planted at this location to help interpret the battle. These trees were planted on a 30 by 30 foot grid and are comprised of heirloom varieties that are appropriate for the location and period.

Orchard farming appears to have expanded following the Civil War. The agricultural census indicates that there was substantial fruit cultivation in 1880 with roughly 475 apple trees that yielded 1,430 bushels of fruit and 535 peach trees that yielded 1,270 bushels of fruit.[140] Unfortunately, fruit production was not accounted for in earlier census records.

Fence Lines, Fields, and Forests: Manassas Battlefield CLR



Part 1: Analysis and Evaluation of Integrity

Historic Landscapes of Manassas National Battlefield:

Analysis and Evaluation of Integrity

To better focus this report, the study area has been divided into eight cultural landscape character areas that contain concentrated assemblages of resources related to the Civil War Battlefield. These cultural landscape character areas represent the locations within the park that have the greatest interpretive value and that are the most heavily visited. They are its two primary circulation routes (Sudley Road, Warrenton Turnpike) and six of the parks primary interpretive nodes (Brawner Farmstead, Chinn Ridge, Deep Cut/Unfinished Railroad, Henry Hill, Matthews Hill, Sudley/Thornberry Farmstead).

Landscape characteristics are the tangible and intangible aspects of a landscape that allow people to understand its cultural value. Collectively, they express the historic character and integrity of a landscape. They provide evidence of the activities and habits of those who occupied, developed, and shaped the land to serve human needs; they may reflect the beliefs, attitudes, traditions, and values of these people. Examples of landscape characteristics include land use, spatial organization, vegetation, views and vistas, buildings and structures, and small-scale features, among others.

This CLR is specifically focused on the management of park vegetation and fencing, which is one of the battlefield's most important small scale features. As such, this section will feature an expansive analysis and evaluation of integrity pertaining to these two landscape characteristics.

Numerous existing condition maps have been prepared to assist in the analysis and evaluation of integrity, including a park-wide existing condition map (Drawing 1.9) and individual existing condition maps for each of the primary interpretive nodes (Drawings 1.10 - 1.15)

Primary Circulation Routes

The earliest roads in and around today's Manassas National Battlefield Park arose out of necessity. Roads developed in response to farmers' needs to access their most distant fields, or to travel from their plantations to the nearest river wharf, mill, or commercial center. Although local residents were entirely responsible for maintaining them, many of these original traces eventually became named, publicly-used routes. As a result, the first roads were of varying, and often poor, quality, and their layout reflected the needs of local residents, rather than long-distance travelers.

Unlike the more spontaneous local evolution of farm roads, the development of turnpikes was decidedly planned. The location of a turnpike was determined by regional politics, use, and economics, while its construction often involved the shipment of special materials for grading and surfacing.[141] Although their regional focus might suggest some government involvement, it was corporations, rather than individual farmers, that built and maintained the turnpikes. State legislatures chartered turnpike corporations to find investors that generated the capital necessary to build roads. The word 'turnpike' originally referred not to the road, but to a type of gate specially adapted to rapid opening and closing so that fares could be collected efficiently from travelers; or what today would be called a turnstile. The name was quickly adopted for any type of toll road.

In contrast to the motivations behind earlier roads, capital gain was the chief priority of turnpike companies, motivating builders to lay out direct but often hilly roadways. The typical turnpike of 1810 was approximately twenty feet wide, and much straighter in its

direction than even in its grade.[142] Land was expensive and a shorter, straighter road was always more profitable than a more flat and curvy road. Turnpike companies also sought ways to cheaply achieve the secure road surfaces mandated by state legislatures. The English technique of using broken stone on a gravel base was well known as the best but most expensive method of surfacing roads. Instead, the majority of American turnpike companies relied on gravel or corduroy (logs laid perpendicular to the road and wedged tightly together) rather than the more expensive stone.[143] However, this cost-based solution naturally brought with it a reduction in quality. Travelers frequently complained about the condition of the turnpikes, and European travelers consistently rated American roadways as the worst in the world.

Sudley Road (Sudley-Manassas Road, Sudley Mill Road, Virginia State Route 234)

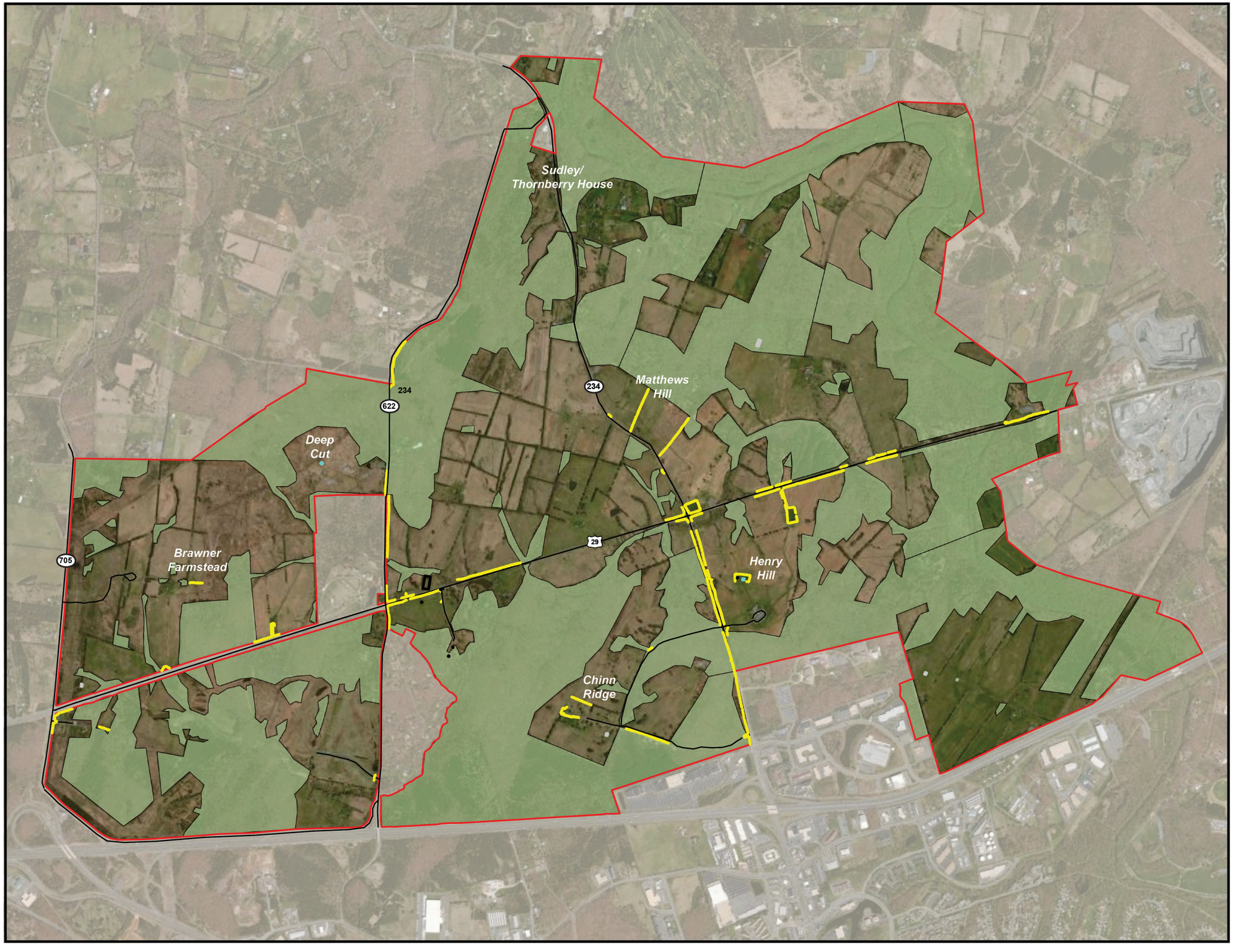
Oriented in a somewhat windy north-south axis, Sudley Road was established by 1780 and connected the mill at Sudley to the southern market center of Dumfries, spanning a distance of over 20 miles.[144] Travelling south from the community of Sudley, the road meanders to the east and west, likely as a result of bygone property boundaries adjacent to the road. Sudley Road is one of the oldest roads in the vicinity of Manassas National Battlefield Park. Although privately maintained, presumably by the Carter family heirs, the road was also used by the general public. During the nineteenth century, the Sudley area continued to grow with the construction of a new sawmill, miller's house, and gristmill between 1835 and 1843. These structures added importance to Sudley Road and the mills were powered by water from Catharpin Run. Further improvements were made to the site by the addition of a milldam and headrace on Catharpin Run.

During the Civil War, Sudley Road was used extensively for the transportation of troops and supplies and occasionally to provide cover. Sudley Road was one path used by the Union to arrive at the battlefield on Henry Hill from Matthew's Hill. Colonel Sherman reported that the Sudley Road "was worn deep enough to afford shelter" from Youngs Branch up to the Henry farm entrance road.[145]

Historically, the majority of land adjacent to Sudley Road was in cultivation in grain production or livestock pasturage. The land between the Dogan farm and the Matthews farm was planted with corn and most of



Figure 1.8. Sudley Road at Manassas in 1903, looking north towards the Warrenton Pike and Stone House. The road appears heavily eroded and pitted, and has a barbed wire (west) and worm (east) fencing along its margins. (Image courtesy of the Kern Collection, Montgomery County Historical Society, Dayton, Ohio).



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National
Battlefield Park
Manassas, Virginia

Manassas Battlefield: Existing Conditions

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, D. Schaible
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Existing Forest Cover
- Existing Worm Fences
- Existing Iron Fences
- Existing Stone Fences
- Existing Post-and-Rail Fences
- Legislated Park Boundary

North

Not to scale

Drawing 1.9

Chinn Ridge and Henry Hill were kept open through grazing, corn, and wheat fields. Occasional woodlands were kept adjacent to the road including the "dense oak woods"[146] that nearly encompassed Bald Hill in the south and the "forest of black jacks and white oak"[147] that grew on a north-south axis parallel to Sudley Road just north of Matthews Hill. Historically, travelling along Sudley Road would have offered primarily open sightlines through a rolling, pastoral landscape, interrupted by occasional stands of deciduous and coniferous forests. While this character still remains, the percentage of land covered in forest has increased beyond its historic threshold. Recent forest growth has encroached upon the roadway in several locations, most notably between Chinn Ridge and Henry Hill, and the area north towards Sudley along and adjacent to the Unfinished Railroad grade.

In many instances, landowners would build fences on either side of Sudley Road to keep animals in the fields and out of the road, as well as to mark their property boundaries. This was particularly true for the section of Sudley Road that is south of its intersection with the Warrenton Turnpike, which was predominantly fenced. The portion of Sudley Road north of the turnpike, however, appears to have been less consistently fenced in. At this time farmers were not required to fence in their livestock, so having unfenced pasturage, even adjacent to a road, was not illegal. Worm fences were likely the most prevalent fence type used along roads, as they were the easiest to construct and were frequently used in outlying fields. However, it is likely that other fencing types were used as well, including post-and-rail and post-and-board. With the advent of barbed wire in 1874, many fences were converted to this material.

Information on the post-Civil War condition of historic roads and landscapes was often commented on by visitors to the area. Touring Civil War battlefields became a popular pastime immediately following the war. Many travelers created descriptive narratives, took photographs, or created illustrations of the landscapes. Their narratives illuminate both the historic roads they traveled and the landscapes they saw. J.T. Trowbridge toured a number of Civil War battlefields, including Manassas in 1865:

> *The original country roads had passed into disuse; and, the fences being destroyed, only the curious parallel lines of straggling bushes and trees that grew beside them remained to mark their courses. Necessity and convenience had struck out new roads winding at will over the fenceless farms. We crossed thinly wooded barrens, skirted old orchards, and passed now and then a standing chimney that marked the site of some ruined homestead. . .I remember not more than three or four inhabited houses on our route.*
>
> *In its external features I found it greatly changed. Many of the trees had been cut away. Every fence had disappeared. Where had waved the fields of grass and grain, extended one vast, neglected, barren tract of country.*[148]

In the 1930s, Sudley Road was renamed Virginia State Route 234 and was by this time a public state highway. Although the road remains largely on its historic alignment, it has been widened, paved, and otherwise modernized to accommodate contemporary needs. Within the park, possibly the greatest change to the road was the realignment at Sudley onto a concrete bridge over Catharpin Run upstream from the previous crossing at Sudley Springs Ford.[149] The landscape's character is also impacted by current traffic levels on the road: in particular heavy use during morning and evening rush hour detract from the setting and feeling of the battlefield. However, the NPS has been working with the Virginia Department of Transportation to relocate State Highway 234 and its associated traffic outside of the park, likely along the western perimeter of the park at Pageland Lane. If the park is successful in these efforts, Sudley Road will be repurposed for predominantly park-related traffic.

Warrenton Turnpike (Fauquier and Alexandria Turnpike, US Route 29, Lee Highway)

In an attempt to help Alexandria compete with Fredericksburg for trade with Fauquier Court House (present-day Warrenton) and Culpeper, the Fauquier and Alexandria Turnpike Company was formed in 1808. The Fauquier and Alexandria Turnpike, later

known as the Warrenton Turnpike, was designed to run a total of 28 ½ miles, from the Little River Turnpike at Germantown (outside Fairfax Court House), through Centreville and Buckland, terminating at Fauquier Court House. The road was to be a modern road, 16 ½ feet wide and paved with crushed stone of a size that would pass through a three-inch ring. Travelers and teamsters would have to pay for this modern and convenient route. Six toll gates were located along the route, each approximately five miles apart.[150]

Although the company was formed in 1808, the contract for the construction of the road was not let until December 30, 1812. By 1815 the turnpike extended from the Little River Turnpike to Buckland, some eight miles short of Fauquier Court House (by then known as Warrenton). Due to the death of the contractor and financial difficulties in the Fauquier and Alexandria Turnpike Company, thirteen more years would pass before the final eight miles of the road were completed to Warrenton.[151]

Once constructed, the Warrenton Turnpike did increase the efficiency of travel and local economic growth followed. Despite its associated economic benefits, area residents complained to the turnpike company about the poor condition of the road. In 1821, Charles Ewell wrote to the company, stating:

> *. . .it is our opinion that the Road from Dogins [Dogan's] Hill to Bull run is out of repair Generally & unfitt [sic] for a Turnpike according to Law or the true intent & meaning of the Ac. Of Assemble.*[152]

Soon after, the turnpike company tried to improve the road; a summary of the work completed between 1824 and 1825 includes the following note:

> *During the last year there have been taken up of the old road btw Fairfax & Buckland a considerable distance, which was relaid upon McAdam plan, there has also been a new and substantial Stone Bridge erected over an important water course [Bull Run], in the place of an old wooden one taken down,*



Figure 1.9. Ruins of the Stone Bridge following its demolition by Confederate forces in March of 1862. The bridge was reconstructed in the 1880s using its original abutments. (Image courtesy of The Library of Congress Prints and Photographs Division, G.N. Barnard and J. Gibson photo).

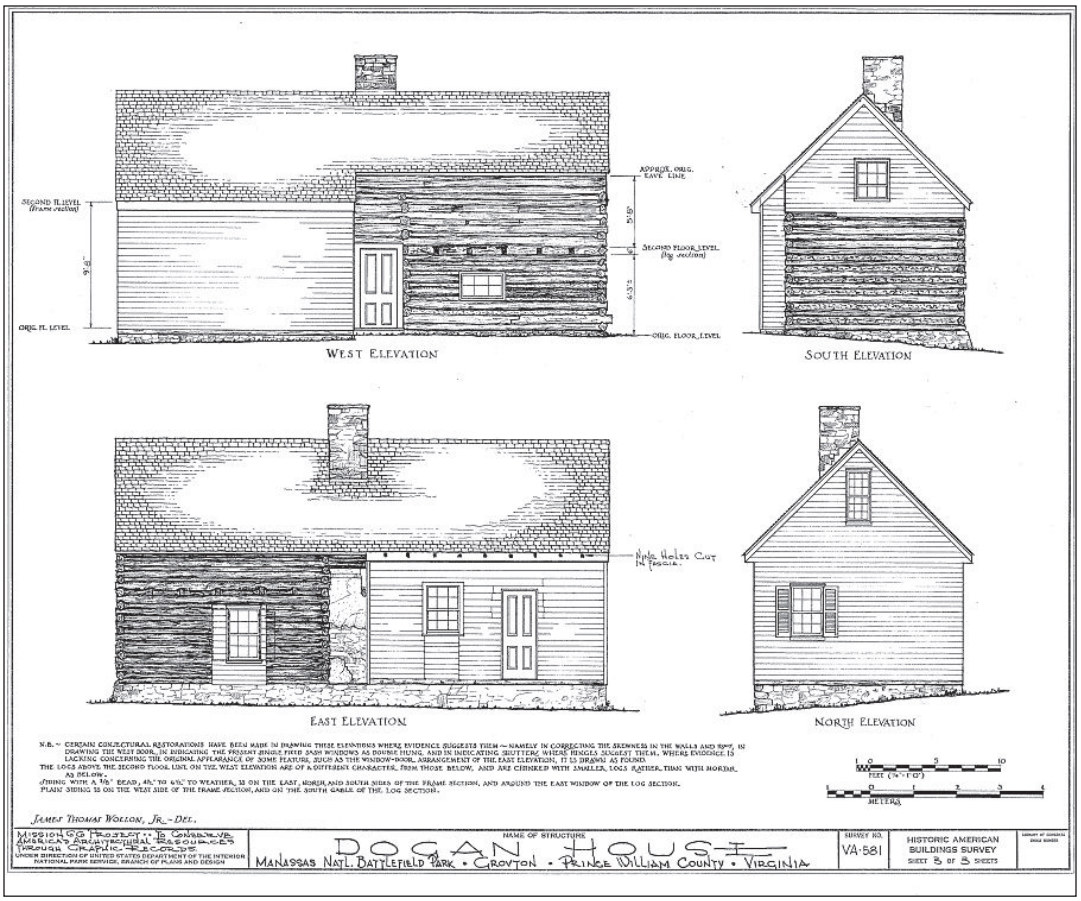


Figure 1.10. Elevations of the Lucinda Dogan house located along the Warrenton Turnpike in Groveton. (HABS VA, 76-GROV, sheet 3 of 3), 19x24 inch ink on mylar drawing, June 1959.

these and other improvements and repairs has necessarily thrown the travel off the road during a considerable part of the year.[153]

As constructed, the turnpike rarely deviated from its straight, northeast orientation as it traversed through gently rolling hills, diverging only to meet the alignment of the Stone Bridge to the north. By 1827, two stagecoaches per week ran between Alexandria and the Orange County Courthouse, and the turnpike to Warrenton was completed in 1828. In the second quarter of the 1800s, a two and a half story stone masonry house was constructed at the Warrenton Turnpike intersection with Sudley Road. This structure later came to be known as the Stone House. It is one of only three wartime buildings left within the park. Its location at the crossroads of Sudley Road and the Warrenton Turnpike allowed the building to be used as a tavern, residence, and post office, as needed. A turnpike toll gate was also located on the turnpike in this location, and weary teamsters would often stop at the Stone House for a meal and rest. During the Civil War, the building served as a field hospital for Union forces, some of whom carved their initials into the wood floor and molding of an upstairs bedroom. The Stone House was acquired by the NPS in 1949, rehabilitated in the 1960s, and is now one of the park's principal interpretive locations and one of its most recognized landmarks.

Marking the eastern entry to the park along the Warrenton Turnpike, the Stone Bridge was originally constructed as part of the Warrenton Turnpike in the 1820s, and became the primary wagon crossing over Bull Run. The bridge was destroyed by Confederates during their withdrawal from Bull Run in March 1862. Subsequently, a wooden bridge was built on the old stone abutments, and a new stone bridge was reconstructed on the site in the 1880s. Today the Stone Bridge remains one of the battlefield's most recognized features. Repointed and extensively repaired in 1990, the bridge is generally in good condition.[154]

Historically, the tiny village of Groveton sat at the junction of the Warrenton Turnpike and the Groveton-Sudley Road (now Featherbed Lane). Historic maps and documentary evidence place the village proper on the northwest and southwest corners of the intersection, with a tavern, wheelwright shop, and blacksmith shop among the cluster

of structures. Few traces of the crossroads community remain today with the significant exception of the Lucinda Dogan House, which is located at the northwest corner of the intersection. Part of the adjacent Dogan family plantation known as Peach Grove, the one-and-a-half story log building originally served as an overseer's house. The Prince William County Chamber of Commerce purchased the house and its immediate grounds in 1947 and donated the property to the park in 1949. The house is one of only three wartime buildings within the park boundaries.[155]

Just west of the Lucinda Dogan House along the Warrenton Turnpike and outside the park boundary, a two-story frame structure may contain the historic Dogan tavern, which stood on the site in the 1860s. No other vestige of the historic Groveton village survives, although archeological remains likely exist. The tavern structure and the rest of the northwest corner of the Groveton intersection fall within the Stonewall Memory Gardens, an 84-acre landscaped cemetery established in the 1950s.[156]

The Warrenton Turnpike played a major role in both First and Second Manassas, providing a strategic transportation route and important cover. The opening shots at First Manassas were from the heavily guarded Stone Bridge Bull Run crossing on the Warrenton Turnpike. The turnpike also provided cover to both Union and Confederate forces during the fighting between Matthews Hill, Buck Hill, and Henry Hill. During Second Manassas, Union troops were marching along the turnpike when Stonewall Jackson's troops ambushed them from their flank with artillery fire from the Unfinished Railroad. Following three days of fighting and the eventual route of Federal forces at Deep Cut, the turnpike became the primary route of retreat for Federals heading back towards the nation's capital.

Characteristic of the area as a whole, the Warrenton Turnpike historically passed through an open, heavily cultivated landscape, dominated by large fields of corn, wheat, and oats being grown adjacent to low density livestock pasturage, all interspersed by occasional copses of woods and much of it encompassed by rail fencing. Woodlands, which were essential for fuel and fencing, were typically set aside on land that was unsuitable for the till, often land that was uneven with rocky or shallow soils. Travelers along the historic roadway would have been offered expansive views along the gently rolling terrain, interrupted by occasional stands of woodlands.

Motorists along the turnpike today can look out into a landscape that is similar to its historic open character. While crops are no longer planted along the road, the landscape today is kept open through hay harvesting, mowing, and deer grazing. While some forests have encroached into areas that were historically under cultivation, the majority of the landscape retains its original vegetative character and distribution. Open areas that have reverted to forests since the close of the Civil War include most of the area just west of Stone Bridge (which had been felled leading up to First Manassas to provide a line of sight from the nearby artillery to the bridge), and some pockets of forest that have overgrown their historic extents near the Brawner Woods and Stuart's Hill.

As the main thoroughfare through the area, historic maps indicate that landowners built nearly contiguous fences on either side of the Warrenton Turnpike to keep animals in the fields and out of the road, as well as to mark their property boundaries. Unlike other roads in the area that were less traveled, the Warrenton Turnpike appears to have been completely or nearly completely incased in fencing.[157] Worm fences were likely the most prevalent fence type used for this purpose, as they were the easiest to construct and were frequently used in outlying fields. Some post-and-rail and post-and-board fences also stood along the turnpike, especially as timber shortages forced farmers to be more conservative in their use of wood. Unfortunately, adequate documentation to differentiate between different fence types is not available. Although fence lines are shown on numerous historic maps of the battlefield, there are no historic maps that conclusively differentiate between the different types of fences that were known to have been present at the time of the war. As the Virginia worm fence was the most prevalent overall typology, and since fences are typically depicted as a

"Of all the roads I have become acquainted with in this region, the worst was the Warrenton Pike right on the battlefield."

zigzag line on maps, it is reasonable to infer the majority of the roadside fences were this type. All of the fences along the Warrenton Turnpike today are reconstructions of the Virginia worm fence type, generally with stake-and-riders for additional support. However, other fence types were known to have been historically present along the turnpike. For instance, a photo taken at Groveton in the ca. 1880s shows a board fence along the turnpike (see Figure 1.11). The posts are square and horizontal pieces appear to be boards, although not uniform in width. The fence is whitewashed or painted, typical for board fences.

In the 1878 survey conducted along the center of roughly two miles of the Warrenton Turnpike, captain and surveyor J.A. Judson depicts near contiguous fencing along the turnpike. While most of his fencing is depicted with a zigzag line (likely indicating a worm fence) a possible second type of fence is depicted in locations by a straight dashed line (possibly post-and-rail). On one page of the survey, the straight dashed line is labeled "rail fence." Some have speculated that the different lines used on this survey were deliberate and intended to convey different fence types, likely worm and post-and-rail fences.[158] While plausible, this hypothesis is far from conclusive. Enticing as it may be to ascribe meaning to these different fence depictions, it is impossible to conclude what the different line types were intended to convey, if anything. Indeed it is likely that Judson was simply being expedient while surveying the road and fences in the field, and started using a straight dashed line to save time while conducting his survey. If done to increase efficiency, Judson may have labeled the straight dashed line "rail fence" as a reminder that his change in representation from zigzag to a dashed line was depicting the same type of feature (worm fences are made of "rails" too). This hypothesis is strengthened by many details of the survey itself such as: several survey pages begin with a meticulous zigzag line which then bleed into a dashed line, suggesting that Judson may have grown tired of making the more representative but time-consuming zigzag line; in the final four pages of the survey, which likely came at the end of a long day in the field, all of the roadside fences are depicted by a straight line that is hardly even dashed, which suggests that Judson may have simply been in a hurry to wrap up his days' work rather than trying to differentiate between fence typologies.

Memorializing and touring Civil War battlefields became a popular pastime immediately following the war. In 1865, two monuments, one for each Battle of Manassas, were dedicated on Henry Hill and at Deep Cut respectively. The Washington, D.C. *Evening Star* reported on the condition of the turnpike en route to the ceremonies:

> *The roads are characterized by all the horrors of a barbaric period. The pike paved with boulders from which the sand and gravel have been washed away, stretches on, an interminable highway of suffering, while*



Figure 1.11. Post-and-board fencing along the Warrenton Turnpike at Groveton ca. 1880. (Image courtesy of Manassas National Battlefield, no photographer credit attributed).



Figure 1.12. The Brawner Farm House, following its rehabilitation in 2006-07 and conversion into a visitor contact center (2012, NCR CRP).

> *the by-ways filled with stumps and pit-holes, afford scarcely less terror to the traveler [sic].*[159]

In 1904 Clifton Johnson presented another description of the landscape in the Sudley area. Like Trowbridge before him, Johnson visited battlefield sites of the southern states. His descriptions paint a desolate picture of the ruined landscape after the war.

> *Of all the roads that I became acquainted with in this region, the worst was the Warrenton Pike right on the battlefield. At some remote period a vast amount of stone had been dumped on it, and this stone had become more or less mixed with red clay.*[160]

Much needed improvements were made to the road in the 1920s, when the defunct Warrenton Turnpike was incorporated into US Route 29. The highway department regraded and made minor realignments to the interstate route and paved it with concrete. Regrading the turnpike changed its character. The regrading included widening and leveling the road surface with additional areas of cut and fill. The road's straight, northeast orientation, however, remained.

Since the 1920s, the road has remained US Route 29, part of an interstate highway that extends from Baltimore Maryland to Pensacola Florida. Within the park, the road is primarily a two lane highway but for a short distance within the park along its western periphery, the road becomes a four-lane divided highway. Outside of the park to the east and west, the road is a modernized, four lane divided highway. The intersection with Sudley Road is now marked with an overhead traffic light and congestion along the roadway and at this intersection, is heavy during rush hour periods. The expansion of suburban development into Prince William County and beyond has resulted in heavy, thoroughfare traffic within the park. This heavy commuter traffic is identified as a primary issue by the park's General Management Plan, which calls for removal of commuter and truck traffic from this road.[161] The Manassas National Battlefield Park Bypass Draft EIS also calls for rerouting the highway so that it no longer bisects the historic battlefield.[162]

Primary Interpretive Nodes

Even before the Civil War was over, studying, touring, commemorating, and in some cases reenacting the signature battles of the American Civil War became a popular American pursuit. Originally this interest was self-directed and unorganized, but with the creation of the first National Military parks in the 1890s and the later dedication of the Manassas National Battlefield Park in 1940, infrastructure was put in place to not only protect these battlefields from future development, but to provide visitors with interpretive information and historical context. Although all of Manassas' 5,000 acres were utilized by soldiers during First and Second Manassas, a handful of its sites stand out as being the most important to understanding its battles. For the purposes of this Cultural Landscape Report, these sites have been identified as the park's "primary interpretive nodes."

These primary interpretive nodes tell the story and consequences of the Battles of First and Second Manassas, along with the strategies, tactics, and military technology employed there. They include opportunities to demonstrate how the battles affected the social and economic fabric of the local community and the nation as a whole. They are marked by interpretive signs, visitor centers, trails, and/or monuments, and are the most popular points of departure for guided tours. For the purposes of this report, the park's primary interpretive nodes have been identified as: Brawner Farmstead; Chinn Ridge; Deep Cut/Unfinished Railroad; Henry Hill; Matthews Hill; and Sudley/Thornberry House.

Brawner Farmstead

Near the western edge of the park, the Brawner Farm area witnessed the initial fighting in the Battle of Second Manassas. The most prominent landmark on the wartime landscape was the residence of tenant farmer John Brawner and his family. This residence was built by the property's owner George Tenille in 1820, which he dubbed Bachelor's Hall. Bachelor's Hall was heavily damaged during Second Manassas and removed at some point. The current residence was built over the top of the previous house, is ell-



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Manassas National Battlefield Park
Manassas, Virginia

Brawner Farmstead
Existing Conditions

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND
- Fee Simple Park Boundary
- Existing Worm Fence
- Existing Stone Fence
- River/Stream
- Trail
- Power Lines
- Parking Lot

North

Scale: 1: 10,000

Drawing 1.10

shaped in plan, and has Queen-Anne style detailing.[163] This house was rehabilitated and adaptively used as a visitor contact building in 2006-07 and is now the primary location for interpreting Second Manassas. None of the farm's ancillary structures remain, but archeological traces of them dot the grounds.

In 1860, John Brawner had 300 acres of land in production. Across much of the farm, evidence of historic field patterns remains, with red cedar fence rows denoting the location of fence lines. The historic woodlot known as Brawner Woods is located on rocky terrain and is discernible as the oak-hickory stand in the southeastern corner of the farm. Recent vista clearing in 2008 has restored the viewshed to the northeast towards Deep Cut, but views to the east towards Chinn Ridge remain blocked by modern forest growth south of the Turnpike. Open fields to the west preserve the historic vista to the Bull Run Mountains, with Hopewell Gap clearly visible and Thoroughfare Gap somewhat obscured but still discernible. This view to the gaps provides an opportunity to interpret the Confederates' movement to the battlefield.

A wartime orchard was located to the west of the house. This orchard provided some cover to Confederate General William Taliaferro during the early stages of the Battle of Second Manassas.[164] From some battle accounts, a fence was also described as surrounding this orchard.[165] Both the orchard and the fence were destroyed by heavy crossfire during Second Manassas. To aid in battlefield interpretation, the orchard was partially replanted in 2011 with 12 trees, consisting of Winesap, Northern Spy and Smokehouse variety saplings planted in a 30 x 30 foot grid in the orchard's historic location. The fence around the orchard was not reconstructed.

The Judson survey depicting the battlefield conditions in 1862 record some of the fences on the Brawner farmstead. Historically, there was a fence, likely a worm fence, along much of the Warrenton Turnpike that abuts the southern edge of the Brawner Farmstead. This fence line extended to encompass much of the historic Brawner Woods, including fences that ran north-south along the west side and east side of Brawner Woods. The fence that historically ran along and then projected north from the west side of the Brawner Woods is today marked by a scattering of stones, which were tossed towards the historic fence line during cultivation. A fence is also shown south of the turnpike along the east edge of the triangular woods that were part of the Brawner tract. Judson also noted a worm fence along the east property line that extended about 800 feet beyond the north end of Brawner Woods and crossed a drainage swale (the headwaters of Dogan Branch). The



Figure 1.13. Brawner Farmstead, showing replica artillery pointed towards the Deep Cut battlefield, with worm fence and Brawner Woods in the midground and background (2012, NCR CLP).

fence turned west and angled slightly to the north, probably to remain on the high ground above a headwater tributary. This east-west fence would have been located about 1000 to 1200 feet south of the cut of the Unfinished Railroad. Another worm fence is shown at the north end of the tract along the east boundary. It crossed an embanked section of the Unfinished Railroad, continued to the northeast corner, and turned east, moving outside the tract. Judson's sketches do not show a fence along the north boundary of the Brawner Farmstead.[166]

The McDowell map depicts the Brawner Farmstead as it appeared in 1861. McDowell's depiction of fences corroborates much of what is found in the Warren maps and Judson survey, with a few exceptions. McDowell depicts a fence on either side of the Unfinished Railroad as it passes through the property. On McDowell's map, a fence is shown along the north edge of the triangular woods south of the turnpike. On this map, a fence is also shown along the north boundary between Pageland Lane and Youngs Branch and along Pageland Lane, to the west of the property boundary.

Judson's sketch suggests a fence around the farmhouse yard. He drew a dashed line, possibly indicating a post-and-rail fence. There is also mention of an "inclosure" in some proximity to the farmhouse in an account by General Taliaferro, but it does not indicate the type of fence or where it was located. The McDowell map also depicts a fence surrounding the farmhouse yard.

In 1999, high voltage power lines were relocated just west of Pageland Lane, not far from Brawner Farm. In 2010, the power lines were enlarged and expanded. The H-shaped towers are roughly 115 feet tall and 90 feet wide. To mitigate their obvious visual presence, Manassas planted vegetation to help lessen their visual presence. While the vegetation planted provide some screening, the power lines are still visible from the Brawner Farmstead, particularly from the approach road off of Pageland Lane and from the Brawner House site.

In 2008, 140 acres of tree cover was removed from the area spanning between Deep Cut and the Brawner Farmstead, opening up views that had not been seen in generations, including views from Brawner Farm towards Deep Cut and Battery Heights.

Chinn Ridge

Southwest of the intersection of the Warrenton Turnpike and the Sudley-Manassas Road, Chinn Ridge was the scene of major



Figure 1.14. Ruins of the Hazel Plain plantation residence at Chinn Ridge (2012, NCR CLP).



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Manassas National
Battlefield Park
Manassas, Virginia

Chinn Ridge
Existing Conditions

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
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National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Worm Fence
- Existing Stone Fence
- Existing Iron Fence
- Existing Post-and-Rail Fence
- River/Stream
- Trail
- P Parking Lot

North

Scale: 1: 15,000

Drawing 1.11

fighting in both battles. In each battle, Confederate counterattacks made control of this ridge a key component of Southern success. During the First Battle of Manassas, an engagement took place on Chinn Ridge and Bald Hill, where General Howard's Union brigade was located. After Confederate General Jubal Early's reinforcements arrived, the Union right was broken. At Second Manassas, the Chinn Farmstead was behind the Union left. Confederate General Longstreet engaged the Federal troops attempting to weaken the Confederate attack.

The most important wartime feature on the ridge was the plantation residence of Benjamin T. Chinn. Known as Hazel Plain, the frame house stood two-and-a-half stories tall on a sandstone foundation at the crest of the ridge, where it overlooked the length of the ridge and the valley of Chinn Branch. Agricultural census data from 1860 reveals that Chinn grew Indian corn, oats, hay, Irish potatoes, and grass seed, and grapes for wine. Despite its exposed position on the battlefield, the house survived the war, but eventually succumbed to neglect and decay in the 20th century. In 1950 the NPS razed the house, and only the foundation and chimney bases remain intact.

Historically, the area around Chinn Ridge and Hazel Plain was largely cultivated land or pasturage, with the exception of a patch of woods west of the house and a U-shaped belt of timber around Bald Hill to the east. There is overwhelming consensus among the historic maps of this vegetative spatial organization.[167] The crest of Chinn Ridge proper remains mostly clear and reflects its historic appearance. The slopes of the ridge, however, bear considerable postwar successional forest growth that hinders interpretive efforts. To the west, an extensive forest that is much larger than its historic limits covers the undulating slope of the ridge, obscuring the position of Kerns' Union battery and blocking the view of the New York monuments to the west. In First Manassas, a discrete stand of trees along Chinn Branch was used to conceal Jubal Early's troops. However, recent forest growth off of Chinn Branch now overwhelms the entire river valley and obstructs the view of Henry Hill and Bald Hill. In addition, scattered woods on the northern extremity of the Chinn Ridge conceal the historic Stone House intersection.

Landscape patterns remain largely intact in the vicinity of Hazel Plain, with the grounds divided into unequal quarters and bordered by cedar rows marking historic fence lines. This quartered pattern is supported by the historic Harris/Beauregard map, which depicts battlefield conditions from First Manassas.[168] The Atkinson map labels the northern two quarter sections of the Hazel Plain grounds as "Garden."[169] The southern two quarter sections, where the residence and outbuildings were historically located, display a particularly high degree of its historic configuration, with sloping lawns flanking the house foundation on the west and east. Cedar trees growing on a north-south axis probably represent fence lines that historically delineated the different yard spaces. The fence line along the northern periphery of the Hazel Plain grounds extended to the west to Youngs Branch, and to the east to Chinn's Branch. The fence line along the western periphery is dotted with red cedar (*Juniperus virginiana*) and the fence line extends to the south, adjoining a historic road trace that led into a forest southwest of Hazel Plain to the Compton property. Several additional fence lines can be seen on historic maps of Chinn's property, which today are largely evidenced by linear rows of vegetation, mainly red cedar.

A granite boulder bearing a bronze plaque honoring Colonel Fletcher Webster, who fell leading the 12th Massachusetts at Second Manassas, sits about 400 yards north-northeast of the Chinn House site. West of Youngs Branch at the terminus of New York Avenue are granite monuments bearing bronze seals and plaques in honor of the 5th and 10th New York Infantry, while a third monument to the 14th Brooklyn Infantry is located to the north-northwest, perched on a hill overlooking the historic area of Groveton. Collectively, this grouping of monuments is known as the New York Monuments. Iron enclosures surround the New York Monuments and an iron gate stands at the entrance to the access road off of the Warrenton Turnpike. Due to the widening of the access road, known as New York Avenue, the iron gate is no longer functional.

In 1936, the WPA paved over a farm road and added two other roads along the Chinn Ridge and along Chinn Branch. In 1961, the road that runs through the Hazel Plain farmstead was realigned and a parking lot was installed north of the main house. A picnic area was added on the northern edge of Chinn Ridge. Traces of other historic roads remain in the woods west and southwest of the house site.

To the east of Hazel Plain lies the Hooe Family Cemetery, the original owners of Hazel Plain from 1809 to 1836. The cemetery contains the graves of the Hooe family dating from 1772 to 1825. The cemetery is enclosed with a three-and-a-half foot native sandstone wall with two five foot high carved sandstone gate posts centered in the west wall. The gates no longer remain and the wall is presently mortared with concrete, likely modified in the 1960s by the National Park Service. A memorandum suggests that the original wall was dry laid stone. [170]

Deep Cut/Unfinished Railroad

In 1851, the Orange and Alexandria Railroad Company constructed a railroad through Manassas Junction, which stimulated commercial development in the area. The Manassas Gap Railroad Company, however, hoped to undercut the shipping costs of the Orange and Alexandria Railroad Company by constructing their own railroad line from Gainesville to Alexandria. This new "independent" line was laid out from "Gainesville to Bull Run at Sudley Mill; and thence…via 'Jermantown' summit, down the slopes of Accotink and around Annandale hill to Cameron and Jones' Point."[171] In 1854 the Manassas Gap Railroad purchased an eighty-foot wide corridor from the Dogan, Douglas, Newman, and Cundiff tracts for the creation of the new line.

The Manassas Gap Railroad Company made a series of cuts and fills through a rolling landscape to create a gradual grade for the railroad bed. Stones were gathered to build up the grade. Where there was a deficit of fill and construction material to build culverts and raise the grade, they quarried stone. One of those quarry sites is to the northwest of the Brawner farmstead along Pageland Lane. Other related features include three proposed trestles to bridge stream channels and one bridge to cross Bull Run. However, the Manassas Gap Railroad went bankrupt in 1858, just before the grading of the railroad bed was scheduled to be completed, and these structures, along with the railroad itself, were never built. The company subsequently merged with the Orange and Alexandria Railroad, and both the project and the new rail bed were abandoned as they lay. As the



Figure 1.15. View looking from the Groveton Monument near Deep Cut showing the modern Stonewall Memorial Garden Tract forest to the right and the historic "Black Jack and White Oak" forest to the left of the photo, on the opposite side of the Sudley-Manassas Road (2012, NCR CLP).



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Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Deep Cut
Existing Conditions

National Park Service
National Capital Region
Cultural Landscapes Program
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SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Worm Fence
- Existing Post-and-Rail Fence
- Existing Iron Fence
- River/Stream
- Trail
- P — Parking Lot

North

Scale: 1: 10,000

Drawing 1.12

name implies, Deep Cut was a stretch in the Unfinished Railroad that required heavy excavating to maintain the required grade. During Second Manassas, this cut would be used to strategic advantage by Stonewall Jackson's Confederate forces.

The railroad grade was used extensively during the Second Battle of Manassas when the Confederate army exploited the defensive strength of the berms and took cover along the grade. The makeshift fortification, combined with overpowering artillery placement at nearby Battery Heights, gave the Confederate troops a major advantage over the Union soldiers. After a standoff that lasted several days, the Union troops mounted a courageous attack by charging up an open field through artillery fire towards Deep Cut. After nearly overwhelming the Confederate line, the Union forces were ultimately sent into a chaotic retreat which ended Second Manassas in a decisive victory for the Confederates. In 1865, Union troops built the Groveton Monument at the site of the bloodiest fighting at Deep Cut "In Memory of the Patriots Who Fell."[172]

As described by Robert M. Mayo, Confederate colonel of the 47th Regiment of Virginia, slain Union forces:

> *"lay peculiarly thick just in front of the railroad cut; in some instances one on the top of another, and up almost to the very edge of the cut . . . The charge of the Federals on this occasion was not surpassed in gallantry by any that was made during the war -- not even by Pickett at Gettysburg."*[173]

Before the Manassas Gap Railroad Company graded the bed, much of the site was covered by dense oak forest. During the construction of the railroad bed, vegetation was cleared within an 80 foot right-of-way and during both Manassas battles the grade was free of timber. Since the railroad line was never completed, the corridor and the surrounding landscape fell into disuse and reforestation. Some adjacent land owners erected fences along the railroad grade, to mark their property lines and to keep animals on their land. The need to maintain fence lines along the corridor lessened greatly when the Manassas Gap Railroad Company abandoned the corridor, but some owners continued to maintain fences there. By the



Figure 1.16. The eponymous "deep cut" at Deep Cut, which provided the Stonewall Brigade valuable cover and concealment during Second Manassas. The stump in the foreground reflects the challenge in keeping vegetation from encroaching onto the Unfinished Railroad grade (2012, NCR CLP).

1930s, a dense stand of pines and hardwoods was encroaching upon the grade, especially at Deep Cut. In some areas, cedar and Virginia pine began to grow on the railroad embankment and grade, compromising the structural integrity of the rail bed and embankments.

During the Civil War, the Deep Cut battlefield was largely open as it was used as pasturage by its property owner, Lucinda Dogan. Pockets of woodlands did surround the Deep Cut area, including a fairly large "Forest of Black Jacks and Pin Oaks" on the opposite side of the Groveton-Sudley Road, and a smallish, triangular patch of "Oak Woods"[174] coming down from the Unfinished Railroad.

Deep Cut was not a part of the original landholdings of Manassas National Battlefield Park and remained in private hands until the 1950s. It wasn't until 1954 that Congress authorized the procurement of the property to better preserve and interpret Second Manassas. By this time the Deep Cut battleground was overgrown with second growth forest. Even the Groveton Monument, built by Union veterans in 1865, was completely surrounded by vegetation. In the 1960s, the NPS cleared a narrow corridor on its recently purchased lands to open up a view corridor of Deep Cut and the Groveton Monument from the Groveton-Sudley Road.[175] In 2008, an additional 140 acres of tree cover was removed from the area spanning between Deep Cut and the Brawner Farmstead, opening up views that had not been seen in generations, including views from Deep Cut southwest towards Battery Heights and from Battery Heights to Brawner Farm. While the cleared vegetation has substantially enhanced the area's interpretive capacity and historic character, it has also had the undesired consequence of opening up views of modern features. Following the clearing, the high voltage power lines that run west of the park are now visible from the Groveton Monument and from Battery Heights. In addition, roughly 20 acres of the cleared land has proven to be too rocky and uneven for mowing or hay harvesting, and has already begun reverting back into a forest.

Historic maps show numerous fences in the vicinity of the Unfinished Railroad and Deep Cut. On a north-south axis, a fence line is depicted on the near side of the Groveton-Sudley Road, which the Union forces would have had to cross as they mounted their assault of Deep Cut from Dogan Ridge. At Deep Cut, there were two east-west fence lines that spanned the distance between Groveton-Sudley Road and the Unfinished Railroad, one that bisected the pasture and another that followed a northern forest edge. Some fence line traces still remain along the battlefield, marking the location of former property lines and livestock exclosures. Remnants include a zigzag line of stones, likely deposited along an original worm fence when fields were plowed for cultivation along the eastern edge of the Unfinished Railroad and its Deep Cut.[176]



Figure 1.17. Henry House to the left (rebuilt in 1870) and the Henry Hill Monument to First Manassas on the right (1865), ca. 1941 (Image courtesy of the Manassas National Battlefield, no photographer attributed).



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Manassas National Battlefield Park
Manassas, Virginia

Henry Hill
Existing Conditions

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LEGEND

- Fee Simple Park Boundary
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- Existing Iron Fence
- River/Stream
- Trail
- P Parking Lot

North

Scale: 1: 10,000

Drawing 1.13

Just south of Deep Cut, lies the 43 acre Stonewall Memorial Garden Tract, a private tract within the heart of the Deep Cut battlefield, associated but distinct from the private cemetery operations to the south. This parcel is the most historically significant property related to Manassas that is not part of the parks legislative boundary. At this location, Union General Fitz-John Porter led an assault on Stonewall Jackson's line along the Unfinished Railroad at Deep Cut. This land was recently purchased by the Civil War Trust for eventual transfer to the National Park Service, pending congressional action to expand the park's legislative boundary to include this area. However, modern forest growth now covers this land which was historically maintained as pasture. This forest encroachment markedly hinders interpretation of Second Manassas, entirely obstructing historic views of Deep Cut from Groveton and Battery Heights and contributes to the forest obstacles blocking the historic vista from Brawner Farm. Much of this area was clear as recently as the 1940s.

Henry Hill

Situated southeast of the intersection of Warrenton Turnpike and the Sudley-Manassas Road, Henry Hill served as the stage for some of the most dramatic events of both Manassas battles. The area of Henry Hill comprises portions of the historic Henry and Robinson farmsteads.

The Henry farmstead, also known as Spring Hill, saw the heaviest fighting at First Manassas and suffered accordingly. Artillery fire during the battle left the owner, Judith Carter Henry, dead and her house severely battered. Judith Carter Henry is remembered today as the first civilian fatality of the Civil War. Confederate troops scavenging for wood later dismantled her house, leaving only part of the chimney standing by the time of Second Manassas. Toward the close of the second battle, Union troops formed a defensive line on the western slopes of the hill and within the bed of the Sudley-Manassas Road to the west of the house.

A two-story frame house, built by the Henry family in 1870 and later enlarged, now occupies the site of the original residence. A postwar frame shed of undetermined age stands immediately to the north of the house. The Henry House has been rehabilitated, and the shed has been converted into public restrooms. To the west of the house, an iron enclosure surrounds the family burial plot, which includes the marked graves of Mrs. Henry and two of her adult children who died after the war. The gravestones, although weathered, remain in fair and legible condition.



Figure 1.18. A red sandstone foundation surrounded by a worm fence is what remains of the Robinson House, which was the residence of freedman James Robinson (2012, NCR CLP).

Northeast of the Henry farmstead lay the remains of the Robinson farmstead, the scene of important fighting during the first battle and a victim of looting during the second battle. The original one-and-a-half story frame house, the residence of freedman James Robinson, survived the war intact. The Robinson family constructed additions onto their wartime home in the 1870s and 80s and later razed the original part of the house to allow the construction of a new addition in 1926. The completed two-story house stood until the structure was destroyed by arson in 1993. The NPS dismantled the ruined building and a modern shed the following year. The red sandstone foundation of the 1871/1926 house comprises the only visible remains. The archeological record suggests that the Robinson House had an outdoor kitchen and they literally swept the grounds outside of their residence and kitchen, resulting in a somewhat polished, hardened surface.[177] The original farm lane still serves as the driveway onto the property, providing access from the Warrenton Turnpike to the north of the site. Both the fence-lined drive and the worn roadbed of the turnpike served as Confederate defensive positions during First Manassas.

Following the battles, the Henry Hill area became the focal point for commemorative activities at Manassas, as veterans and their descendants erected memorials and markers on the battlefield. The earliest monument was an 1861 marble obelisk honoring Confederate Col. Francis Bartow, who was killed at First Manassas. Remains of this monument (perhaps the earliest Civil War monument anywhere) and an intact 1936 granite monument with a bronze plaque also in his honor are in the hollow southeast of the Henry House, presumably at the spot where he fell. Just east of the Henry House stands an 1865 brownstone obelisk erected by Union soldiers to honor their fallen comrades at First Manassas. Members of the United Daughters of the Confederacy erected a granite monument in 1939 to mark the area of Brig. Gen. Barnard Bee's mortal wounding in the first battle, and the Commonwealth of Virginia commissioned an equestrian statue of Brig. Gen. (later Lt. Gen.) Thomas J. "Stonewall" Jackson to commemorate his stand on Henry Hill in 1861. The hill is now site of the Henry Hill Visitor Center. The visitor center, erected in 1942 and later enlarged, stands on the hill about 200 yards south of the Henry House and serves as the center of interpretive activity.

Despite the presence of the modern visitor center, the landscape retains much of its historic character, with the configuration of field and forest generally corresponding to the hill's wartime appearance. Virtually all of the land surrounding the Henry and Robinson farms was under cultivation at the time of the Civil War, with corn fields located in the vicinity of the Henry Farmstead and pasturage near the Robinson Farmstead.[178] The open plateau where the heaviest fighting occurred in the first battle retains commanding views of the immediate battlefield, with Van Pelt Hill to the northeast and Matthews Hill to the north and the Bull Run Mountains (with Hopewell Gap) visible in the distance to the north-northwest. Off site, modern forest growth to the west and northwest largely obscures views of neighboring Chinn Ridge, Bald Hill, and Dogan Ridge. These important battlefield areas were visible from Henry Hill as recently as the 1950s.[179] Scattered tree stands on top of Henry Hill proved to be significant in the placement of artillery and movement of troops during the battles. Along with the small stands of pines on the hill, the deciduous forest that stood on the edge of the pasture to the southeast and southwest of Henry Hill were continually used for cover.[180]

Henry Hill retains its historic fence configuration to a higher degree than any other location at Manassas. Both the Henry residence and the site of the former Robinson residence are surrounded by fencing in a comparable footprint as they were historically. Additional fencing in the vicinity of Henry Hill includes worm fencing along both the Warrenton Turnpike and Manassas-Sudley roads, and worm fencing on the approach drive to the former Robinson residence. There are a number of reasons for the continued presence of fencing at Henry Hill: Henry Hill had a prominent role in both Battles of Manassas, and a particularly decisive role in First Manassas; it is where the visitor center is located, making it the hub for park visitation; and it is clearly visible from the park's two main roads, the Warrenton Turnpike and Sudley-Manassas Road. While worm fencing is used exclusively to encompass the farm



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National
Battlefield Park
Manassas, Virginia

Matthews Hill
Existing Conditions

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Worm Fence
- Existing Stone Fence
- River/Stream
- Trail
- P Parking Lot

North

Scale: 1: 10,000

Drawing 1.14

residences today, period photographs show that the exclosures historically included both worm and post-and-board fencing (Robinson) and worm, post-and-board, and picket fencing (Henry). Additional historic fence traces at Henry Hill are today marked by tree rows, including a trace of a triangular corn patch between Sudley-Manassas Road and the Warrenton Turnpike, and a fence line just south of the Robinson Residence that runs east-west.

Matthews Hill

Located one mile north of Henry Hill on the Sudley-Manassas Road, the Matthews Hill area was the stage of important action in both battles, particularly First Manassas. On Matthews Hill the Union turning column encountered Confederate resistance at First Manassas, while in both battles Confederate troops pursued retreating Federals through the area.

The partially cleared landscape recalls the site's wartime appearance, with sweeping vistas to the southwest toward Dogan Ridge and to the southeast toward the Henry Hill engagement area. A line of cannons on the crest indicates a Union battery position during First Manassas and aids in telling the battle story. To the southeast, Buck Hill forms the lower shoulder of the ridge. Buck Hill served as a Confederate artillery position in First Manassas and as the site of Major General John Pope's headquarters during Second Manassas. The cleared summit of Buck Hill affords a panoramic view of much of the battlefield, encompassing Henry Hill, Matthews Hill, Van Pelt Hill, and Dogan Ridge, as well as portions of Chinn Ridge now covered by modern forest.

Forested areas were historically present on Mathews Hill, including a "Forest of Black Jack and White Oak" to the northwest of the property that bordered the Sudley-Manassas Road, a "Pine Thicket" on the eastern periphery of the property and a stand labeled "Thrifty Oak Timber"[181] near Buck Hill to the south. The majority of the hill was farmed by Martin Matthew and was planted in wheat, corn, or used as pasturage. However, substantial portions of the former agricultural landscape have reverted to second growth forest cover. The eastern portion of Matthews Hill is enshrouded by 20th century forest growth, including the crest of the hill and the site of Matthews Farmstead. A key landmark on the wartime landscape, the one-and-a-half story Martin Matthew House survived the war but fell into ruin during the early 1900s. Only foundations remain from the house, while depressions and scattered traces mark the location of outbuildings. The entire site now



Figure 1.19. Matthews Hill, showing its sweeping vista towards Henry Hill in the south, interupted by a worm fence that follows its historic alignment. The replanted woodlot can be seen in the center-left of the midground (2012, NCR CLP).

lies in a thick pine woods.[182]

In 1968 the park service attempted to restore the historic woodlot at Matthews Farmstead on Buck Hill. They proceeded to plant roughly eight acres of land with loblolly pines. While wartime maps indicated the presence of oaks in this general vicinity, it was determined to be more expedient to plant fast growing pines. However, in the late 1990s, this thicket of pines was determined to be in the wrong location, in land that had historically been a part of Matthews' cornfield. The appropriate location was further south in a depression that would have afforded a clearer line of site between Buck Hill and Matthews Hill. In the early 2000s, the park service corrected its error by removing the pine thicket and restoring an oak-hickory woodland in its appropriate location.[183]

The fences that historically delineated property boundaries, crops, pasturage, and woodlands on Matthews Hill are almost entirely gone. Historic maps depict numerous fences that crisscrossed the former agricultural landscape, including fencing along Sudley Manassas Road and the Warrenton Turnpike, fencing along the perimeter of the adjacent woodlands, and fencing to mark property boundaries between Martin Matthews' farmstead and his neighbor's property, including his brother Henry Matthews and the Carter/Pittsylvania estate. It is unknown what fence types were historically present on Henry Hill, but a photograph of the Martin Matthews farmhouse taken shortly after the war shows a multiple-sectioned picket fence wrapped around the near side of the house and a post-and-rail fence along the far side of the house. The photograph also shows a worm fence with stake-and-riders passing through adjacent fields in the fore- and background of the photograph.

The stone Stovall Marker was erected on Matthews Hill in 1880 to commemorate the spot where Georgia soldier George T. Stovall fell during the first battle. Only partially intact, the deteriorated marker has since been moved and only approximates the site today.[184]

Sudley/Thornberry House

The community of Sudley developed as a result of the water power potential of the confluence of Bull Run and Catharpin Run. The Carters built a grist mill on the banks of Catharpin Run in the early 1800s. After 1822, the Sudley Church had been established and a sawmill and miller's house were built on the north side of Catharpin Run. Sudley Springs Ford and Sudley Ford developed over



Figure 1.20. Martin Matthews House, circa 1861-1865, showing picket and post-and-rail fences wrapping around the farm house with a post-and-rider worm fence in the foreground. The location of this farm house is now completely surrounded by the encroaching pine forest. (Image courtesy of The Library of Congress, G.N. Barnard and J. Gibson photograph).



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Cultural Landscape Report

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Sudley - Thornberry
Existing Conditions

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SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
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DATE
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LEGEND

- Fee Simple Park Boundary
- River/Stream
- Trail
- P — Parking Lot

North

Scale: 1: 10,000

Drawing 1.15



Figure 1.21. John Thornberry house in March of 1862, surrounded by a mix of picket and rail fencing. One of only three antebellum buildings within the park, the building was recently rehabilitated to allow public entrace and interpretation (Image courtesy of The Library of Congress, G.N. Barnard and J. Gibson photograph).

Catharpin Run and Bull Run, respectively. By 1858 the Manassas Gap Railroad Company had completed grading for an independent rail line to Alexandria, which ran along the southeast periphery of Sudley.

Sudley lay along the route of the Federal advance and retreat at the First Battle of Manassas and Sudley Church was used as a field hospital. A mass grave site was prepared for the dead adjacent to the church. Major conflict occurred in the area during Second Manassas, when the community marked the left flank of the Confederate line. Laura Fletcher lived across the road from Sudley Church. She recalls her family putting their valuables in the farm well in their backyard for protection and she and her family were driven from their home by cannons placed on the east and west sides of their house during Second Manassas.[186] The Sudley Church was severely damaged during First Manassas and was rebuilt on the same foundation in the 1880s.

The Thornberry House, later known as the Sudley Post Office, was constructed in 1846 for John Thornberry. The modest wood frame structure is one-and-a-half stories in height, initially with a one-room plan and was heated by a massive sandstone-chimney on its northern end. By the 1850s, the dwelling was enlarged with the addition of a second room. Physical investigations indicate the addition was constructed of wood frame salvaged from nearby structures. On the southern end of the structure, a one-story wood frame addition was constructed in the 1870s. Covered by a sloping shed roof, the addition housed a post-office until the turn of the 20th century. An archeological investigation has documented that a one-story wood frame kitchen with root cellar historically stood to the east of the dwelling. One hundred and twenty five feet to the west of the house stood Thornberry's wheelwright shop, a wood frame structure erected during the second quarter of the 1800s. Although it has had several post-war additions, the Thornberry House is one of only three standing Civil War era buildings within Manassas National Battlefield Park. The NPS recently completed rehabilitation of the Thornberry House to permit public access to the building's interior.

The Sudley area saw prosperity after the Civil War with the success of the mills, the new Sudley Church, the post office, a general store, and the Sudley Springs Hotel. The church was once again rebuilt after the structure was struck by lighting and burned down in 1918. Since that time the church has seen major improvements and additions to the main structure as well as the formalization of a church cemetery. Eventually, the post office moved its operations, the miller's house burned down, and the mill closed in the 1920s. The hotel, miller's house, and mill are gone today, but Thornberry House and the 1922 Sudley Church remain. The church remains active, as does its cemetery, which lies immediately to the south and contains the graves of numerous residents associated with the battles of Manassas. The Amos and Margaret Benson house was abandoned around 1900 and fell into disrepair. A rubble stone and brick pile marks the location of the Benson house north of the Unfinished Railroad.

It is difficult to mentally reconstruct either the fencing or vegetative cover for Sudley/ Thornberry as the historic maps for Manassas include little detail for this area. There are numerous possible explanations for this. Perhaps, as the Sudley area was a small town with a higher population density (and less intensive agriculture) than the surrounding farmsteads, it simply did not have many fences or forests in its vicinity. As the residents of this small town made a living through industrial employment rather than farming, it is reasonable to conclude that they would need fewer agricultural fences. It is also possible that the reason historic maps show little vegetative cover or fencing in the area is due to its location on the far northern periphery of the Manassas battlefield; the map surveyors may have chosen not to record minutia like fences and vegetative cover in this area because it was not at the heart of the battlefield. As it is, only two of the maps depict any vegetative cover at Sudley: the Atkinson and Warren maps suggest that there was some



Figure 1.22. Contemporary image of the Thornberry House with the white oak witness tree visible to the left. . The lean-to addition on the buildings southern facade previously housed a post office (2012, NCR CLP).

vegetative cover in the immediate vicinity of the Sudley Church and the Atkinson map depicts corn being grown in the area north of the confluence of Catharpin and Bull Run. It is probable that the present forest cover is more expansive than it was historically. Across the Sudley-Manassas Road from the church, woods now blanket the former Benson property. To the southwest, forest growth covers a rocky knoll that South Carolina troops held during Second Manassas.

Historic fencing data in the Sudley area appears to be of marginally better quality than its vegetative data, but it too is likely incomplete. The Atkinson map depicts fencing encompassing the residence of Robert Weir just north of Catharpin Run, and a fence around the southern and western flanks of the corn field to the north. The McDowell map shows fencing encompassing the numerous buildings in the area, including the Sudley Church, G. Carter residence, Robert Weir residence, Cushing residence, Thornberry residence, Newman residence, and the "Sudley Mansion." An 1862 photograph of the Thornberry residence shows a whitewashed picket fence encompassing two sides of the house's yard, then connecting into a post and rail fence on the far side and a worm fence on the near side of the property. All of the fences in the Sudley area have since disappeared and unlike most locations within the battlefield, they are no longer marked by rows of red cedars and have likely become completely enveloped by forests. A Civil War era white oak witness tree is present near the Thornberry residence.

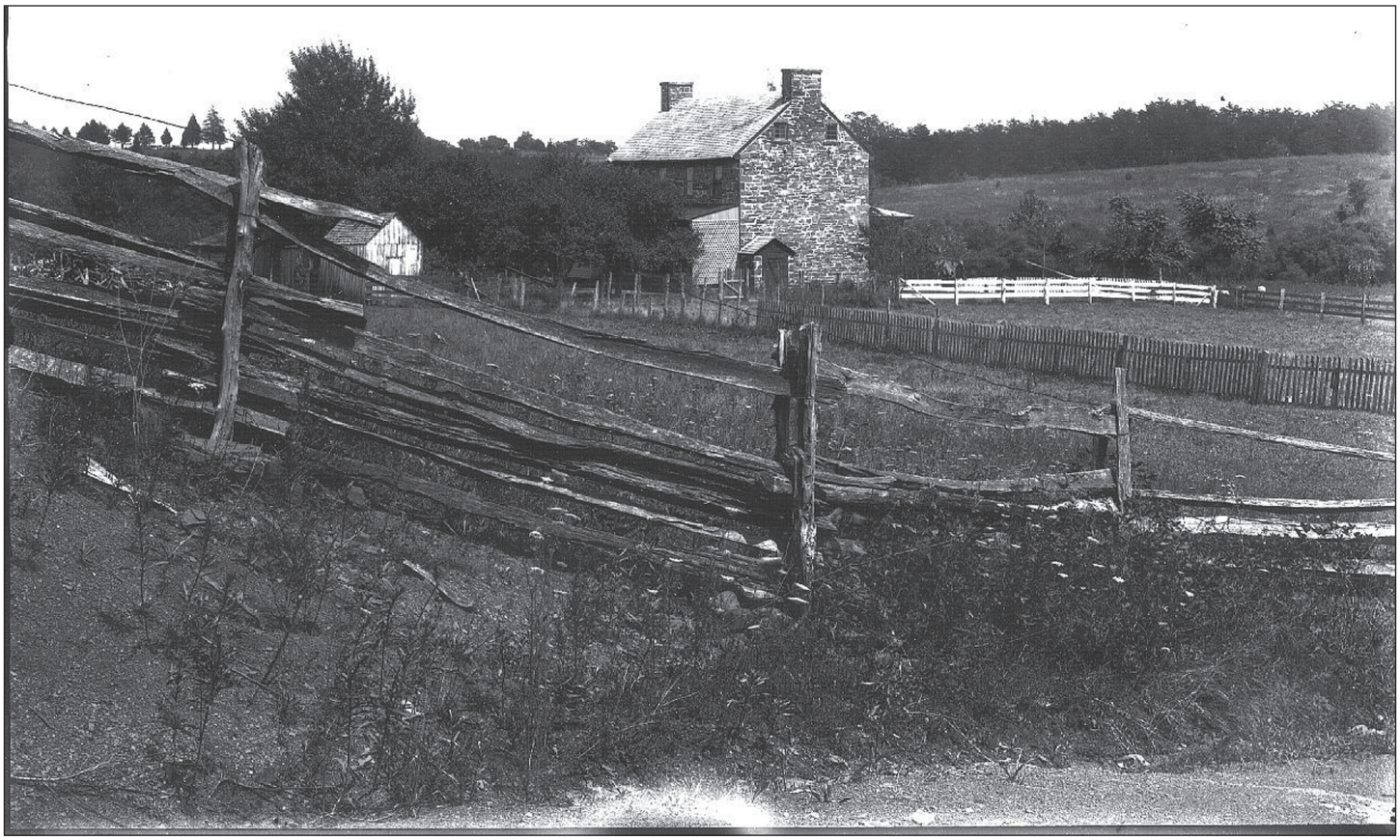
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148. J.T. Trowbridge, *The South: A Tour of its Battlefields and Ruined Cities,* (The University of Michigan, 1866), 84-85.
149. Joseph, *Northwest Quadrant CLI,* 4-22.
150. Michael D. Litterst, *"The Stone House, Silent Sentinel at the Crossroads of History. Part 1"*, last modified on July 13, 2005, http://nps-vip.net/history/stnhouse/silent-1.htm
151. *"The Stone House, Silent Sentinel at the Crossroads of History. Part 1"*
152. Francis F. Wilshin, *The Stone House: Embattled Landmark of Bull Run, 4 Parts, Part I*. (Manassas National Battlefield Park, 1961) 47.
153. Wilshin, *The Stone House*: Part I, p. 64.
154. DOI, *General Management Plan*, 264.
155. DOI, *General Management Plan*, 257-258.
156. DOI, *General Management Plan*, 258. Furthermore, in 2011, the Civil War Trust acquired the northern half of the Stonewall Memory Gardens tract near Deep Cut (44 acres) with the intention of transferring this land to the National Park Service. September 2011 Civil War News, *"Manassas Preservation: Trust Protects 44 Acres, 10 More Given to Park"*, last modified on August 22, 2011, http://www.civilwarnews.com/archive/articles/2011/sept/manassas-091101.htmllogged
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158. Early and Fanning, *Brawner Farm CLR*, 115.
159. "Bull Run, Dedication of Monuments," *The Evening Star*, Washington City, June 12, 1865 p. 1:1.
160. Clifton Johnson*, Highways and Byways of the South*, (The Macmillan Company, 1904), 229-230.
161. DOI, *General Management Plan*, 6.
162. FHWA*, Bypass Draft EIS*, S-11.
163. Trieschmann*, Manassas Battlefield Historic District*, 7-10.
164. Early and Fanning, *Brawner Farm CLR*, 30.
165. Joseph, *Northwest Quadrant CLI,* 4-64.
166. J.A Judson, "*Warrenton Pike Running West. Starting Point on First Ridge in Road East of Groveton." Survey following Transect Line along Warrenton Pike (Lee Highway) from just East of Groveton Rd Westward for 5235 feet. .* " (June 6, 1878).
167. Atkinson," *Map of the Battle Fields of Manassas…",* Harris, "*Topographical Map of the Bull Run Battle-Field*", G.K. Warren, *Map of Battle-Grounds of August 28th, 29th, and 30th in the Vicinity of Groveton, Prince William Co, 1 map, 57x68 cm., Scale: 1:21,120, (1878),* and T.B. Catlett, and Jas. M. Warder, "*Battle of Youngs Branch or, Manassas Plain, Fought July 21, 1861*", (Enquirer Book and Job Press, 1862).
168. Harris, "*Topographical Map of the Bull Run Battle-Field*".
169. Atkinson," *Map of the Battle Fields of Manassas…*".
170. National Park Service, "*Rehabilitation of Hooe Cemetery, Memorandum*." (March 23, 1967).
171. Frances H. Kennedy*, From The Civil War Battlefield Guide, First Manassas,* (Boston: Houghton Mifflin, 1990).
172. Joseph, *Northwest Quadrant CLI,* 4-11.
173. Colonel Robert M. Mayo, *Action at the Deep Cut (The Second Battle of Manassas,* (March 1879).
174. Atkinson," *Map of the Battle Fields of Manassas…*".
175. Joseph, *Northwest Quadrant CLI,* 3-36.
176. Joseph, *Northwest Quadrant CLI,* 4-92.
177. Parsons, *Manassas CLI, Southern Portion*, 4-62.
178. Atkinson," *Map of the Battle Fields of Manassas…*".
179. Parsons, *Manassas CLI, Southern Portion*, 4-16.
180. Parsons, *Manassas CLI, Southern Portion*, 4-26.
181. Atkinson," *Map of the Battle Fields of Manassas…*".
182. Joseph, *Northwest Quadrant CLI,* 4-71.
183. National Park Service, Department of the Interior, *Matthew's Hill Woodlot Restoration Environmnetal Assessment*, Environmental Assessment, (c. 2001), 3.
184. Trieschmann*, Manassas Battlefield Historic District*, 7-11.
185. The Bensons became famous following the Civil War for providing convalescent care for John L. Rice, a Union soldier gravely wounded at First Manassas, nursing him back to health. In 1886, Rice returned to thank the Bensons for their kindness, and helped raise enough funds to pay off the debt of the local Sudley Church. This friendship is remembered as a point of reconciliation between the North and South.
186. Laura Fletcher, *A Few Memories of the 'War Between the States' by an Eye Witness, for my Grandson, Westwood Hugh Fletcher,* (December 18, 1936).

Fence Lines, Fields, and Forests: Manassas Battlefield CLR



Part 2: Treatment

Part 2

Treatment

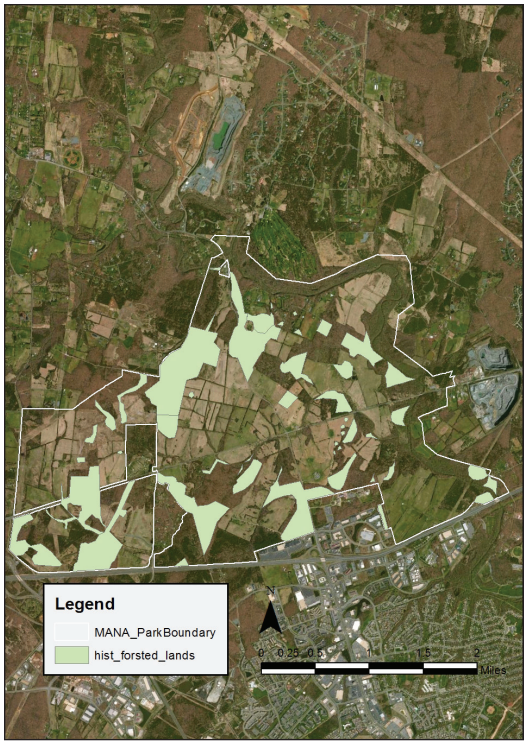
At Manassas National Battlefield Park, it has long been hypothesized that forest cover has expanded and fence lines have diminished since the close of the Civil War. Based upon extensive analysis of Civil War era maps and photographs (including aerial photographs) this CLR substantiates and quantifies these basic assumptions. Using Geographic Information Systems (GIS) spatial analysis tools, research suggests that forest cover within the battlefield has expanded by nearly 175 percent since the end of the Civil War, while historic fence lines have diminished by a dramatic 85 percent in this same time period.

Forest cover and fence lines are important landscape elements that provide a sense of place and historic character to the battlefield. During the war they were also significant factors that influenced how the battles were waged. This CLR's primary objective is to provide contextually appropriate and fiscally practicable treatment recommendations relating to these two prominent features of the historic landscape: fences and forests. Deliberately, this report does not call for a complete restoration of vegetative cover and fence lines to its 1861-62 condition. Along with this being impossible for the park to maintain with its current staffing and funding levels, this would also result in negative effects to the historic scene (by opening up contextually incompatible views outside of the park), degrade the park's wildlife habitat and water quality, and be impossible to implement as the precise landscape conditions of the Civil-War battlefield are not completely known. Rather, the treatment emphasis looks at areas where smaller scale interventions can have significant, beneficial impacts to the park's historic character and battlefield interpretation. In order to make the treatment recommendations as implementable as possible, a phased approach is presented with a cost estimate for each task.

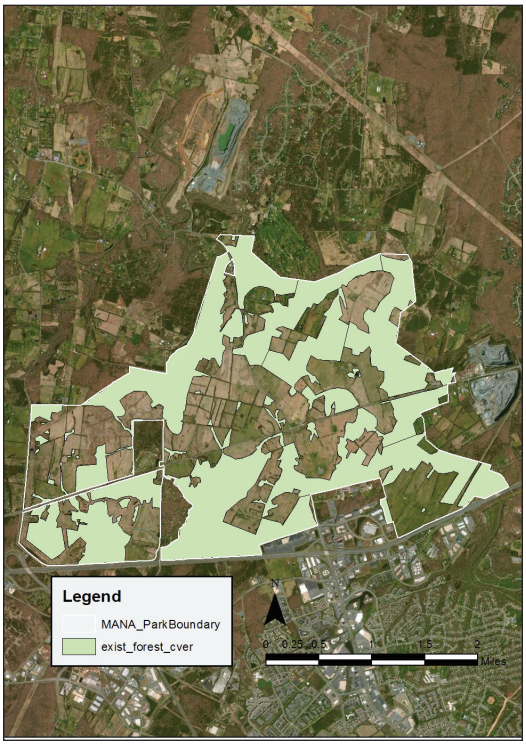
As defined by National Park Service cultural landscape methods, the purpose of a landscape treatment plan is to set forth guidelines for preserving and enhancing historic landscape characteristics and features within the context of contemporary park uses.[1] Treatment essentially describes the future appearance of the landscape at the level of planning and preliminary design; it does not provide construction-level details necessary for implementation. The philosophical basis for the report's treatment recommendations is outlined in *National Park Service Director's Orders 28: Cultural Resources Management Guideline* (1997) and the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Rev. 1992). Based on this framework, the body of this section provides narrative guidelines and tasks to preserve and enhance the historic character of the Manassas Battlefield National Park. The narrative guidelines and tasks are supported by graphics including a series of treatment plans (Drawings 2.4-2.12).

Treatment Framework

The framework for proposed treatment recommendations is guided broadly by the legislation that designated Manassas National Battlefield Park (1940) and the park's General Management Plan (2008). Because of its "historical importance as the battlefield site of the First and Second battles of Manassas," Secretary of the Interior Harold Ickes designated Manassas National Battlefield Park on May 10, 1940. Subsequent legislation in 1954, 1980, and 1988 established the present park boundary to "**preserve** [emphasis added] the most historically important lands relating to the two battles of Manassas." Tiered off of the park's enabling legislation, the park General Management Plan (2008), states that:



Drawing 2.0. (Left) Map depicting historic forest cover (green polygons) within the Manassas battlefield. This map was generated using data from the "Historic Vegetation Patterns" map from the 2008 GMP. Based on this data, forests covered roughly 19% of the battlefield during the Civil War.



Drawing 2.1. (Right) Map depicting existing forest cover (green polygons) within the Manassas battlefield. This map is based off of data derived from a 2012 aerial photograph. Forests currently cover roughly 52% of the battlefield, an increase of 175% over historic conditions.

Manassas National Battlefield Park was established to ***preserve*** *[emphasis added] the historic landscape containing historic sites, buildings, objects, and views that contribute to the national significance of the Battles of First and Second Manassas, for the use, inspiration, and benefit of the public.*[2]

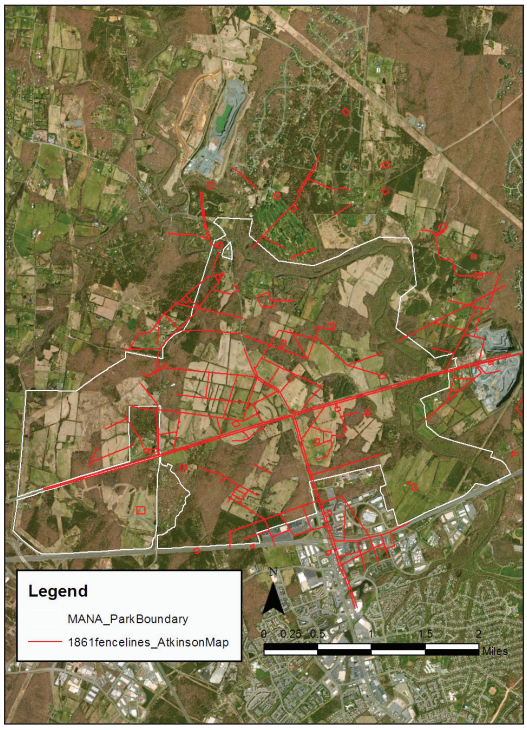
The General Management Plan also establishes five management zones for the park. These five zones are 1) Visitor Experience/Services; 2) Cultural Landscape Rehabilitation/Preservation; 3) Motorized Sightseeing and Circulation; 4) Recreation; and 5) Park Operations and Maintenance.[3] The majority of these zones apply to relatively small and discrete locations, while a single management zone accounts for the overwhelming majority of the park: the "Cultural Landscape Rehabilitation/ Preservation" zone. This zone is particularly instructive towards selecting a treatment approach for this Cultural Landscape Report. Under the Cultural Landscape Rehabilitation/ Preservation zone "historic buildings, structures, and landscapes, would be **rehabilitated** [emphasis added] to conditions representative of the Civil War period to support visitor understanding or in-depth interpretation of the battle"[4] and that "the landscape would be **rehabilitated** [emphasis added] to the 1861-1862 conditions in several key areas through a combination of tree removal, clearing, and reforestation."[5]

As a unit of the national park system, treatment is also guided by the mission of the National Park Service "…to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."[6] The application of this mission to cultural landscapes is articulated in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, which in turn are interpreted within a hierarchy of regulations and policies in National Park Service management. In addition, management of the Manassas battlefield cultural landscape is informed by 36 CFR Part 2: Resource Protection, Public Use and Recreation (Preservation of Natural, Cultural and Archeological Resources). The application of these regulations to cultural landscapes is contained within National Park Service Management Policies (2006), and Director's Order #28 (Cultural Resources Management).

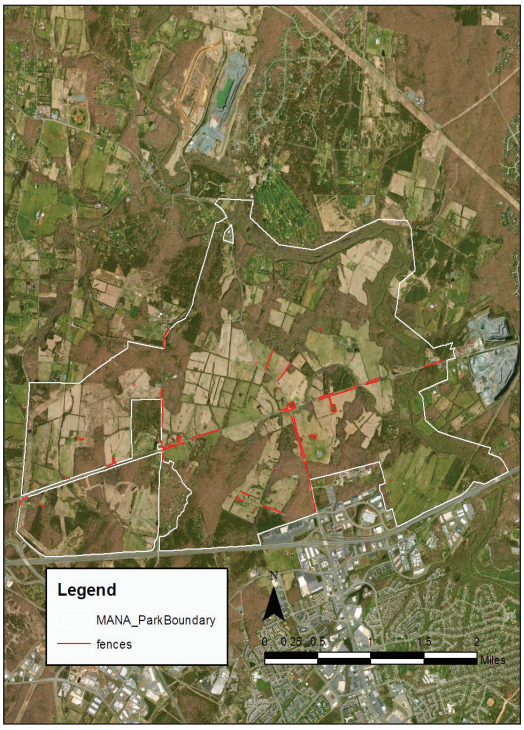
General Treatment Issues

The treatment focus of this CLR is on two distinct yet related feature types: vegetation and fencing. Based on extensive analysis and archival research, this report establishes the validity and quantifies the magnitude of two

Drawing 2.2. (Left) Map depicting historic fence lines (red lines) of the Manassas battlefield, as captured in the 1861 Atkinson map and then georeferenced into GIS. Only counting the fence lines that fall within the current park boundary, there were roughly 193,000 linear feet of historic fence lines within the battlefield. This figure is likely low, as the western portion o fthe park was not comprehensively included in the Atkinson map.



Drawing 2.3. (Right) Map depicting existing fence lines (red lines) of the Manassas battlefield, as captured by field survey and aerial photography in 2012. The existing inventory of fence lines within the park totals 29,000 feet, which is an 85% reduction when compared to historic conditions.



long held opinions regarding the Manassas Battlefield: that second growth forests have encroached into historically open agricultural fields, and that the battlefield's agricultural fencing, while still present, occupies only a fraction of its historic footprint. The overarching treatment recommendation is to identify locations where expansions of fence lines and open fields will have the greatest benefit to landscape interpretation and historic character.

Dramatic expansion of forest cover

Leading up to the Civil War, the Manassas Battlefield landscape had been intensively cultivated farmland, comprised of rolling hills of wheat, corn, oats, and pasturage amid discrete and relatively small pockets of woodlands. The composition and open character of the landscape was a direct byproduct of the agricultural activities that were practiced there. Since the Civil War, agricultural activities at the Manassas Battlefield have diminished. While the park maintains much of the open character of the battlefield landscape through hay leases (currently about 1500 acres of land is under hay cultivation), a large portion of the landscape has filled in with second-growth forests. Data analysis provides metrics to quantify this dramatic conversion: historically, forest covered roughly 19% of the total area within the park while it currently accounts for 52% of the park's land cover, resulting in a modern day expansion of forests at Manassas of roughly 175% (see Drawing 2.0 and 2.1 on page 74 as well as Table 2.0 on page 85).

Dramatic loss of Civil War era fencing

Fences were historically one of the first signs of a pioneer's presence within the American landscape and were important and ubiquitous elements within the Civil War era scene. Manassas was no exception: fences were densely constructed within the pre-Civil War agricultural landscape that comprises the present day battlefield. These fences were used to exclude livestock, demarcate crops, fence farmyards, and delineate property boundaries. While historic fence types are still maintained at the battlefield, there has been a dramatic reduction of fencing since the close of the Civil War. Data analysis suggests that there was at least 193,000 linear feet of fencing within the park during the battles of Manassas and only 29,000 linear feet today, resulting in a present day reduction of fence lines at Manassas of roughly 85% (see Drawings 2.2 and 2.3 on this page as well as Table 2.1 on page 86).

Overrepresentation of road fences

Fencing that runs adjacent and parallel to roads was historically present at the Civil-War era battlefield. Road fencing was useful to prevent livestock from wandering into the road, to demarcate boundaries, and to deter trespassing. However, road fencing was



Figure 2.0. 1908 photograph of the Stone House, providing an example of the historic diversity of fence types that were at Manassas. Many of these historic fence types are absent from the Manassas battlefield today, including the post-and-board and picket styles depicted in this photograph. (Image courtesy of the Kern Collection, Montgomery County Historical Society, Dayton, Ohio.

historically a minority of the total fencing inventory at Manassas; field fences, used to demarcate crops or delineate property boundaries, historically represented the majority of fencing at Manassas when compared to road fences. Today, the opposite is true: the overwhelming majority of fencing at Manassas is comprised of road fencing. An analysis of Manassas Civil-War era maps suggests that road fences historically represented 20-35 percent of the total fencing. Today, road fences account for over 75% of all fencing within the park (see Table 2.2 on page 88).

Loss of historic fence types

Historically, Manassas had a greater diversity of agricultural fences than are currently present. These fences required assorted amounts and qualities of materials and were constructed at various locations to meet different needs. Historic fence types that are known to have been present during the Civil War include worm fencing, post-and-rail fencing, post-and-board fencing, picket fencing, and stone fencing. While no data is available to determine the relative percentages and distribution of these fence types during the Civil War, it is believed that worm fencing was the predominant fencing type. While other fence types were present, their relative abundance is believed to be proportionally less than the worm fence. Today, many of these fence types are absent within the park: there are no park maintained picket or post-and-board fences, and the only post-and-rail fences within the park are the memorial fences at the Henry Hill and Groveton Civil War monuments.

Witness tree identification and preservation

Witness trees are long-standing trees that have "witnessed" key events, trends, and people in American history. Within the context of the Manassas battlefield, a witness tree would have been present during the Civil War. In addition to being present, these trees may have provided cover, shade, or wayfinding during the Civil War, and may also contain embedded fragments of ammunition that was discharged during the Civil War. While a comprehensive evaluation of witness tree eligibility was not included within the scope of this CLR, several known witness trees are present within the park, and efforts should be made to preserve them.

Contemporary use of historic fence types at non-historic locations

There has been a commitment to maintain historic fencing types at Manassas National Battlefield Park, particularly the worm

fence. The widespread usage of worm fencing at Manassas has done a great deal to provide historic setting and a sense of arrival to the battlefield, while also meeting the contemporary needs of providing visitor orientation and a barrier to prevent prohibited activities, such as off-road driving. However, there is a need within the park to establish a contextually and aesthetically compatible fence type to be used in locations that did not historically have fences, such as modern day roads and parking areas. This new fence type would provide a more authentic visitor experience by helping to differentiate historic fence lines from contemporary fence lines.

Current and future development adjacent to park

Many viewsheds from within the park have the potential to be impacted by peripheral development outside of the park. These viewsheds are critical to communicating the story of the two battles and gaining a full understanding and appreciation for the history. These views help convey the story of the two battles, and are an important component of the visitor experience.[7] Future proposed development, such as a potential Regional Employment Center (REC) southwest of the park and the proposed Tri-County Parkway along its western periphery, may threaten viewsheds within the park and warrant actions to mitigate these developments.

Guardrails along primary road corridors within the park

There are numerous sections of guardrail along roads within the park, all of which are "W-beam" style construction. W-beam is the most widely-used contemporary highway barrier in the United States and its name comes from the shape of the metal beam used as the rail element.[8] W-beam guardrail is currently found along the Warrenton Turnpike (US Route 29) and Sudley Road (Virginia Route 234). With the completion of the Manassas Bypass EIS and the Tri-County Parkway Draft EIS, there are ongoing projects that seek to relocate through traffic that currently bisects the park to the outside of the park. Such an undertaking would allow the park to reconsider the necessity and style of guardrails on the repurposed roads that remain.

Invasive and Exotic Plant Species

Invasive exotic plant species remain a major issue within the Manassas Battlefield, as they diminish historic viewsheds and threaten grassland and woodland habitats. The main threats to the battlefield's open grasslands include autumn olive (*Elaeagnus umbellata*), musk thistle (*Carduus nutans*), common



Figure 2.1. W-beam guardrail along the Sudley-Manassas Road (2012, NCR CLP).

mullein (*Verbascum thapsus*), and Japanese stiltgrass (*Microstegium vimineum*). Invasive species that pose a threat in forested areas include Japanese honeysuckle (*Lonicera tartarica*), multiflora rose (*Rosa multiflora*), garlic mustard (*Alliaria petiolata*), mile-a-minute (*Polygonum perfoliatum*), tree-of-heaven (*Ailanthus altissima*), oriental bittersweet (*Celastrus orbiculatus*), Japanese barberry (*Berberis thunbergii*) and Wisteria species.[9]

General Treatment Approach-Rehabilitation

The park's enabling legislation (1940, modified in 1954, 1980, and 1988) and the park's General Management Plan (2008) emphasize *rehabilitation* and *preservation* as the primary treatment approaches for Manassas. As such, the appropriate general treatment approach for Manassas is Rehabilitation, with a heavy emphasis on Preservation. This approach is not only consistent with the park's enabling legislation and GMP, it also provides the latitude to address many of the cultural landscape desired conditions that were previously outlined, such as blocking undesirable views from outside of the park and selective restoration of historic fence segments.

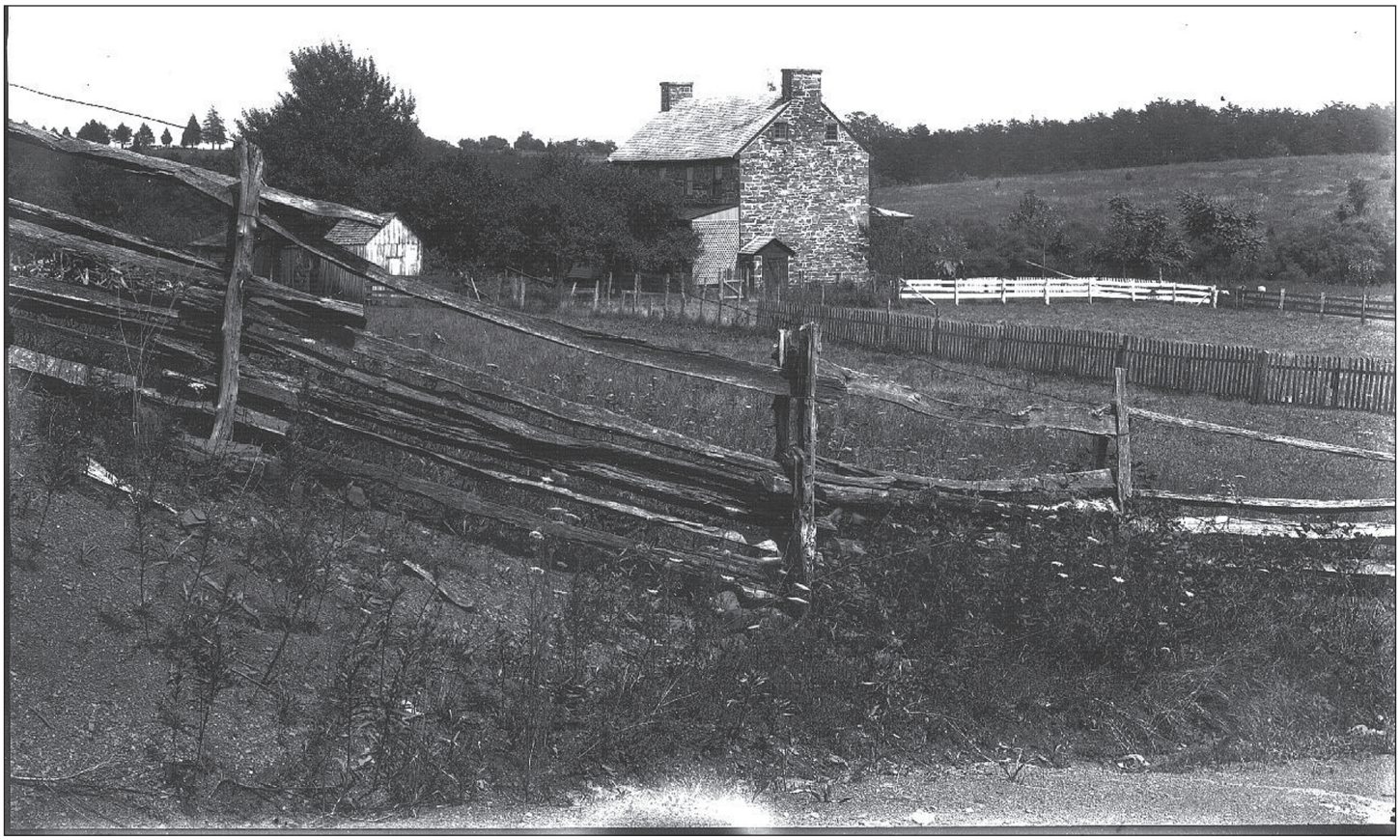
Rehabilitation is one of four treatment approaches in the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes (the other three being Preservation, Restoration, and Reconstruction). Rehabilitation is defined as "…the act or process of making possible a compatible use of a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values."[10] As described in *National Park Service Director's Order #28*, Rehabilitation improves the utility or function of a cultural landscape, through repair or alteration, to make possible an efficient compatible use while preserving those portions or features that are important in defining its significance. The Secretary of the Interior identifies the following ten standards for the Rehabilitation of cultural landscapes:

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

property and its environment would be unimpaired.[11]

Rehabilitation is the most appropriate primary treatment for the Manassas Battlefield because it emphasizes continued preservation of the contributing and character-defining elements of the landscape, while allowing for selective modifications to the cultural landscape that would return areas to their historic configuration and character. With Rehabilitation, a cultural landscape's character-defining features and materials are protected and maintained as they are in the treatment Preservation; however, with Rehabilitation a determination is made that a significant amount of existing historic fabric has become damaged or deteriorated and, as a result, more repair and replacement will be required than with Preservation. The Standards for Rehabilitation allow the replacement of extensively deteriorated, damaged, or missing features using either traditional or compatible materials. Rehabilitation offers a fundamental focus on Preservation, while allowing the flexibility to reestablish historic sightlines that have become overgrown and to reintroduce historic fence lines that have been lost to time. With Rehabilitation as the general treatment approach, the site specific treatment will focus on Preservation, while Restoration and will be used sparingly on an as needed basis.

Fence Lines, Fields, and Forests: Manassas Battlefield CLR



Part 2: Treatment Recommendations and Tasks

Treatment Recommendations and Tasks

The following treatment recommendations and tasks for the Manassas National Battlefield Park are organized into multiple sections, including a set of general recommendations for fencing, a set of general recommendations for vegetation, a set of site specific tasks for each primary interpretive node and concluding with specific treatment recommendations for the remainder of the park. These tasks have been prioritized into three phases based on their location, relative impact, sequencing needs, and environmental review requirements: Phase one tasks; Phase two tasks; Phase three tasks. In addition, a prioritization and cost estimate matrix has been completed and included as Appendix item D.

Preservation by maintaining existing conditions is the default treatment for fences and vegetative cover that are not identified for specific tasks. Treatment tasks are keyed to treatment plans and are illustrated in either the primary interpretive node treatment plans (Treatment Plans 2.5-2.10) or the site-wide treatment plans (Treatment Plans 2.4, 2.12). Upon implementation, these treatment recommendations will expand interpretative opportunities of the First and Second Battles of Manassas and enhance the historic character of the agricultural landscape in which these battles were waged.

It should be mentioned that individual treatment plans have not been created for the two primary circulation route areas, the Warrenton Turnpike and the Sudley Road. Given that these linear features span the entire park and they have relatively few treatment recommendations compared to the non-road character areas, separate treatment plans have not been prepared for the roads. Rather, treatment recommendations relating to the Warrenton Turnpike or the Sudley Road have been captured in either the site-wide treatment plan or in one of the primary interpretive node treatment plans.

Prior to Beginning Implementation

Task 0.0: Conduct an Environmental Assessment (EA) for all aspects of the project related to open field restoration and forest removal (Phase 1)

Prior to implementing any of the treatment recommendations, it is recommended that an EA be prepared. While many of the recommendations within the CLR are categorically excludable and do not require an EA (such as the restoration of historic fence lines), the recommendations that call for open field restoration and forest removal will require an EA. An EA appears to be the appropriate level of environmental review for this project based on *Directors Orders #12 5.2 Environmental Assessments – When to Prepare and EA* and the precedent that was set at Manassas by preparing an EA prior to the restoration of 140 acres of land between Brawner Farmstead and Deep Cut to open conditions. Indeed, the scope, focus, and overall brevity of the Brawner Farm–Deep Cut Vista Enhancement EA represent a good model to follow for the EA proposed in this report.

When preparing the EA, it may be beneficial to combine the Section 106 National Historic Preservation Act (NHPA) consultation into the National Environmental Policy Act (NEPA) process. Since the treatment recommendations in the CLR will not result in any adverse effects to historic properties and since they qualify as "streamlined activities," the Section 106 consultation required should be minimal. However, it is recommended that Section 106 consultation be initiated with the Virginia Department of Historic Resources in the early planning phases of this undertaking.

Task 0.1: Conduct a Phase One Archeological Survey in advance of ground disturbance associated with fence installation in areas that have not previously been surveyed (Phase 1)

Areas that have not had been previously surveyed will need to have a phase one archeological survey completed in advance of ground disturbance associated with fence construction. Only fencing that includes post holes will require an archeological survey, such as picket fencing, post-and-board fencing, and the single-rail-pierced post fencing. There are six segments of

proposed fencing that will require an advance archeological survey because they involve ground disturbance in land that is archeologically sensitive: the pierced post fence at Chinn Ridge, the picket fence at Matthews Hill, the pierced post fence at Battery Heights, the pierced post fence at the day use parking area on the Groveton Road, the pierced post fence along the Groveton-Sudley Road at the Unfinished Railroad trailhead, and the picket/post-and-board fence at the Thornberry House. Any proposed worm fencing will not require an archeological survey as this fence typology does not disturb the ground.

As developed by the National Capital Region chief archeologist Stephen Potter, the investigation will include a brief background and literature review; a Phase 1 archeological field survey involving the excavation of shovel tests pits (STPs) at 50-foot intervals and a metal detector survey of the project areas; a draft and final technical report; preparation of GIS data sets; and processing and cataloguing in ICMS of no more than 100 artifacts. A Class C cost estimate for the archeological survey totals $20,000.

Manassas and the National Capital Region GIS program maintain up-to-date spatial data on previous archeological surveys conducted within the park that is viewable in GIS. This spatial data should be referenced when determining what locations are currently unsurveyed and will therefore require surveys prior to ground disturbance.

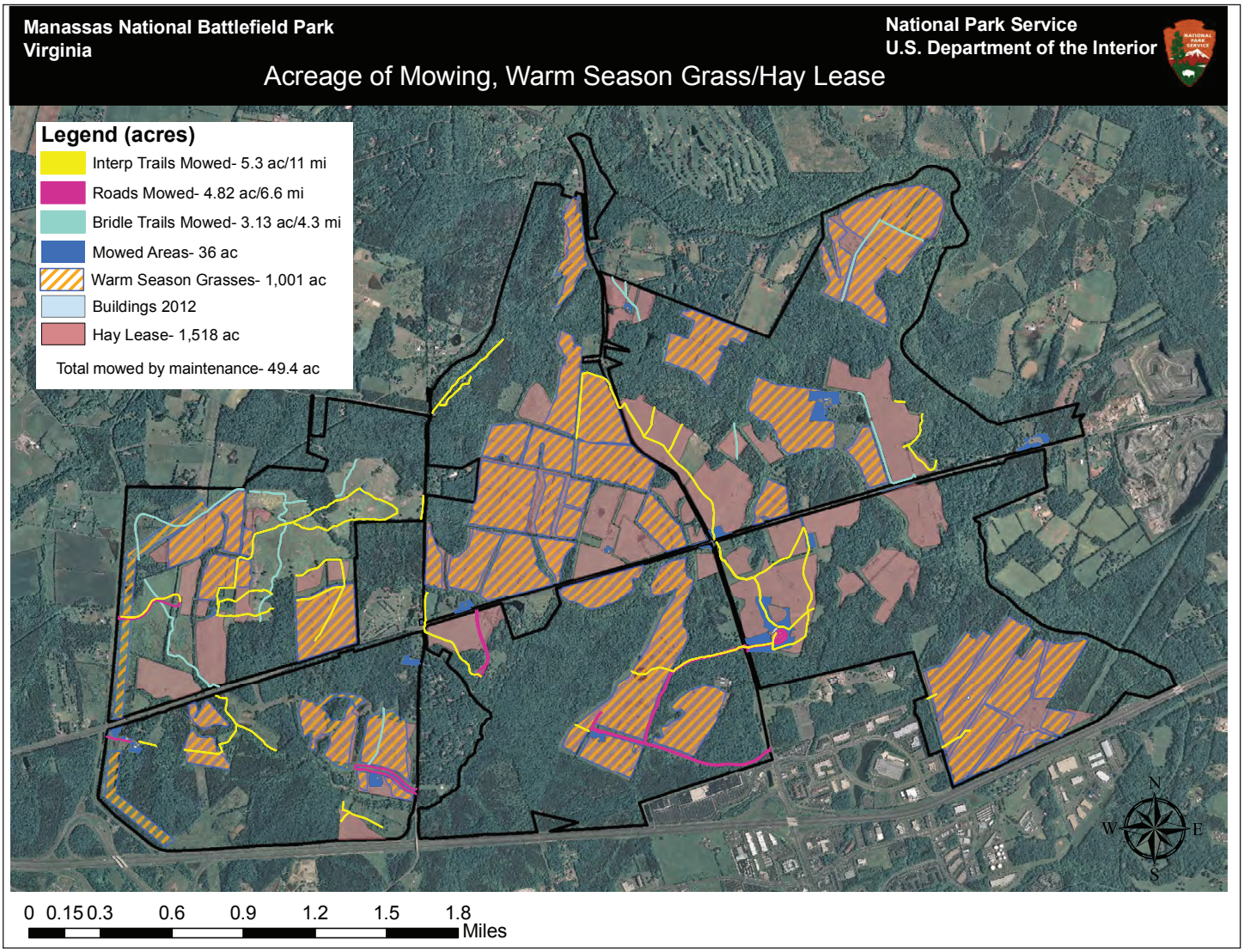


Figure 2.2. Map depicting areas at Manassas National Battlefield Park that are under hay lease and that are mowed (2012).



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National
Battlefield Park
Manassas, Virginia

Manassas Battlefield: Treatment Plan

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, D. Schaible
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Existing Forest Cover
- Forest to be Restored to Open Fields (Previously Identified in GMP)
- Forest to be Restored to Open Fields (As Identified in this CLR)
- Reforestation (Previously Identified in GMP)
- Existing Fence Lines
- Proposed Fence Lines
- Fence Lines to be Removed/Replaced

North

Not to scale

Drawing 2.4

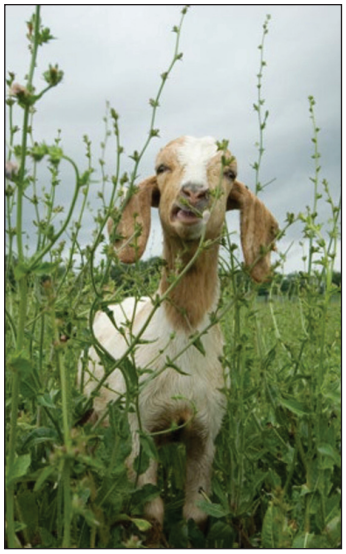


Figure 2.3. Goats prefer a diet of woody shrubs and trees over grasses and forbs, making them an excellent option when restoring grasslands. Goats have been used to manage vegetation at many National Park sites, including at Gateway National Recreation Area's Fort Wadsworth on Staten Island, featured above. (NPS, 2011).

General Treatment Recommendations for Vegetation Management

Task 1: Continue maintaining the open, pastoral character of the landscape through hay harvesting and mowing

The relatively open character of the landscape is essential to the park's mission of preserving the battlefield and interpreting First and Second Manassas. The park maintains much of this open character through the letting of hay leases (see Figure 2.2). Hay harvesting has proven to be an important and cost effective way to maintain many of the park's character defining vistas and open fields. At no cost to the park, hay is efficiently harvested by outside farmers using modern hay combines, which pack the hay into large bales weighing more than 1,000 pounds.

To a much smaller extent, the park maintains some of the landscape's open character through mowing. This treatment is often used for parcels where the topography is too uneven or access is too restricted for a hay combine, or where visitation is high and a closer cut lawn is desired. In addition, the park maintains many of its trails and road corridors through mowing. Unlike the letting of hay leases, mowing is conducted by NPS personnel at a substantial cost to the park

Task 2: Maintain newly restored grasslands through expanded hay harvesting or, when necessary, mowing

As previously discussed, much of the park's historically open fields have converted to second growth forests, some of which negatively affect the historic character of the park. When restoring the open character of the landscape, it is important to consider how this character will be maintained over time.

It is recommended that to the greatest extent possible, the park maintain any newly restored grasslands through the letting of hay leases. This approach provides the desired open, agricultural character without placing additional maintenance burdens on park staff. When hay harvesting is impossible or impractical, it is recommended that the park maintain newly converted open spaces through mowing.

Task 3: When necessary, consider alternate means of vegetation management, including goat grazing and prescribed fire

In some instances, both hay harvesting and mowing may not be possible. This has proven to be true for a portion of the recently cleared forests near Deep Cut, as roughly 20 acres of this land is too uneven and rocky for either mowing or hay harvesting. In situations such as this, it is recommended that new approaches be considered for maintaining the landscape's open character, including goat grazing and prescribed fire.

From a cultural landscape perspective, goat grazing would be an excellent option for maintaining the open character of the landscape. Livestock grazing was historically abundant within the park boundary and was the principal land use that created the park's pastoral character. Goat grazing could produce other benefits as well, such as clearing brush that reduces the intensity of forest fires, and creating and maintaining a browse line under trees, which would have been historically present.[12]

Prescribed fire is a second viable option for keeping difficult to maintain areas open, although it has more potential drawbacks than goat grazing. Prescribed fires are resource intensive, and have short term negative effects on air quality and visibility.

Table 2.0. Civil War-era, present day, and recommended forest coverage, Manassas National Battlefield Park.

Forest Coverage within Manassas National Battlefield Park

Civil War-Era Forest Coverage	Current Day Forest Coverage	Percent Change Between Civil War and Current Forest Coverage	CLR Treatment Recommendation Forest Coverage
983* acres forested (19 percent** of the park area)	2,672 acres forested (52 percent** of park area)	~175 percent increase in forest cover	2,462 acres forested

* Civil War era forest coverage was determined using the "Historic Vegetation Patterns" map from the 2008 GMP.
** Total park area is 5126 acres.

Prescribed fires may also leave fire scars along the trunks of trees. Additional prescribed fire concerns include potential effects to park archeological sites, including military artifacts and munitions, and potential property and safety concerns among park neighbors and inholders. At a minimum, it would require an Environmental Assessment to begin conducting prescribed fires at Manassas. Nevertheless, prescribed fires would be an effective tool to maintain the open character of the landscape.

Following the initial clearing of woodlands, the cleared area is likely to contain woody debris and stumps that may prohibit immediate hay harvesting or mowing. In these instances, both goat grazing and prescribed fires may be useful as temporary measures to maintain the landscape until the restored grassland is in a condition where hay harvesting or mowing are viable options.

Task 4: When restoring second-growth forests to grasslands, follow the guidelines established in the *Brawner Farm- Deep Cut Vista Enhancement Environmental Assessment*

In 2007-08, Manassas embarked on a project to restore roughly 140 acres of second-growth forests to their historically open condition. This project was informed by an Environmental Assessment that established the following guidelines when conducting the restoration. It is recommended that these same guidelines be followed when additional acreage of second-growth forests is restored to grasslands:

- When clearing second-growth forests, large timber should be delimbed and cut into 8-foot lengths and stacked for removal. All saplings, brush, and limbs should be chipped and hauled away with some of the mulch spread over the cutting area.
- To prevent damage to the soil and archeological resources, stumps should not be ground, but cut 3-6 inches from the ground.
- All remnant stone walls and piles will be left undisturbed; these areas will be maintained in a shrub habitat type via periodic cutting. Other areas will be kept open by maintenance using a tractor with bush hog; eventually these areas will be converted to grasslands.
- Cleared areas will initially be left to revegetate on their own, and will be maintained in a mix of grass and shrub land community types via hay harvesting, mowing, goat grazing, or prescribed fire. As the residual stumps and debris decay, areas will be converted to grassland.
- A 50ft vegetated buffer should be maintained around all streams. In addition, a 100ft buffer will be maintained adjacent to the park boundary as a buffer from potential future development.

General Treatment Recommendations for Fencing

Task 5: Unless otherwise noted, maintain and preserve the existing inventory of fencing within the park

While it is recommended to remove numerous segments of fencing that are in non-historic locations and restore many fence lines that have been lost to time and decay, it is worth noting that the majority of the park's existing inventory of historic fences are in appropriate

Table 2.1. Civil War-era, present day, and recommended fence coverage, Manassas National Battlefield Park.

Fence Coverage within Manassas National Battlefield Park			
Civil War-Era Fence Coverage	**Current Fence Coverage**	**Percent Change Between Civil War and Current Fence Coverage**	**CLR Treatment Recommendation Fence Coverage**
193,020* linear feet of fence lines	28,987 linear feet of fence lines	~85 percent decrease in fence lines	39,385 linear feet of fence lines

* Civil War era fence lines were established using the 1862 Atkinson Map, which depicts Civil War era fence lines within the entire extent of present day Manassas National Battlefield Park.

locations and should be maintained as they currently exist. If no recommendation is made to remove or replace an existing fence, it is intended that it be preserved and maintained as is.

Task 6: Upon implementation of the Manassas National Battlefield Park Bypass EIS, consider options for eliminating the need for contemporary guardrails within the park, or replacing contemporary guardrails with a design that is compatible with historic character

Several projects are currently being planned that would result in a dramatic reduction of through traffic within the park, including the Tri-County Parkway study and the Park Bypass study. If these projects are implemented and the subsequent reduction of through traffic within Manassas is realized, the park should reconsider if the park roads still need guardrails. Under this scenario, with dramatically reduced traffic levels, it may be possible to implement traffic calming measures to reduce vehicle speeds which may eliminate the need for guardrails.

If following the rehabilitation of the roadway guardrails are still determined to be necessary, it is recommended that the park look for solutions that are more compatible with the style of the road. Consideration should be given to replacing existing W-beam guardrails with a steel-backed timber style guardrail. This style of guardrail has been used in many National Park Service units, and it provides a less distracting appearance than W-beam while meeting the necessary thresholds for safety.

Task 7: Restoration of historic fence lines should focus on additional field fencing rather than road fencing

As previously outlined, the current park inventory of road fences is dramatically overrepresented when compared to the inventory of field fences (see Table 2.2, page 88). This overrepresentation gives an inaccurate impression to park visitors and implies that road fences where historically prevalent and field fences were historically uncommon within the battlefield. In order to begin to rectify this imbalance, it is recommended that the park focus fence restoration efforts on field fences.

Task 8: Preserve historic fencerows

A fencerow is defined as "the uncultivated land on each side of and below a fence."[13] Fencerows were historically present at



Figure 2.4. Steel-backed timber guardrail consists of a wood rail backed with a steel plate supported by timber posts. As in this photograph, the steel is not visible from the front face of the guardrail (FHWA, 2010).

Manassas and still exist, although they now include larger trees and denser vegetation than what was historically present. Fencerows at Manassas date to before and after the Civil War. Fencerows are character defining elements of the cultural landscape as they provide tangible evidence of the historic spatial organization and agricultural cultivation of the landscape. Fencerows at Manassas are typically marked by trees (primarily Virginia Cedar) and undergrowth. Fences themselves are typically not present along fence rows or they are in a ruinous condition.

As fencerows are living organisms, their preservation is delicate. While it is necessary to allow hedgerows to regenerate themselves through seed dispersal and natural propagation, it is important to maintain them as linear features and remove growth that extends away from the historic fence line. Today, this is successfully achieved in many locations by mechanical hay harvesting and mowing, but other methods may be necessary in less accessible locations.

In some instances, it may be desirable to thin vegetation along fencerows to restore historic sightlines. When thinning fencerows, it is recommended to leave enough vegetation so that it is possible to mentally reconstruct the location of the historic fence line by connecting the individual trees and stands of vegetation that were left behind. Likewise, if a fence is restored along a remnant fencerow, enough trees should be left behind to preserve the location of the fencerow.

Task 9: Use worm fencing as the default fence type for restored fences within the park

While it is possible to accurately locate many historic fence alignments within the park using historic maps, circulation alignments, and fencerows, it is usually impossible to identify what type of fence was present at a given location. Although it is known that other types of fencing were historically present, including post-and-rail, post-and-board, picket, and stone, it is often impossible to determine the type of fencing present at a specific location. Documentation and data to support such an effort is simply not available.

Based on census data and historic photographs, however, it is known that the worm fence (also known as the Virginia rail fence) was the most common fence type within the park at the time of the Civil War. Worm fencing was also the type of fencing most typically used in the field (while other more labor-intensive fences were often sited closer to the farmhouse). As such, it is recommended that worm fencing be used to restore fence lines where the location of the fence is known, but the type of fence is unknown. This is in keeping with current park practice, where worm fencing is used for all historic fence restoration undertakings. Drawings have been prepared to assist with the construction of historically present fence types, including the worm fence. These drawings provide information on construction

Table 2.2: Civil War-era, present day, and recommended ratios of field fences and road fences at Manassas National Battlefield Park.

Field Fence and Road Fence Comparison Manassas National Battlefield Park

	Field Fence	Road Fence	Ratio of Field Fence to Road Fence
Civil War-era Fence Distribution	120,555* linear feet	72,465* linear feet	1.66 feet of field fence per 1 foot of road fence
Current Fence Distribution	7,427 linear feet	21,560 linear feet	.34 feet of field fence per 1 foot of road fence
Proposed Fence Distribution	20,326 linear feet	19,059 linear feet	1.07 feet of field fence per 1 foot of road fence

* Civil War era fence lines were established using the 1862 Atkinson Map, which depicts Civil War era fence lines within the entire park.

techniques, materials, and dimensions (See Appendix A; Worm Fence).

Task 10: Where historic documentation is available, restore fences to their historic fence type

In locations where the fence type is known, particularly around farmhouses, it is recommended to use the fence type that was present during the Civil War. At farmhouses, the use of more refined fence types like post-and-board and picket fencing will aid park interpretation by helping to establish a more intimate scale and aesthetic for these spaces. Fence drawings have been prepared to assist with the construction of historically present fence types. These drawings provide information on construction techniques, materials, and dimensions (See Appendix A, Fence Typology Drawings).

Task 11: Replace worm fences in non-historic locations with compatible single rail pierced-post fences or, in limited instances, a smooth wire steel post fence

There are numerous locations within the park where worm fencing has been constructed in non-historic locations, particularly along modern roads, driveways, and parking areas. From a historic preservation and interpretation perspective, this is problematic. As the worm fence is a historic fence type, using it in non-historic locations provides a false sense of history that can be misleading to park visitors. While it is good to use historic fence types within the battlefield, these fence types should be reserved for locations where fences were historically located.

In locations where fencing is needed that were historically unfenced, it is best to use a non-historic fence typology. In these instances, it is recommended to use a single post-and-rail fence. This fence is recommended as it uses materials and construction methods that are historically compatible, but it is a fence type that would not have been historically used, as it has no utility on a working farm. Ideally, this fence would have only a single rail, but two rails may be used if needed. Drawings have been prepared to assist with the construction of contemporary single rail pierced-post fencing. These drawings provide information on construction techniques, materials, and dimensions (See Appendix A-8; Single Rail Pierced-Post Fence).

When replacing worm with contemporary pierced-post fencing, the leftover rails from the worm fence should be used in the proposed expansion of worm fencing within the park (See Park Wide Treatment Plan, Drawing 2.4., page 83) or stockpiled for future fence expansion or replacement.

In some instances, smooth wire steel post fencing may be appropriate. As this fence type is highly transparent, it can be a good option in utilitarian locations where it will be seen from a distance and where a different type of fence would draw too much attention. Such uses include the fencing around deer exclosures and septic drain fields. In addition, smooth wire steel post fencing may be useful in the future if grazing is reintroduced within the park. A typical smooth wire steel post fence would be 4-5 feet tall, although if it is utilized to exclude deer it should be at least 8 feet in height. These fence posts should use steel T-posts, which can be driven into the ground with minimal ground disturbance. While single strand smooth wire spaced approximately every 12 inches is recommended for most fencing applications, woven wire is recommended for deer exclosures.

Task 12: Consult with an Archeologist at least 120 days before any proposed ground disturbance

Many of the proposed fence types for Manassas will require ground disturbance to set fence posts. At approximately 30 inches deep, this ground disturbance has the potential to disturb archeological sites. A Planning, Environment, and Public Comment (PEPC) statement should be generated at least 120 days before the project will be implemented. This will alert the appropriate park and regional subject matter experts that there is a proposed undertaking and allow them to provide input that will eliminate, minimize, or mitigate damage to park cultural resources. Mitigation regarding park archeological resources will include a phase one archeological survey, which will be completed concurrent with the EA during Phase 1 of this multi-year project.

In addition, areas that have not previously

been surveyed will need to have a phase one archeological survey completed prior to any ground disturbance (See Task 0.1). Implementation of the required archeological survey should happen early in the planning of the project so that the survey is completed prior to the construction of fence lines and its associated ground disturbance.

Treatment Recommendations for Brawner Farmstead (Treatment Plan - Drawing 2.5)

General Recommendations

Task 13: Retain existing footprint of Brawner Woods

As a part of the 2007-08 Brawner Farm-Deep Cut vista enhancement project, the existing footprint of Brawner Woods was created. Although this footprint is larger than the historic footprint (the existing footprint extends substantially further north than the historic footprint), this footprint was deliberately sized to preserve natural resource values, including rare plant communities and stream bed buffers. Through consultation with the Virginia Department of Conservation and Recreation, park managers decided to intentionally allow the northern portion of Brawner Woods to exist beyond its historic footprint (See Appendix C). The trade-offs between historic and environmental concerns were further explored in the Brawner Farm-Deep Cut Vista Enhancement EA. The decision, and the process that led to the decision, should be respected and the footprint of Brawner Woods should be left as is during the implementation of this plan.

Vegetation Management

Task 14.0: Remove thin strip of forest cover along the western edge of Brawner Woods (Phase 2)

The western edge of Brawner Woods has expanded 20 to 80 feet beyond its historic margin. It is recommended that the historic margin of Brawner Woods be redefined by clearing the forest that is encroaching westward. This strip of forest is long (roughly 1,300 feet in length) and narrow and is roughly 1.5 acres in size.

Task 14.1: Thin fencerow north of Brawner Woods to clear space for a restored fence line (Phase 2)

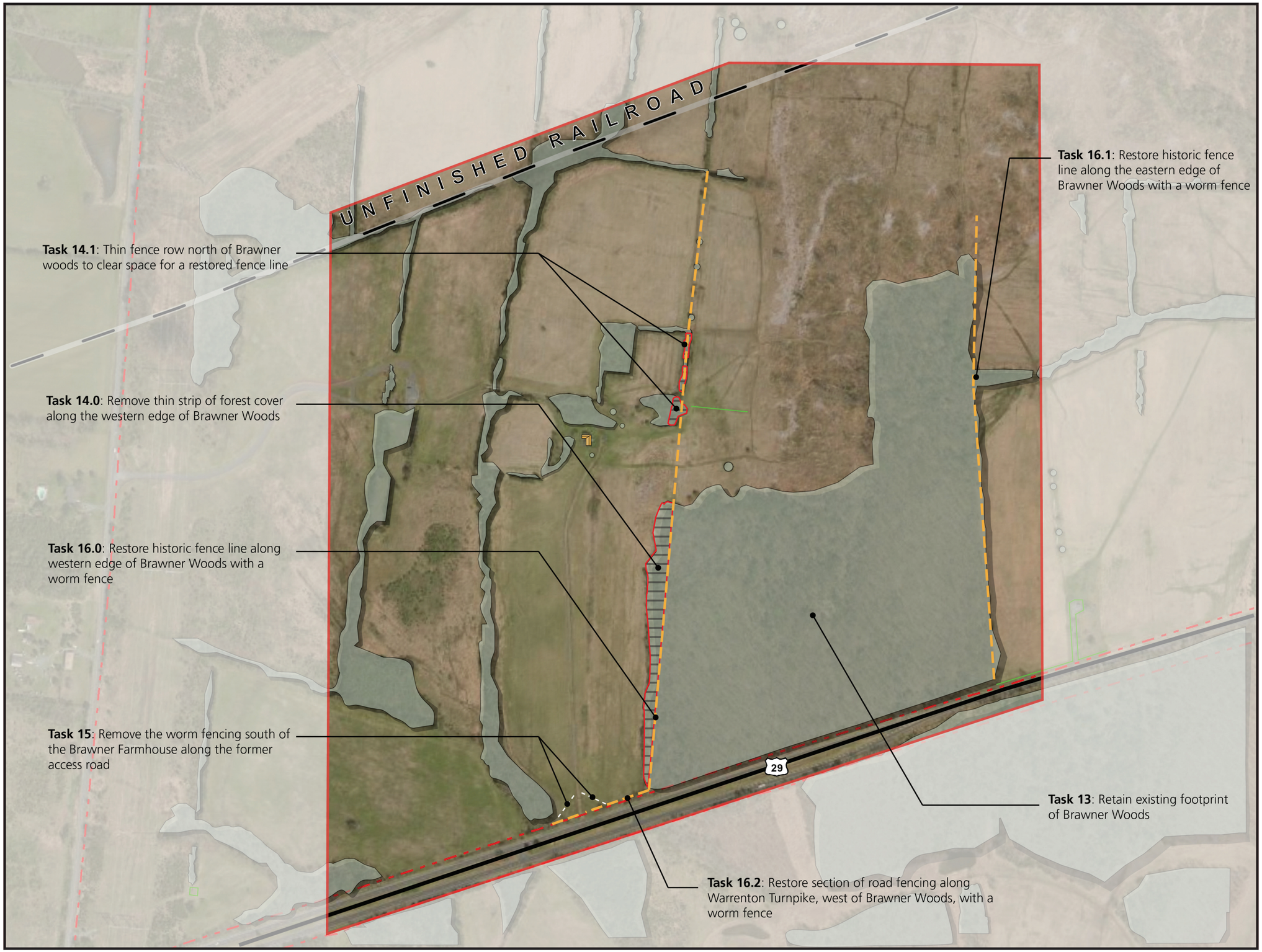
The fencerow that extends from the northwest of Brawner Woods should be thinned (but not entirely cleared) to create space for a restored fence line along this axis. The thinning should remove the majority of trees, while retaining some of the older and healthier trees. The retained trees will anchor the restored fence within the landscape. The total area to be thinned is quite small; roughly one quarter of one acre in area.

Fence Removal/Replacement

Task 15: Remove the worm fencing south of the Brawner Farmhouse on either side of the former access road (Phase 3)

Before the new access road from Pageland Lane to Brawner Farm was constructed, visitors to Brawner Farm typically accessed the site from the service road/trail to the south. As access along this service road is restricted to authorized vehicles, visitors would typically park in the pullout at the junction of the service road and Warrenton Turnpike and walk up the roadway. This pullout was demarcated with worm fencing, which was used to help define the informal parking area and prevent vehicles from driving into the field. With the construction of the new access road from Pageland Lane to the Brawner Farmhouse in the late 2000s, this informal parking area is no longer needed, nor is the fencing that helped define it. As such, this small section of worm fencing (two sections with a combined length of 200 feet) should be removed and their rails salvaged to be used for fence restoration in other locations.

To prevent visitors from driving up to the Brawner farm from the access road (which now provides access for maintenance and emergency vehicles and hay combines) the gate on this road should be maintained. Furthermore, the gate should remain adequately offset from the Highway 29 right of way to allow space for vehicles to pull off the highway and safely open and get through the gate. In addition, it may be desirable to run segments of smooth wire steel post fencing along either side of the access road, bridging the gap between the gate and the worm fencing below. These smooth wire fence segments would prevent vehicles from simply



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National
Battlefield Park
Manassas, Virginia

Brawner Farmstead
Treatment Plan

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Fence Segment
- Removed/Replaced Fence Segment
- Restored Fence Segment
- Forest to be restored to Open Fields (As Identified in this CLR)

North

Scale: 1: 10,000

Drawing 2.5

driving around the gate, if this is determined to be an issue.

Fence Restoration

Task 16.0: Restore historic fence line along the western edge of Brawner Woods north towards the Unfinished Railroad with a worm fence (Phase 3)
This fence line should be restored with a worm fence. The proposed restored fence will be roughly 2,850 feet in length. As called for in tasks 14.0 and 14.1 above, the fence line should only be restored once the portion of Brawner Woods that is encroaching westward is cleared back and the northern fencerow is thinned. In addition, the fence line should have breaks at least 15 feet wide to allow for passage of hay combines and park visitors on the Brawner Farm Loop and interpretive trail. Restoring this historic fence is important because it would help define Brawner Woods, which provided important cover during the Battle of Second Manassas, and it would help define the visual corridor from the Brawner Farmhouse to the south where intense fighting occurred during the first day of Second Manassas. This restored fence would have great interpretive value, as it would be visible from the visitor contact center at Brawner Farm, from the Deep Cut loop trail, and from the Warrenton Turnpike. It would also have utility in defining the western boundary of Brawner Woods and assist in limiting its westward encroachment. The restored fence line will run north from the southwest tip of Brawner Woods, following the western margin of Brawner Woods, and then extend north of Brawner Woods where it will tie into a fencerow on the same axis.

Numerous primary and secondary source maps depict this fence line, including the 1878 Judson survey, the 1996 McElfresh map, the 1976 Jeck map, and it is still evidenced by fencerows today. Furthermore, the Brawner CLR calls for restoring this historic fence line.

Task 16.1: Restore historic fence line along the eastern edge of Brawner Woods with a worm fence (Phase 3)
This fence line should be restored with a worm fence. The proposed restored fence will be roughly 2,000 feet in length. The fence line should have breaks in it to allow for passage of hikers on the Brawner Loop Trail and to allow for the free flow of water within the tributaries to Dogan Branch. Restoring this historic fence is important because it would help define Brawner Woods, which provided important cover during the Battle of Second Manassas. This restored fence would have great interpretive value, as it would be visible from Battery Heights and the Warrenton Turnpike. It would also have utility in defining the eastern boundary of Brawner Woods and assist in limiting its eastward encroachment. The restored fence line would run north from the southeast tip of Brawner Woods, following the eastern margin of Brawner Woods, and then extend a short distance north of the northeastern terminus of Brawner Woods.

Numerous primary and secondary source maps depict this fence line, including the 1878 Judson survey, the 1996 McElfresh map, the 1976 Jeck map, and it is still defined by the existing forest edge today. Furthermore, the Brawner CLR calls for restoring this historic fence line.

Task 16.2: Restore section of road fencing along the Warrenton Turnpike, west of Brawner Woods, with a worm fence (Phase 3)
Restoration of this historic fence line with a worm fence is recommended. The proposed restored fence will be roughly 400 feet in length. This fence line will have a single break in it of at least 15 feet to allow for passage of hay combines, service vehicles, and hikers on the service road/trail. Restoring this historic fence is important because it would help define and frame the visual corridor from the Brawner Farmhouse to the south where intense fighting occurred during the first day of Second Manassas. This restored fence would have great interpretive value, as it would be visible from the visitor contact center at Brawner Farmstead and from the Warrenton Turnpike. The restored fence line would run west from the southwest tip of Brawner Woods, running parallel to the Warrenton Turnpike. The eastern portion of the fence would connect into the fence that runs along the western margin of Brawner Woods (task 16.0).

Numerous primary and secondary source maps depict this fence line, including the 1878 Judson survey, the 1862 Atkinson Map,

the 1877 McDowell map, the 1996 McElfresh map, and the 1976 Jeck map. Furthermore, the Brawner CLR calls for restoring this historic fence line.

Treatment Recommendations for Chinn Ridge (Treatment Plan - Drawing 2.6)

Vegetation Management

Task 17.0: Clear woods between Chinn Ridge and the New York Monuments and restore to open fields (Phase 2)

The 2008 park General Management Plan calls for clearing roughly 45 acres of woods along the west side of Chinn Ridge to "reestablish views between the ridge and the site of the New York Monuments."[15] This CLR agrees with the findings of the GMP and calls for the removal of the 45 acres that are outlined in the GMP. In addition, this CLR calls for the conversion of an additional 16 acres of second-growth forest into grasslands, most of which is on the opposite side of Youngs Branch clustered around the New York Monuments. This removal of the additional 16 acres would help open up the view from the ruins of Hazel Plain (the farmstead on Chinn Ridge) towards the New York Monuments and beyond to the historic crossroads of Groveton. When restoring the open grasslands, a 50 foot woodland buffer should be retained along Youngs Branch. A portion of the area that is called for restoration to open fields has been identified in an independent vegetative survey as "basic oak-hickory forest," a vegetation community that is considered rare in the Virginia Piedmont. However, this area was previously identified for conversion to open fields in the recently completed park GMP. All of the environmental impacts of this potential action will be further explored during NEPA review.

Task 17.1: Remove forest cover at fencerow near the midpoint of Chinn Ridge to enhance view towards Stone House and Matthews Hill (Phase 2)

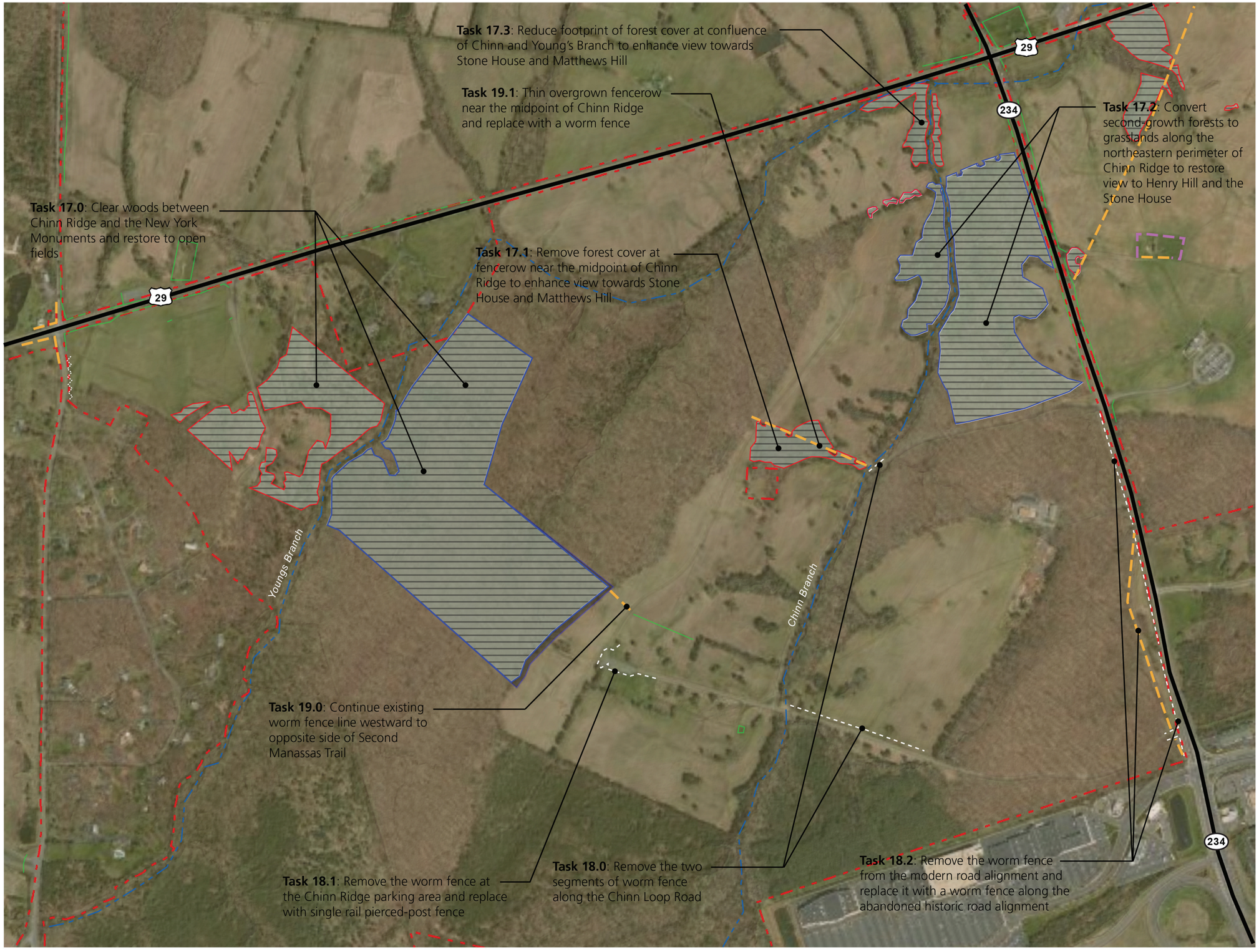
There is a dense patch of woods that likely originated from a fencerow near the midpoint of the Chinn Ridge axis. This patch of woods is problematic as it interrupts the long, linear view from the parking area at Chinn Ridge towards the Stone House and Matthews Hill. As such it is proposed that this former linear fencerow be substantially reduced in size, leaving only a few mature and healthy trees along the east/west fence axis while restoring the rest of the area into open fields and grasslands. This proposed clearing is roughly 3 acres in size and was not previously identified in the GMP for restoration.

There is a small wooded inholding where the Webster Monument is located that is connected to the southwest tip of the upper 3 acres. Care should be taken when thinning the upper 3 acres to preserve the woods in this small inholding. However, if the land owner gives prior permission, it would be beneficial to also clear the woods on the private inholding when clearing the upper 3 acres.

Task 17.2: Convert second-growth forests to grasslands along the northeastern perimeter of Chinn Ridge to restore view to Henry Hill and the Stone House (Phase 2)

There is a swath of second growth forest to the east of the northern terminus of Chinn Ridge that obstructs the historically open view between this portion of the ridge and Henry Hill. The General Management Plan proposes that these woods be restored to their historic condition as grasslands. This CLR concurs with the findings of the GMP. However, the recommended footprint is slightly larger than what was called for in the GMP, including some additional acres on the northeast portion of the forest, and also including the thinning of the post Civil War fencerow that runs along an east-west axis of the wood's northern edge. The total area called for restoration into grasslands is roughly 28 acres, slightly larger than the 25 acres called for in the GMP. A woodland buffer of 50 feet should be retained around Chinn Branch during the restoration.

A portion of the area that is called for restoration to open fields has been identified in an independent vegetative survey as "mixed hardwood and xeric *Quercus alba* stands" and was identified for "exclusion from the restoration area."[16] However, this area was also identified for conversion to open fields in the park GMP. All of the environmental impacts of this potential action will be further explored during NEPA review.



Fencelines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Chinn Ridge
Treatment Plan

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Fence Segment
- Removed/Replaced Fence Segment
- Restored Fence Segment
- Forest to be Restored to Open Fields (Previously Identified in GMP)
- Forest to be Restored to Open Fields (As Identified In This CLR)

North

Scale: 1: 15,000

Drawing 2.6

Task 17.3: Reduce footprint of forest cover at confluence of Chinn and Youngs Branch to enhance view towards Stone House and Matthews Hill (Phase 2)

Non-historic forest cover has expanded at the toe of Chinn Ridge at the confluence of Chinn Branch and Youngs Branch. This forest cover provides a visual obstruction between Chinn Ridge and the Stone House. As such, it is recommended that this forest cover be cleared and converted to open fields, while retaining a woodland buffer around both streams. Although these woodlands were not identified in the GMP for restoration into grasslands, doing so would benefit the view corridors between Chinn Ridge and the Stone House and would be an improvement towards the desired open feel of the landscape. The total area of the grassland restoration would be 2.5 acres.

Fence Removal/Replacement

Task 18.0: Remove the two segments of worm fence along the Chinn Loop Road (Phase 3)

There are two sections of worm fence along the Chinn Ridge Loop Road, neither of which are likely to be in the location of a historic fence. Although it is unknown when these fences were constructed in their current location, it is unlikely that they are older than the Chinn Ridge Loop Road, which was constructed ca. 1940.[17] The lack of fencerow vegetation (typically eastern red cedar) growing along these fence alignments also suggests that they are of more recent vintage. These two sections of worm fence are roughly 90 and 950 feet in length respectively and run parallel to the loop road. It is recommended that these fences be removed and their rails salvaged to be used for fence restoration in other locations.

It is possible that these fence segments were constructed to serve an administrative need, like preventing off-road vehicles from accessing nearby open fields. If these fence segments are determined to be administratively necessary, it is recommended that they be replaced with the contemporary single rail pierced-post fence type.

Task 18.1: Remove the worm fence at the Chinn Ridge parking area and replace with single rail pierced-post fence (Phase 3)

The parking area at Chinn Ridge has multiple segments of worm fences around much of its perimeter, with a combined length of roughly 600 feet. As the parking area dates to improvements that post-date the creation of the battlefield park in 1940, it is certain that these fence segments are not in historic fence locations. However, these worm fence segments do serve important administrative functions by providing a barrier to prevent cars from driving into the open fields and they assist in wayfinding by directing pedestrians towards trailheads. As such, it is recommended that the worm fence segments be removed and replaced by contemporary single rail pierced-post fencing. Rails from the worm fence segments should be salvaged to be used for fence restoration in other locations.

Task 18.2: Remove the worm fence from the modern road alignment and replace it with a worm fence along the abandoned historic road alignment (Phase 3)

There are currently several discrete segments of worm fencing along the western edge of the Sudley Road, extending from the southern entrance to the park northward to the Henry Hill visitor center access road. Comprised of five total segments, this fencing spans a total of roughly 2,450 feet. While there was historically fencing along this section of the Sudley Road (virtually all primary and secondary sources depict fencing at this location) the contemporary road alignment along this section of the Sudley Road is parallel to but diverges from the historic road alignment.[18] As the abandoned historic road grade is still readily visible in this area, it is recommended that the fencing be relocated from the contemporary alignment to the alignment where it would have been historically located. As the historic road trace is noticeable from the contemporary road alignment, it will help convey some of the changes that have occurred within the battlefield since the Civil War while still providing a sense of arrival to park visitors.

The relocated fencing should be sited along the eastern edge of the abandoned road trace. While evidence exists that places a fence on either side of the road, there is greater conformity of evidence that a fence was placed on the abandoned road's eastern side.

Furthermore, a fence placed along the western side of the road would have the potential to obstruct canopy thinning that is required to maintain the adjacent utility right of way. The relocated worm fence will be comprised of two segments totaling roughly 1,500 feet in length. This will be a significant decrease from the current amount of worm fencing along the contemporary road alignment, which is comprised of roughly 2,450 feet of worm fencing.

Fence Restoration

Task 19.0: Continue existing worm fence line westward to opposite side of Second Manassas Trail (Phase 3)
There is an existing worm fence that is roughly 350 feet north of the Chinn Ridge Parking area whose eastern tip ties into a historic fencerow. This worm fence is in its historic location and should be preserved. It is recommended that it also be extended westward, beginning on the opposite side of the Second Manassas trail. The proposed extension to the worm fence will be roughly 190 feet in length. Extending and restoring this historic fence line is important because it will provide a more accurate representation of the obstacles and cover that fence lines provided during the battles of Manassas and it will enhance the visual interest and historic feeling of visitors walking along the Second Manassas trail.

Numerous primary and secondary source maps depict this fence line, including the 1862 Atkinson map, the 1861 Harris map, and the 1996 McElfresh map, and it is still evidenced by fencerows today.

Task 19.1: Thin overgrown fencerow near the midpoint of Chinn Ridge and replace with a worm fence (Phase 3)
There is a dense patch of woods that likely originated from a fencerow near the midpoint of the Chinn Ridge axis. As evidenced by numerous period maps, this location historically had a fence. It is recommended that this fence line be restored with a worm fence. The proposed fence would run roughly east-west and measure roughly 850 feet in length. The thinning of the fencerow should remove the majority of trees, while retaining some of the older and healthier trees. The retained trees will anchor the restored fence within the landscape. In addition, the fence line will have a break of at least 15 feet in it to allow for the passage of hay combines and hikers on the Second Manassas trail. Extending and restoring this historic fence line is important because it will provide a more accurate representation of the obstacles and cover that fence lines provided during the Battles of Manassas and it will provide visual interest and historic feeling to visitors walking along the Second Manassas trail.

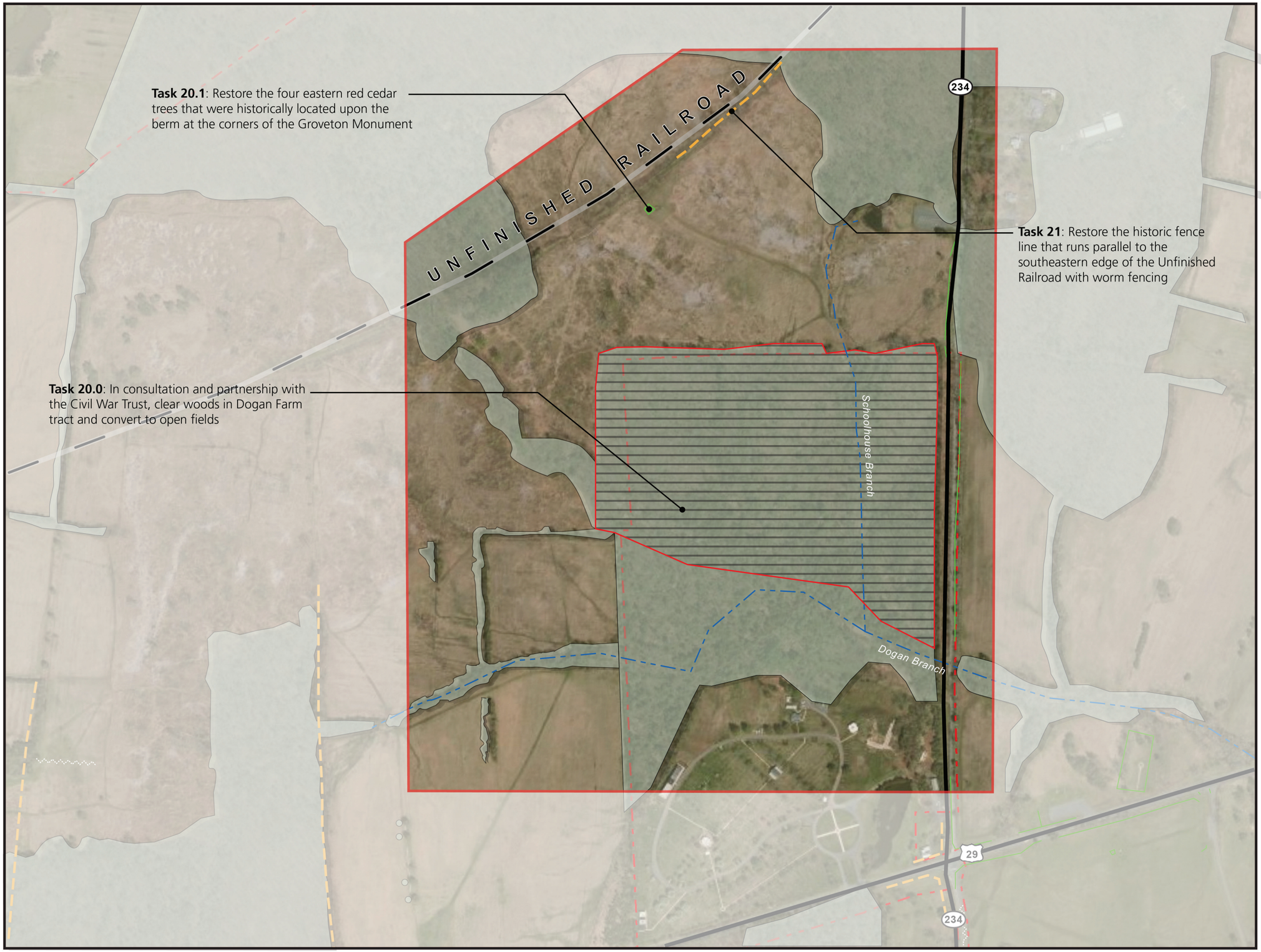
Numerous primary and secondary source maps depict this fence line, including the 1862 Atkinson map, the 1861 Harris map, the 1976 Jeck map, and the 1996 McElfresh map, and it is still evidenced by an overgrown fencerow today.

Treatment Recommendations for Deep Cut/Unfinished Railroad (Treatment Plan - Drawing 2.7)

Vegetation Management

Task 20.0: In consultation and partnership with the Civil War Trust, clear woods at Dogan Farm tract and convert to open fields (Phase 2, pending congressional consideration and action)
In 2011, the Civil War Trust purchased the Stonewall Memory Garden tract, a 33 acre parcel located in the northern half of the Stonewall Memory Garden inholding. The Civil War Trust purchased this property with the intention of transferring it to the National Park Service. It should be noted, however, that congressional consideration and action are needed before the NPS can accept ownership of the parcel as it is outside of the battlefield's legislated boundary. This parcel is recognized as a highly historic property that will serve a key interpretive role once incorporated into the park. On this site, Union General Fitz John Porter led an assault on Stonewall Jackson's line along the Unfinished Railroad.

This tract is currently choked with second-growth forest cover which is out of keeping with its historically open character. This thick vegetation prevents any meaningful interpretation of the battlefield. As such it is



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Deep Cut
Treatment Plan

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Fence Segment
- Restored Fence Segment
- Forest to be Restored to Open Fields (As Identified In This CLR)

North

Scale: 1: 10,000

Drawing 2.7

recommended that the site be restored to open fields as it was during the Civil War. This may be done by the Civil War Trust, in consultation with the NPS, prior to the intended transfer to the park service. Or, pending congressional action, the park service may conduct the clearing independently following the transfer. Whichever way the restoration is completed, it should include removing the narrow buffer of trees on NPS land that lines the Stonewall Memory Garden tract.

A substantial portion of the area that is called for restoration to open fields was identified in 2012 as wetlands.[19] Wetlands are regulated by the government under the Clean Water Act and other state and federal regulations. These regulations must be considered prior to restoration of this tract into its historically open character. These regulations may limit the type of machinery that could be used during timber clearing. All of the environmental impacts of this potential undertaking will be explored during NEPA review.

Task 20.1: Restore the four eastern red cedar trees that were historically located upon the berm at the corners of the Groveton Monument (Phase 2)

Photographs of the Groveton Monument taken during its dedication in 1865 show four eastern red cedar trees planted at the corners of the monument (see Figure 2.5). The trees are young saplings in the photograph and approximately 3 feet in height. Notably, the trees are planted upon the berm where the monument is located (the eastern red cedar trees at the similar Henry Hill Monument are planted at the base of the berm).

These eastern red cedar trees should be replanted in their historic locations. They should be approximately 1-2 inch caliper trees that are roughly 3 feet in height. In order to keep the trees from causing damage to or visually overpowering the monument's obelisk, it is recommended that the trees be replaced when they get to be around 10 feet in height. It is also recommended that the trees be planted in unglazed clay pots that are dug into the soil. The use of clay pots is recommended for a number of reasons: they will retard the spread of roots that could damage the obelisk at the Groveton Monument; unglazed clay pots are porous and will allow water to migrate in and out of the container, minimizing damage from drought or saturation; and they will retard the growth of the tree itself, allowing a longer duration before they become too large and need to be replaced.

It is recommended that the top lip of the clay pot be located at grade or just below soil line to minimize their visual intrusion. As previously stated, the clay pots should be dug in and the trees should be planted upon the



Figure 2.5. Groveton Monument in 1865. The four eastern red cedars depicted in the image should be replanted in their historic locations atop the berm (Image courtesy of The Library of Congress, Prints and Photographs Division).

corners of the berm. It is recommended to use 25 gallon clay pots to give the tree roots adequate space to become established. Based on a web search, a possible provider of large clay pots would be Arizona Pottery: http://www.arizonapottery.com/. The trees should be monitored for their height (replanted if they get to be over 10 feet in height) and for their health (stress associated with becoming root bound inside the clay pot, which may include portions of the plant dying back) and replanted when needed, likely on a 5-10 year cycle. The trees may also need occasional pruning in order to keep the lateral branches from brushing up against or obscuring the monument's obelisk.

As the project will involve soil disturbance in an area that is likely archeologically sensitive, consultation with an archeologist is advised prior to removing or replanting the trees (see Task 12 on page 89).

Fence Restoration

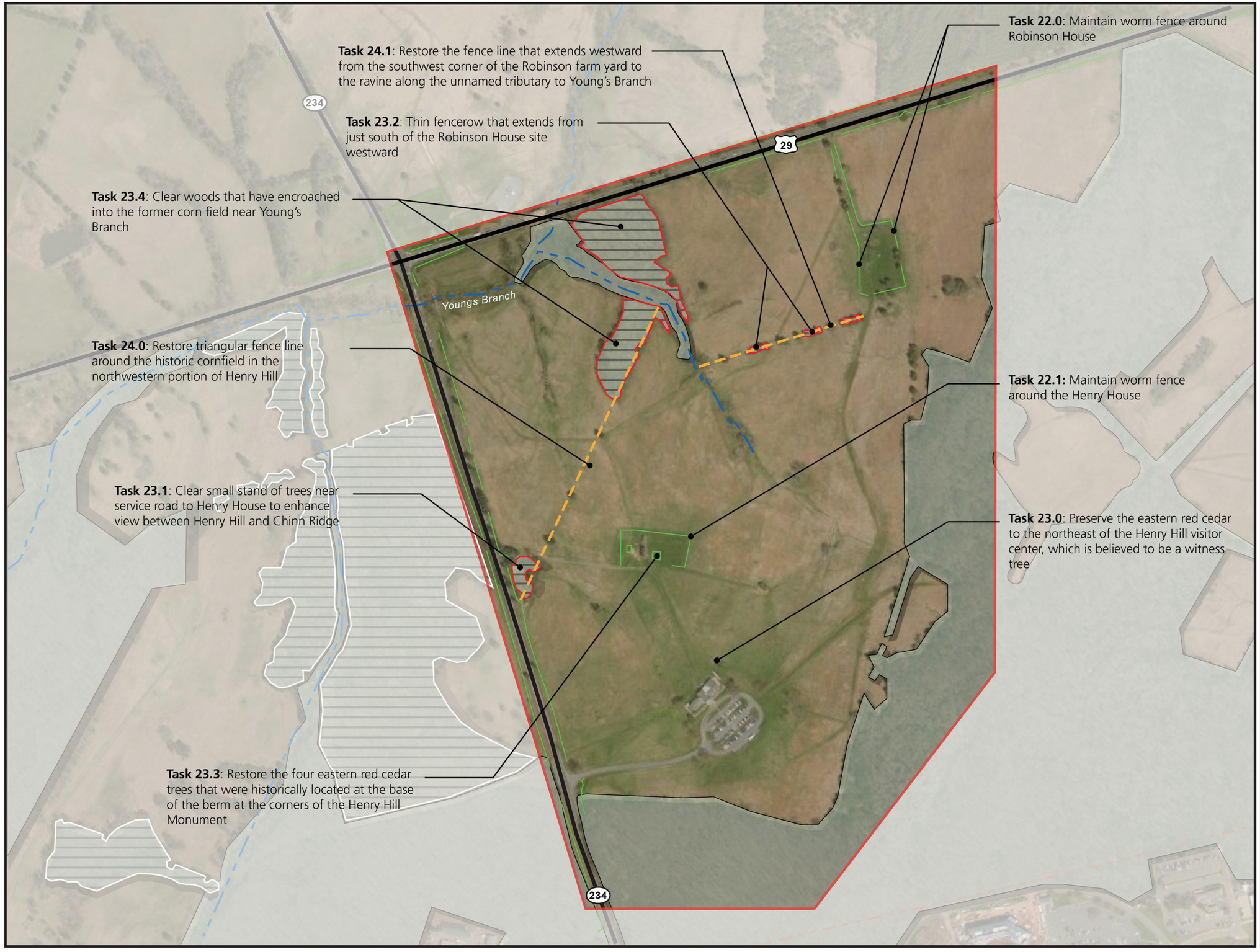
Task 21: Restore the historic fence line that runs parallel to the southeastern edge of the Unfinished Railroad with worm fencing (Phase 3)

The fence line on the southeastern base of the fill portion of the Unfinished Railroad should be restored with a worm fence. The proposed restored worm fence will be roughly 500 feet in length. The proposed worm fence will be located at the southeastern base of the fill section of the Unfinished Railroad, roughly aligning with the rubble remnant traces of the original fence line in this area. When installing and maintaining the proposed fence, care should be taken to leave the rubble remnant traces of fencing undisturbed.

This part of the battlefield saw the most intense fighting of any location during either battle of Manassas, and its convincing victory for the Confederacy helped persuade them to take the battle to the northern states. Restoring this historic fence is important because it would enhance the historic character and feeling to this critically important landscape. Furthermore, this segment of worm fencing could serve an interpretive function as it would help locate events that took place during the final day of Second Manassas, such as the famous exchange when Confederates forces ran out of ammunition and began throwing large rocks over the fill embankment of the Unfinished Railroad at Union forces. In addition, the fence line could be used to help interpret the death of Union Major Andrew Barney, who led the 24th New York into battle:

> *Coming upon an old railroad embankment, behind which the enemy were collected in great force, the men were greeted with a most destructive fire of musketry. The regiment faltered. At this moment Major Barney, fearing his men would retreat, put spurs to the horse. The spirited animal leaped an intervening fence: Rider and horse stood on top of that embankment, in full view of, and only a few feet from the rebels.*
>
> *He turned in his saddle, and shouted, 'Onward, Twenty-fourth!' The words had hardly passed his lips when he fell backward, pierced by two balls.*[20]

The proposed worm fence would span from the wooded area near "Schoolhouse Branch" to the point where the Unfinished Railroad transitions from a fill grade to a cut grade. Although it is known that a worm fence was located in this area, the exact extents of the worm fence are unknown. Through remnant traces and battle accounts, it is established that a worm fence was located along the fill portion of the Unfinished Railroad grade in this area. However, along the cut portion of the railroad grade (including Deep Cut itself), no such remnant traces or battle accounts have been located. While the 1877 McDowell map, the 1878 Warren survey notes, the 1976 Jeck map, and the 1996 McElfresh map depict a worm fence in this area, even along the cut sections of the railroad, the lack of additional evidence to corroborate a fence along the cut sections of the Unfinished Railroad is unsatisfying. As such, it is recommended that the worm fence only be restored where it is conclusively known to have been historically located: along the fill portion of the Unfinished Railroad grade.



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Henry Hill
Treatment Plan

National Park Service
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SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
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DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Fence Segment
- Removed/Replaced Fence Segment
- Restored Fence Segment
- Forest to be Restored to Open Fields (As Identified In This CLR)

North

Scale: 1: 10,000

Drawing 2.8

Treatment Recommendations for Henry Hill (Treatment Plan - Drawing 2.8)

General Recommendations

Task 22.0: Maintain worm fence around Robinson House

It is recommended that the existing worm fence that surrounds the Robinson House site be maintained. Although it is known that the historic fencing around the Robinson House was not exclusively worm fencing, there is not enough documentary evidence available to lead an informed restoration. While historic photos show that the Civil War era fencing included a mixture of post-and-board, picket, and worm fencing (See Figure 2.6), these images do not capture enough of the farmyard to support an informed restoration. Fence restoration is complicated further by the several additions and modifications that were made to the house following the Civil War. As such, it is recommended that the existing worm fence be maintained. Restoration of the fence may occur in the future if additional documentary evidence is found that would support an informed restoration of the Civil War-era fence types.

Task 22.1: Maintain fencing at Henry House

It is recommended that the existing worm fence that surrounds the Henry House site be maintained. Although it is likely that the historic fencing around the Henry House was not worm fencing, (worm fencing was not typically used to enclose a farmyard) there is no documentary evidence available to lead a restoration. The only Civil War era photographs of the site were taken after the property was destroyed at First Manassas, showing no evidence of the historic fence line that surrounded the yard. While photographs taken in the 1880s show a mix of picket and post-and-board fencing around the property (see Figure 2.7), these fences are post-bellum and likely built in tandem with the reconstruction of the Henry House in 1870. At this point, there is insufficient evidence to base a Civil War-era restoration of the fence lines around the Henry House. As such, it is recommended that the existing worm fence be maintained as is until adequate documentary evidence is located to support an informed Civil War-era fence restoration.

In addition, the post-and-rail fence around the Henry Hill Monument and the iron fence around the cemetery should also be maintained.



Figure 2.6. This 1862 photo of the Robinson House depicts a mix of post-and-board (far left), picket (far right) and a stacked rail variation on the worm fence (near right). While compelling, the photograph does not show enough of the fenceline to support an informed restoration (Image courtesy of The Library of Congress, G.N. Barnard and J. Gibson photograph).



Figure 2.7. By the 1880s, the rebuilt Henry House (house on the left side of the photograph) was encompassed by a picket fence along its eastern half and a post-and-board fence along its western half. However, the Civil War composition of the fence remains unknown (Image courtesy of Manassas National Battlefield, photographer unknown).

Vegetation Management

Task 23.0: Preserve the eastern red cedar to the northeast of the Henry Hill visitor center, which is believed to be a witness tree

A gnarly eastern red cedar (*Juniperus virginiana*) is located just northeast of the visitor center at Henry Hill. This tree has long been suspected of being a witness tree as its size, weathering, and prominent location have garnered attention by visitors and park staff. Indeed, the tree has received additional preservation maintenance as guy cables have been installed to help support the tree's larger lateral branches. Over the last several years, this tree has suffered storm damage including the loss of limbs and is showing signs of advanced aging. This tree should be preserved and replanted if and when it dies. When this tree needs to be replaced, consideration should be given to propagating a seedling from the parent tree, so that the replacement tree will maintain the genetic characteristics of the original.

Task 23.1: Clear small stand of trees near service road to Henry House to enhance view between Henry Hill and Chinn Ridge (Phase 2)

A small stand of trees roughly a half-acre in size is located near the service road to the Henry House. It is likely that this stand of trees became established as a result of expansion from a historic fencerow. This stand of trees is now a barrier for views from Henry Hill towards Chinn Ridge. It is recommended that this area be converted to open fields as it was historically, while leaving at least one mature and healthy tree along the former fencerow. Although this half acre stand of trees is not called for removal in the GMP, it is consistent with the objective of the GMP to "reestablish the view between the [Chinn] ridge and Henry Hill."[21]

Task 23.2: Thin fencerow that extends from just south of the Robinson House site westward (Phase 2)

The fencerow that extends from the south of the Robinson House westward should be thinned, while preserving individual mature and healthy tree along its alignment. The retained trees will allow visitors to understand that a fence once occupied this alignment without having excessive obstructions within the viewshed. Although a fence is proposed for restoration along this alignment (See Task 24.1), it is important to retain some of the mature trees along the fencerow as they are more permanent features and could potentially outlive the proposed restored fence. The total area to be thinned is quite small, accounting for roughly one eighth of an acre.

Task 23.3: Restore the four eastern red cedar trees that were historically located at the base of the berm at the corners of the Henry Hill Monument (Phase 2)

Photographs of the Henry Hill Monument taken during its dedication in 1865 show four eastern red cedar trees planted at the corners of the monument (see Figure 2.8). The young trees in the photograph and are roughly 6-8 feet in height, notably larger than the trees used at the Groveton Monument which were roughly 3 feet tall when they were planted. In addition, the trees are planted at the base of the berm where the monument is located (the eastern red cedar trees at the Groveton Monument are planted upon the berm, which likely accounts for the Groveton Monument trees being smaller).

Four eastern red cedar trees should be replanted in their historic locations. They should be roughly 2-3 inch caliper trees that are approximately 6 feet in height. In order to keep the trees from causing damage to or visually overpowering the monument's obelisk, it is recommended that the trees be replaced when they get to be around 12 feet in height. It is also recommended that the trees be planted in unglazed clay pots that are dug into the soil. The use of clay pots is recommended for a number of reasons: they will retard the spread of roots that could damage the monument's obelisk; unglazed clay pots are porous and will allow water to migrate in and out of the container, minimizing damage from drought or saturation; and they will retard the growth of the tree itself, allowing a longer duration before they become too large and need to be replaced.

It is recommended that the top lip of the clay pot be located at grade or just below soil line to minimize their visual intrusion. As previously stated, the clay pots should be dug in and the trees should be planted at the base of the corners of the berm. It is recommended to use 25 gallon clay pots to give the tree roots adequate space to become established. Based on a web search, a possible provider of large clay pots would be Arizona Pottery: http://www.arizonapottery.com/. The trees should be monitored for their height (replanted if they get to be over 12 feet in height) and for their health (stress associated with becoming root bound inside the clay pot, which may include portions of the plant dying back) and replanted when needed, likely on a 5-10 year cycle. The trees may also need occasional pruning in order to keep the lateral branches

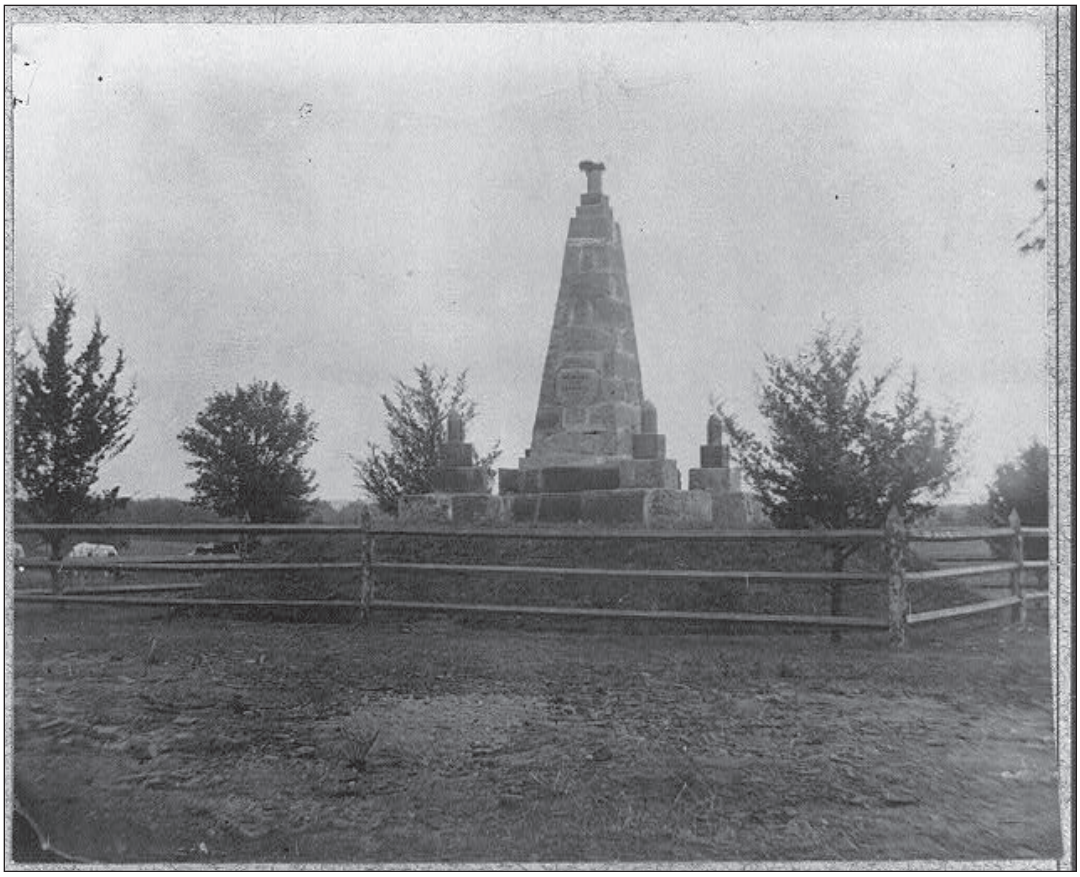


Figure 2.8. Henry Hill Monument in ca. 1865. The four eastern red cedars depicted in the image should be replanted in their historic locations at the base of the berm (Image courtesy of The Library of Congress, Prints and Photographs Division).

from brushing up against or obscuring the monument's obelisk.

As the project will involve soil disturbance in an area that is likely archeologically sensitive, consultation with an archeologist is advised prior to removing or replanting the trees (see Task 12 on page 89).

Task 23.4: Clear woods that have encroached into the former corn field near Youngs Branch (Phase 2)
There is a large stand of second-growth woods located at the base of Henry Hill within a former corn field. It is likely that these woodlands spread northward from the fencerow that once encompassed the corn field. This stand of trees is problematic because it obstructs sightlines from the Warrenton Turnpike towards Henry Hill and from Henry Hill towards Matthews Hill. Furthermore, the woods represent a visual intrusion and barrier in this historically open space that saw intense fighting during First Manassas.

It is recommended that this stand of woods be restored to its historically open character. The proposed area for restoration is roughly 4.5 acres and was not previously identified for restoration in the GMP. A 50-foot woodland vegetative buffer should be maintained around the tributary to Youngs Branch that flows through the site. In addition, it is recommended that some individual trees that are mature and healthy be preserved along the alignment of the now overgrown fencerow.

Fence Restoration

Task 24.0: Restore the diagonal fence line around the historic cornfield in the northwestern portion of Henry Hill (Phase 3)
The diagonal fence line around the historic cornfield should be restored with a worm fence. The restored fence will be roughly 1,450 feet in length and will have breaks of at least 15 feet to allow for the passage of hay combines, service vehicles, and pedestrians along the Henry House service road, and at the First Manassas trail crossing. The fence should follow the existing historic fencerow alignment and run from Sudley Road to the tributary to Youngs Branch. Restoring this fence will provide visual interest and historic authenticity to the view between Henry



Figure 2.9. March of 1862 photograph taken by George Barnard and James Gibson from the southwest portion of the Robinson farmyard, looking westward towards the Henry property. This image shows the historic worm fence called for restoration in Task 24.1. Ruins of the Henry House can be seen in the upper right of the image, which was destroyed at First Manassas. (Image courtesy of The Library of Congress, G.N. Barnard and J. Gibson photograph).

Hill and Matthews Hill. It will enhance the interpretive value of the area by providing visitors a perspective of the obstacles and opportunities that fences provided in the battlefield. This restored fence will be located in what is likely the most highly visible location in the park thereby enhancing its impact: it will be visible from the park's two primary roads and it will be visible from the Henry Hill visitor center and the Stone House.

Several primary and secondary source maps depict this fence line, including the 1862 Atkinson map, the 1861 Harris map, the 1877 McDowell map, the 1976 Jeck map, and the 1996 McElfresh map. Furthermore, the historic fence line is still marked by a fencerow within the landscape. Although many maps depict a fence line that forms a triangle, extending all the way from Sudley Road to the Warrenton Turnpike, this is believed to be an inaccurate representation as this would have extended the fence line onto the Robinson property. Therefore, it is believed, that the historic alignment would have stopped at the ravine along the unnamed tributary to Youngs Branch.

Task 24.1: Restore the fence line that extends westward from the southwest corner of the Robinson farmyard to the ravine along the unnamed tributary to Youngs Branch (Phase 3)

The historic fence line that extended westward from the Robinson farmyard should be restored with a worm fence. The restored fence will be roughly 750 feet in length and will have a break along the Henry Hill Loop Trail of at least 15 feet to allow for the passage of hikers and hay combines. The fence should follow the existing historic fencerow alignment (See task 23.2) and run westward from the southwest corner of the Robinson farmyard to the ravine along the unnamed tributary to Youngs Branch. Restoring this fence will provide visual interest and historic authenticity to the view between Henry Hill and Matthews Hill. It will enhance the interpretive value of the area by providing visitors a perspective of the obstacles and opportunities that fences provided in the battlefield. This restored fence will be located in what is likely the most visible location in the park thereby enhancing its impact: it will be visible from the park's two primary roads and it will be visible from the Henry Hill visitor center and the Stone House.

Although there are no known primary source maps that depict a fence in this location, it does appear on both the 1996 McElfresh map and 1976 Jeck secondary source maps. However, the definitive evidence that is available to support this restoration is a photograph taken by George Barnard and James Gibson in March of 1862 that clearly shows a worm fence in this location extending westward towards the Henry property (See Figure 2.9). Evidence for this fence line is further corroborated by the presence of a historic fencerow along this alignment.

Treatment Recommendations for Matthews Hill (Treatment Plan - Drawing 2.9)

Vegetation Management

Task 25.0: Clear woods on Matthews Hill at the former site of Martin Matthews' farmhouse (Phase 2)

The General Management Plan calls for clearing roughly 35 acres of woods from Matthews Hill at the former site of the Martin Matthews' farmhouse. This report largely agrees with the findings of the GMP and calls for most of the restoration of the 35 acres that are outlined in the GMP. However, it is recommended that the historic "pine thicket"[22] that is partially located within this area be left uncleared. This thicket of trees is depicted on numerous historic maps, including the 1862 Atkinson Map, the 1861 Harris Map, and the 1861 Warder and Catlett Map. This pine thicket is referenced in battle accounts as well, being traversed by the 8th Georgia Infantry of Colonel Francis Bartow's brigade, as well as the troops led by Confederate Colonel Nathan "Shanks" Evans and Confederate General Barnard Elliott Bee, Jr.

It is also recommended that a modest expansion be made to the restoration that was proposed in the GMP. It is recommended that the cleared area be expanded to the north and to the east by roughly 10 acres combined, making the total area to be restored to open fields roughly 39 acres. It is recommended that these additional 10 acres be cleared because this area was historically open, and clearing

these areas would spatially and visually connect the landscape to other open spaces, providing a greater benefit to the desired open character of the landscape.

Prior to the clearing, an archeological investigation should be conducted on the Martin Matthews property to locate any traces of the former farmstead that should be preserved during timber operations. This work would also assist with interpretation and fence restoration once the area is returned to open fields.

Task 25.1: Clear woods at the curve in Sudley Road and restore to open fields (Phase 2)
A small patch of woods roughly three acres in size is located on the west side of the curve in the Sudley Road, about 1700 feet north of the Sudley Road Warrenton turnpike intersection. This stand of trees is now a barrier for southbound views of Henry Hill from the Sudley Road. This 3 acre parcel was previously identified for conversion into open fields in the GMP.

Fence Restoration

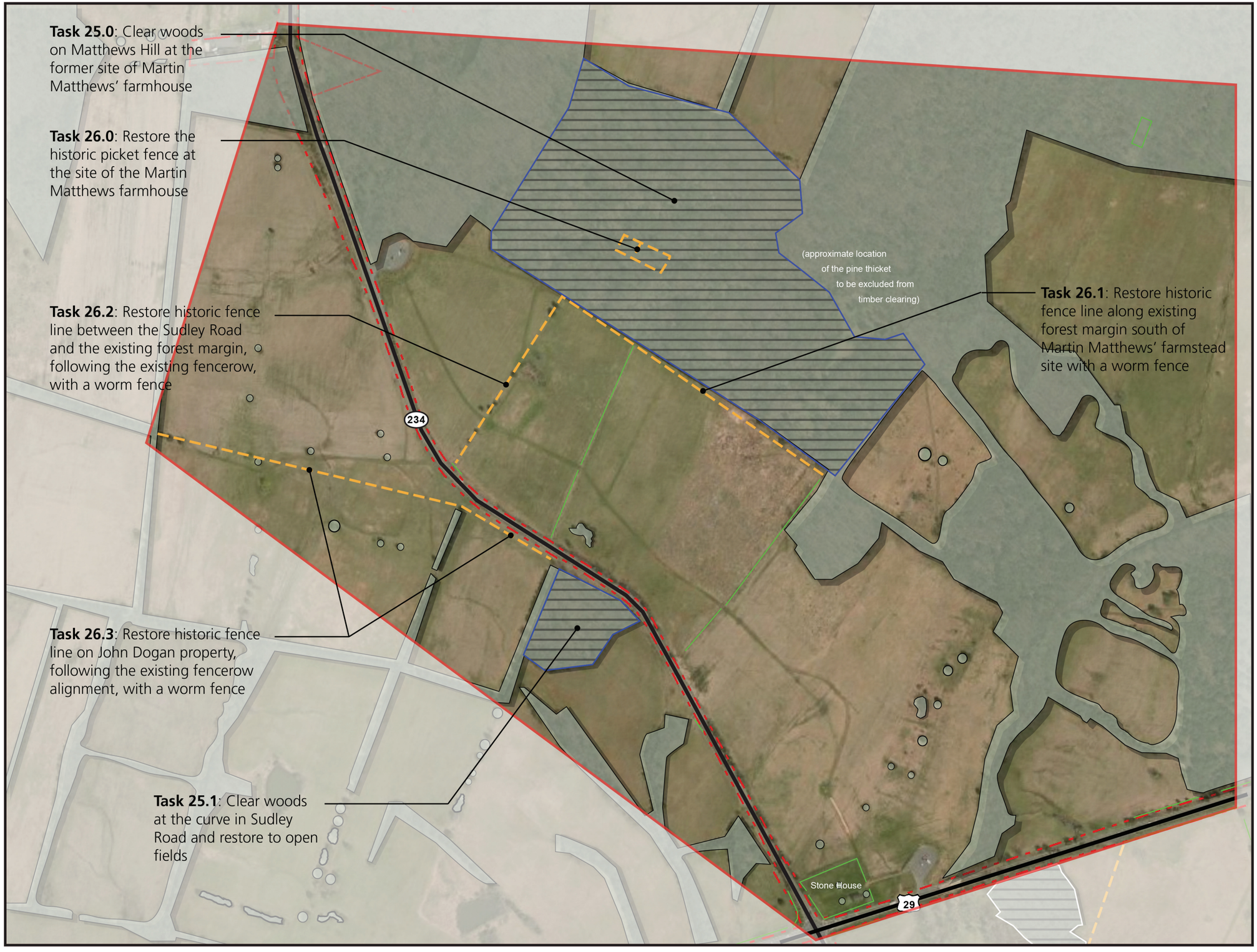
Task 26.0: Restore the historic picket fence at the site of the Martin Matthews farmhouse (Phase 3)

Once the woods have been cleared at the site of the former farmhouse of Martin Matthew, it is recommended that the fence around the historic property be restored. The exact location of the fence will need to be informed by an archeological survey of the property, including locating the foundation of the former farmhouse and looking for any evidence of the former fence line. A fence is depicted around the farmhouse in many maps, including the 1861 Harris map and the 1996 McElfresh map. A historic photograph of the house taken in 1862 clearly depicts a whitewashed picket fence surrounding a farmhouse and what is possibly a kitchen garden, with an interior partition between the farmyard and possible kitchen garden (See Figure 2.10). It is worth noting that portions of the fence are missing pickets. This could indicate that construction of these portions of the fence was not completed or that pickets were possibly removed from the fence by Civil War soldiers to be used as fire wood.

The total length of the restored fence will be informed by the archeological survey, but the photograph of the fence indicates that it may be around 700 feet in length, including the interior partition. Once constructed, it will be necessary to reroute the portion of the bridle trail that currently bisects the former



Figure 2.10. The 1862 photograph of the Matthews Farmhouse shows a picket fence surrounding the yard and possible kitchen garden. When zoomed in, the fence appears to be missing some of its pickets (Image courtesy of The Library of Congress, G.N. Barnard and J. Gibson photograph).



Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Matthews Hill
Treatment Plan

National Park Service
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SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Existing Fence Segment
- Restored Fence Segment
- Forest to be Restored to Open Fields (Previously Identified in GMP)

North

Scale: 1: 10,000

Drawing 2.9

house site. Indeed, in light of the large scale landscape restoration at the former Martin Matthews farmstead site, the park may want to reconsider the alignment, quantity, and redundancy of the current foot and bridle trail network in this area, with consideration given to combining and eliminating some of the trails.

Drawings of a picket fence have been prepared to assist with their restoration. These drawings provide information on construction techniques, materials, and dimensions (See Appendix A). In addition, a historic formula for whitewash has been included, which should be applied to the restored picket fence (See Appendix B).

Task 26.1: Restore historic fence line along existing forest margin south of Martin Matthews' farmstead site with a worm fence (Phase 3)

It is recommended to restore this historic fence line with a worm fence. The restored fence will be roughly 1,400 feet in length. The fence line should have a break in it of at least 15 feet to allow for passage of hay combines and hikers on the Matthews Hill loop trail. Restoring this historic fence is important because it will help frame the view from Matthews Hill to Henry Hill, a view corridor that was important during First Manassas. This fence would also connect other fence segments that run perpendicular to its axis, which would illustrate how farmlands were often historically partitioned by fences. The restored fence would also be highly visible from Matthews Hill and Sudley Road, and from Henry Hill in the distance.

Several primary and secondary source maps depict this fence line, including the 1862 Atkinson map, the 1861 Harris map, the 1996 McElfresh map, and the 1976 Jeck map. It is also evidenced today by the southwestern margin of a second-growth forest that has engulfed the site of the Martin Matthews farmhouse.

Task 26.2: Restore historic fence line between the Sudley Road and the existing forest margin, following the existing fencerow, with a worm fence (Phase 3)

This fence line should be restored with a worm fence. The restored fence will be roughly 900 feet in length. The restored fence should be constructed along the alignment of the existing fencerow, and the trees that comprise this fencerow should be preserved. The fence line should have breaks in it of at least 15 feet to allow for passage of hay combines and hikers on the Matthews Hill loop trail and the First Manassas trail. Restoring this historic fence line is important because it will reinforce the series of fences that were crossed by Union forces during their initial push to and subsequent route from Henry Hill at First Manassas. From Matthews Hill, this fence will be the first in a series of perpendicular fence lines between Matthews Hill and Henry Hill that provide depth, perspective, and visual interest along this critically important axis. The restored fence line would be highly visible, from Matthews Hill, from the Sudley Road to the west, and from Henry Hill in the distance.

Several primary and secondary source maps depict this fence line, including the 1862 Atkinson map, the 1861 Harris map, the 1996 McElfresh map, and the 1976 Jeck map. It is also evidenced today by the fencerow that marks the alignment of the historic fence.

Task 26.3: Restore historic fence line on John Dogan property, following the existing fencerow alignment, with a worm fence (Phase 3)

This fence line should be restored with a worm fence. The restored fence will be roughly 1,900 feet in length, comprised of 1,450 feet of field fencing and 450 feet of road fencing. The restored fence should follow the faint east-west fencerow axis, connecting the gap between other fencerows that are more densely vegetated. This fence line will be in a highly visible location, located at a bend in the Sudley Road where it will be visible from the road for a prolonged duration. Furthermore, as this fence line spans the gap between four highly intact fencerows, it will help visitors understand that fencerows within the battlefield typically mark the location of historic fence lines, providing for enhanced interpretation of battlefield conditions.

Several primary and secondary source maps depict this fence line, including the 1862 Atkinson map, the 1861 Harris map, the 1996 McElfresh map, and the 1976 Jeck map. It is

also evidenced today by a faint fencerow that marks the alignment of the historic fence.

Treatment Recommendations for Sudley/Thornberry House (Treatment Plan - Drawing 2.10)

Vegetation Management

Task 27.0: Preserve the white oak witness tree to the west of the Thornberry House

An 1862 photograph of the Thornberry house shows an open farmyard spotted with white oaks (*Quercus alba*), many of them with whitewash applied to the lower portion of their trunks (See Figure 2.11). One of these farmyard trees is still present, and should be preserved as a witness tree. This tree is located just west of the northern portion of the Thornberry house. It is now a fully mature tree, with a sizeable trunk, a wide canopy, and large lateral branches. While much of the vegetation around the Thornberry House should be removed, this witness tree should be preserved. Consideration should be given to replanting the additional white oaks that were in close proximity to the Thornberry house in 1862. In addition, it is recommended that the trunks of the trees be whitewashed as they were historically maintained. When planting the additional trees, consideration should be given to propagating acorns from the surviving white oak, so that the replanted trees will have some of the genetic characteristics as the surviving oak tree.

Task 27.1: Restore the open fields to the landscape surrounding the Thornberry House (Phase 2)

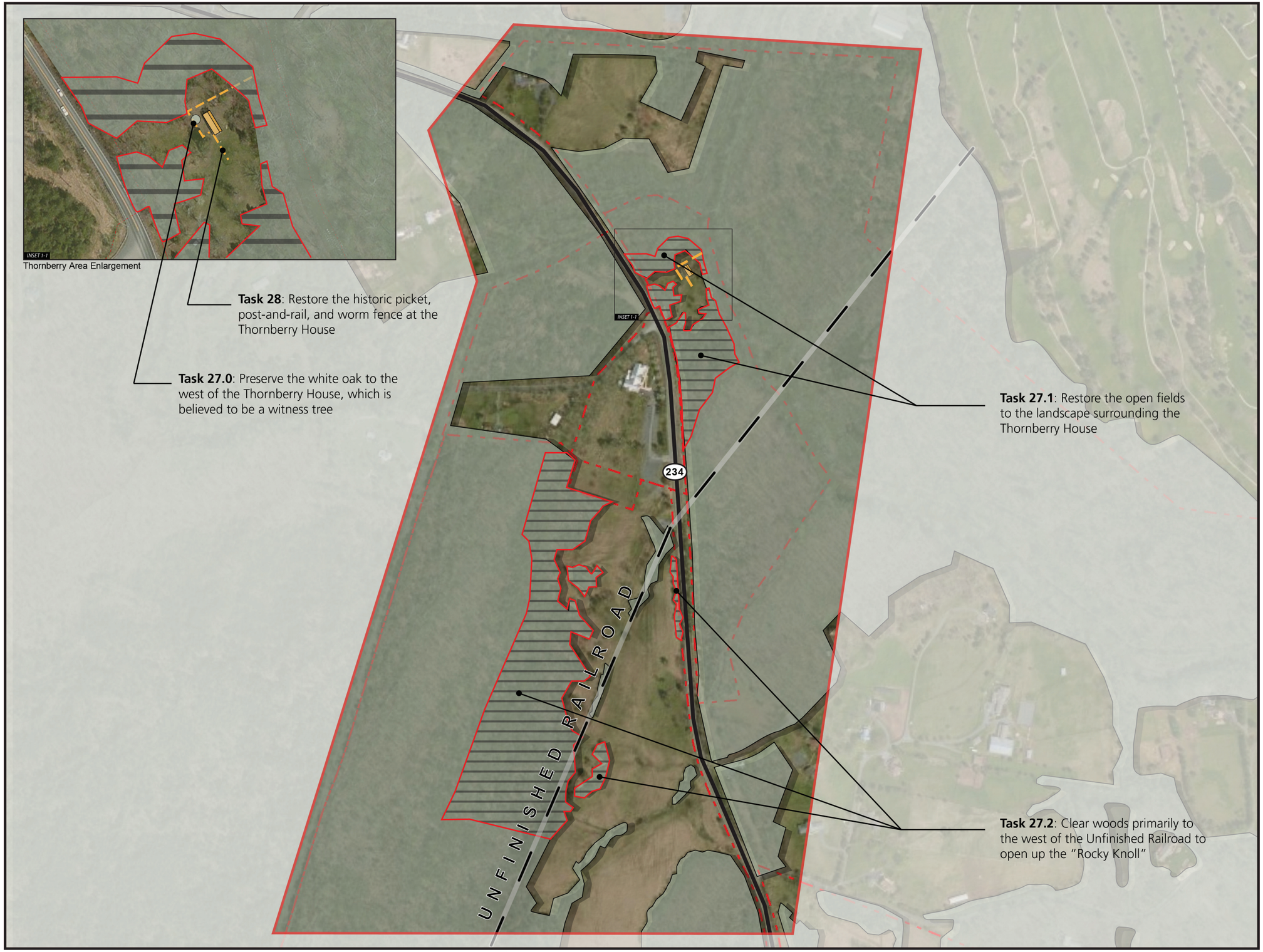
The Thornberry House is significant as it is one of the few buildings that remain within the park that dates to the Civil War. Historic photographs and maps depict the Thornberry property as being surrounded by open fields punctuated by occasional trees with a ribbon of riparian vegetation along Bull Run. At present, however, the property is filled in with second growth forest cover. This modern forest cover obstructs views towards and from the Thornberry House. It is recommended that the area surrounding the Thornberry House be converted to open fields, while preserving the property's white oak witness tree and giving consideration to planting additional white oaks (see Task 27.0 above). Clearing the woods that currently surround the Thornberry House will allow for views into the property from the nearby Unfinished Railroad and from the Sudley-Manassas Road. The increased exposure to the property will enhance its interpretive potential as it will attract park visitors who may not have been aware of its existence. It is recommended that a 50-foot woodland buffer be preserved around Bull Run and Catharpin Run. The total area that is called for restoration to open fields is roughly 3.5 acres. This restoration was not previously identified within the GMP.

Task 27.2: Clear woods primarily to the west of the Unfinished Railroad to open up the "Rocky Knoll" (Phase 2)

South of the Sudley Church and along the western edge of the Unfinished Railroad grade lies a plot of land referred to as the Rocky Knoll. This small knoll saw intense fighting in the late afternoon of August 29 during the Second Battle of Manassas, when Federal General Philip Kearny led an assault on Confederate Brigadier General Maxcy Gregg who commanded a brigade of South Carolinians. Bearing the brunt of the assault, it is at this location that Gregg famously shouted to his men "Let us die here, my men, let us die here!" During the battle, over 600 South Carolinians were killed before Confederate reserves arrived and repulsed Kearny's troops.[23]

Although once an open field, the Rocky Knoll is now overgrown with woodlands. This vegetative cover limits the interpretive potential of the site and does not reflect the landscape's historic condition. Furthermore, clearing the site, which is located near the park's northern entrance, would provide inbound visitors to the park a sense of arrival and a more accurate representation of the historically agricultural landscape. The woodland area that is proposed for restoration to open fields is roughly 13.5 acres and was not previously identified in the GMP for restoration.

Numerous primary and secondary maps depict this area as being clear of woody vegetation. However, the 1861 Warder and Catlett map and two secondary maps (Jeck and McElfresh) depict a grouping of trees in



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Sudley/Thornberry House
Treatment Plan

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov/cultural_landscapes/index.html

SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Fee Simple Park Boundary
- Restored Fence Segment
- Forest to be Restored to Open Fields (As Identified In This CLR)

North

Scale: 1: 10,000

Drawing 2.10

a roughly north-south axis just to the west of the Rocky Knoll. This historic grouping of trees as depicted on these maps informed the western limit of the clearing; if the tree removal extended further west there is a good chance that it might include areas that were historically forested.

Fence Restoration

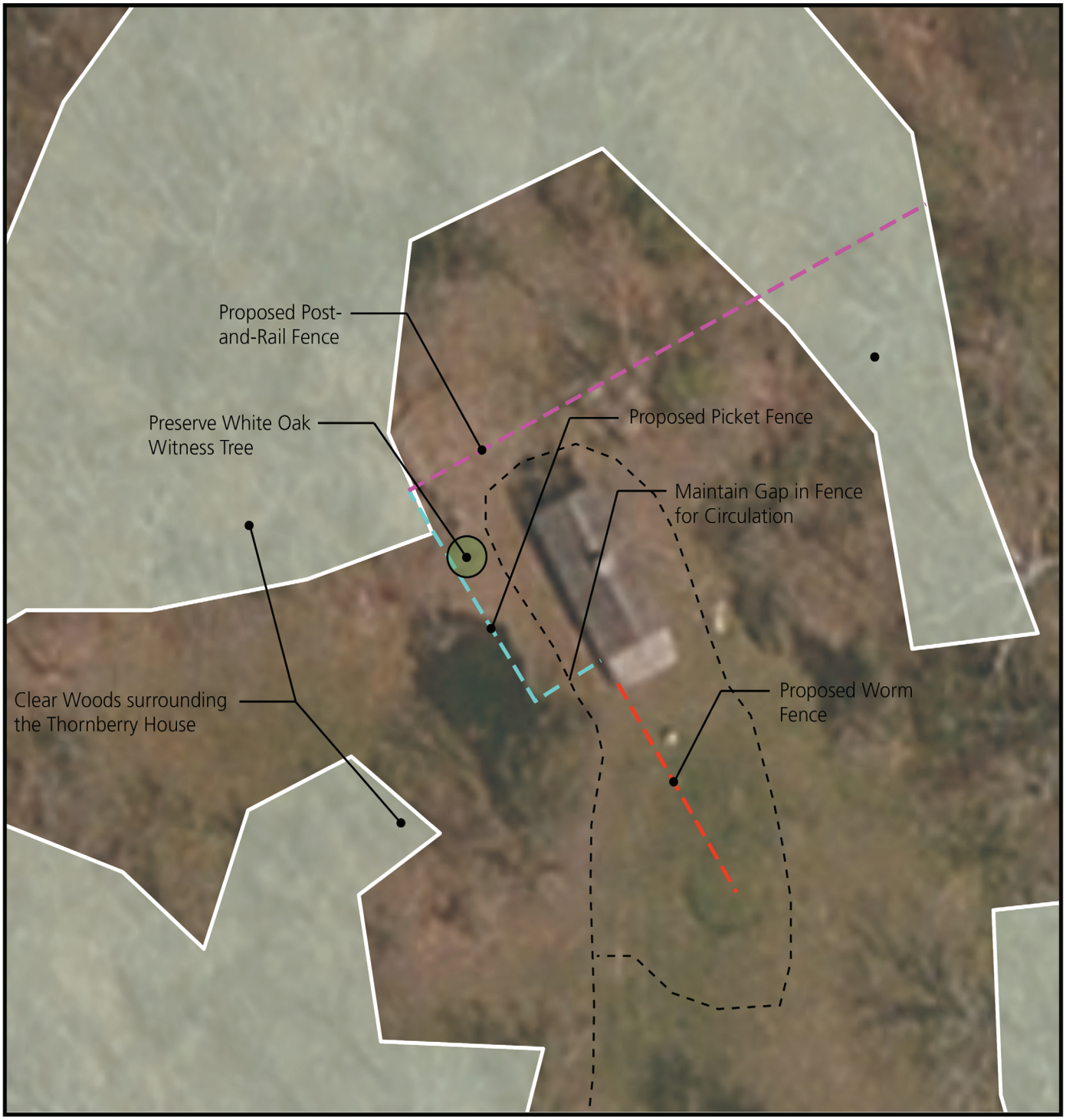
Task 28: Restore the historic picket, post-and-rail, and worm fence at the Thornberry House (Phase 3)

Once the encroaching woodlands have been cleared around the Thornberry House, it is recommended that the fence lines around the property be restored. A historic photograph of the house taken in 1862 clearly depicts a whitewashed picket fence along the western portion of the house, a post-and-rail fence along the northern portion of the house, and a segment of worm fencing coming off of the southern portion of the house. Although photographic coverage of the area is incomplete, there is enough revealed within the photographs to make informed decisions regarding restoration of the property's historic fences.

As shown in the 1862 photograph, the picket fence begins at the southwest corner of the house. The picket fence continues southwest from the house, parallel to the southern façade, and is interrupted by a white oak tree in this section. The fence is whitewashed, as are the trunks of the surrounding white oaks. After 15-20 feet, the picket fence makes a ninety degree turn to the northwest, and continues on for another 50-60 feet. At this point, the fence line transitions into a post-and-rail fence and makes another ninety degree turn to the northeast. This post-and-rail fence continues to the northeast, over the crest of a small hill, and then runs out of sight down the hillside. It is likely that this fence alignment continued down to the banks of the Bull Run, which is located only about 100 feet west of the Thornberry house. A separate fence line extends to the southeast off of the southwest tip of the house. This fence is a worm fence, and it is joined to the house in the same location as the picket fence. Because



Figure 2.11. This photograph of the Thornberry Residence (1862) shows a whitewashed picket fence along the western portion of the house, a post and rail fence along the northern portion of the house, and a segment of worm fencing coming off the southern portion of the house. Also seen in this photo are the white oak trees in the Thornberry farmyard (Image courtesy of The Library of Congress, G.N. Barnard and J. Gibson photograph).



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Thornberry House
Fence Detail

Manassas National
Battlefield Park
Manassas, Virginia

Drawing 2.11

LEGEND

- Trail
- Proposed Worm Fence Line
- Proposed Picket Fence Line
- Proposed Post-and-Rail Fence Line

North

feet
0 30 60 90

only a portion of the worm fence is depicted in the photograph (roughly 50-60 feet), it is unclear how far the fence extended to the southeast.

It is recommended that the various fence lines and fence types be restored at the Thornberry property (see Thornberry House Fence Detail map, page 118). These fence lines should be restored in their historic locations to the greatest extent possible. The picket fence should be whitewashed, as should the trunks of any existing or replanted white oak trees in the area. Consideration should be given to planting white oak trees at the property, including one positioned within the alignment of the fence line, causing a break in the fence as seen in the historic photograph. This break in the fence line would also serve as the circulation route along the trail that approaches the Thornberry House. A shed addition has been constructed along the southern façade of the Thornberry House since the 1862 photograph was taken. While the picket fence should begin at its original location, the worm fence should project off of the building from the newer shed addition. Since it is unknown how far the worm fence extended to the southeast, it is recommended that the worm fence simply extend for roughly 50-60 feet (as depicted in the photograph) before stopping. With the post-and-rail fence, it is recommended that the fence continue through the open field for roughly 140 feet, before terminating at the woodland buffer of Bull Run, which will be offset 50 feet from its banks (See Drawing 2.11).

The total length of the restored fence will be roughly 265 feet, including roughly 140 feet of post-and-board fence, 70 feet of picket fence, and 55 feet of worm fence. Drawings of picket fencing, post-and-rail fencing, and worm fencing have been prepared to assist with their restoration. These drawings provide information on construction techniques, materials, and dimensions (See Appendix A). In addition, a historic formula for whitewash has been included, which should be applied to the restored picket fence and the trunks of the white oak trees in the area (See Appendix B).

Treatment Recommendations for Other Areas (Treatment Plan - Drawing 2.12)

Vegetation Management

Task 29.0: Reforest areas that have been previously identified in the General Management Plan (Phase 3)

There are numerous areas that have been identified for reforestation in the GMP (see Figure 1.0, page 3). Reforestation is recommended in these areas because they were either historically forested or forests are desired to obstruct incompatible views outside of the park.[24] This report concurs with the findings of the GMP, and recommends that the following areas be allowed to revert to forested conditions:

- Approximately 20 acres of land that is currently open fields south of Stuart's Hill should be reforested
- Approximately 15 acres around the historic Cundiff House should be reforested
- Approximately 20 acres along the north-central portion of Dogan Ridge should be reforested
- Approximately 25 acres of land to the north of Matthews Hill would be reforested
- Approximately 5 acres of land along Bull Run to the west of Poplar Ford would be reforested

Task 29.1: Remove mature white poplars from area around Stone House and replace with bigtooth aspen saplings (Phase 3)

In the 1990s, several white poplars (*Populus alba*) were introduced to the grounds surrounding the Stone House to help restore the landscape of the Stone House to its historic condition. Following consultation with Peter Mazzeo, a botanist from the National Arboretum (now retired) who is considered an expert on photographic plant identification, the historic trees were determined to be white poplars.

Over time, however, these white poplars have proven to be a bad fit for the landscape restoration. First off, they are native to Europe and considered an invasive tree in the state of Virginia. In addition, the white poplars had

an unforeseen consequence: the adventitious roots of the poplars have extended into the rubble foundation of the Stone House and began to infiltrate the building's crawl space, sending up suckers and damaging the building's foundation.

Given these reasons, it is recommended that the existing white poplars be removed and replaced with a native tree: the big-tooth aspen (*Populus grandidentata*). Big-tooth aspen were selected as the preferred replacement species because:

- They are the same genus as the white poplar (*Populus*) and have many of the same characteristics.
- They have similar bark characteristics (whitish-grey) and similar delicate, deciduous foliage with similar yellow fall color.
- They have a similar height at maturity (~ 60 feet), which is small enough that it is unlikely to cause catastrophic damage to the Stone House if a tree were to fall during a storm event.
- While the roots of the big-tooth aspen can spread by suckers, the roots are not as aggressive as white poplars. However, monitoring of the foundation should continue.

As the area around the stone house is archeologically sensitive, consultation with an archeologist is advised prior to removing or replanting the trees. When removing the existing white poplars, it is recommended that the park use a topical herbicide to prevent an explosion of sucker growth.

If, after 15-20 years, the roots from the aspens begin to cause damage to the Stone House's foundation like the white poplars did, then the aspens should be removed as well. At that point, consideration could be given to replanting the aspens with saplings again, with the intention of removing them every 15-20 years, or once it is observed that they are causing foundation damage. A second option at this point would be to replant with a different species that has a lower likelihood of causing root damage to the Stone House.

Task 29.2: Clear woods in areas that are identified in the GMP and restore to open conditions (Phase 2)

There are numerous areas that have been identified for open field restoration in the GMP (see Figure 1.0. page 3) that are outside of the primary interpretive nodes identified in this CLR. Open field restoration is recommended in these areas because they were historically open and their current wooded state prohibits accurate understanding and visualization of the Civil War battlefield conditions. This report concurs with the findings of the GMP, and recommends that the following areas be cleared of their second growth forest cover and restored to open fields:

- The Stuart's Hill clearing would be expanded by approximately 30 acres to the east to restore the view from General Lee's Second Manassas headquarters towards Centerville
- Approximately 40 acres of trees around the Cundiff House would be cleared of woods and rehabilitated to wartime conditions.

Fence Removal/Replacement

Task 30.0: Remove fencing from entrance to Stuart Hill administrative headquarters and along the Stuart Hill Administrative area road (Phase 3)

There are three segments of worm fencing at and leading to the Stuart's Hill park administrative headquarters: two sections of worm fencing on either side of the entrance drive to the headquarters along Pageland Lane and a single segment along the margin of an open field just east of park headquarters. None of these worm fences are in the location of a historic fence. These fence segments likely date to the development of the park headquarters at Stuart's Hill in the late 1990s. These three segments of worm fence are roughly 530, 260 and 210 feet in length respectively, for a total length of roughly 1,000 feet.

It is recommended that these fences be removed and their rails salvaged to be used for fence restoration in other locations. It is possible that these fence segments were constructed to serve a specific administrative need, like increasing visibility of the park headquarters at Stuart's Hill and, in the



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Other Areas
Treatment Plan

National Park Service
National Capital Region
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SOURCES
1. 2012 GIS Bing Map Aerial Basemap

DRAWN BY
National Park Service, D. Schaible
National Capital Region/ Cultural Landscapes Program
Illustrator CS4

DATE
December 2012

LEGEND

- Existing Forest Cover
- Forest to be Restored to Open Fields (Previously Identified in GMP)
- Forest to be Restored to Open Fields (As Identified in this CLR)
- Reforestation (Previously Identified in GMP)
- Existing Fence Lines
- Proposed Fence Lines
- Fence Lines to be Removed/Replaced

North

Not to scale

Drawing 2.12

case of the fence that runs along the open field, restricting unlawful off-road driving. If these fence segments are determined to be administratively necessary, it is recommended that they be replaced by the contemporary single rail, pierced-post fence type or, in the case of the entrance drive to park headquarters, increased signage.

Task 30.1: Remove fencing along the east side of the Groveton Road, south of the intersection at Groveton (Phase 3)

There is a segment of worm fencing along the east side of the Groveton Road south of the intersection at Groveton. This segment of worm fencing does not show up on any historic maps and is unlikely to be in the location of a historic fence. This segment of worm fence measures roughly 300 feet in length. It is recommended that this fence be removed and its rails salvaged to be used for fence restoration in other locations.

Task 30.2: Remove fencing along the Groveton-Sudley Road, just west of the Unfinished Railroad, and replace the portion near the Unfinished Railroad parking area and trailhead with single rail, pierced-post fencing (Phase 3)

There are two long segments and two short segments of worm fencing along the Groveton-Sudley Road just east of the Unfinished Railroad. The two long segments of worm fence mark the boundary of the park's northwestern edge, while the two short segments help provide wayfinding at the parking area and trailhead for the nearby Unfinished Railroad. None of these segments of worm fencing show up on historic maps and are unlikely to be in the location of historic fences. The segments of worm fence measure 510, 380, 55, and 20 feet respectively. It is recommended that all four segments of the worm fence be removed and their rails salvaged to be used for fence restoration in other locations, if possible. However, it is recommended that the segments of fence that provide wayfinding at the parking area and trailhead be replaced with contemporary, single rail pierced-post fencing. This would result in two short segments of single rail pierced-post fencing at the parking area and trailhead, with a combined length of roughly 75 feet.

Task 30.3: Remove the worm fence along the entrance road and parking area at Battery Heights and replace the fencing at the parking area with single rail pierced-post fence (Phase 3)

The contemporary parking area and associated driveway at Battery Heights is a non-historic feature. As the Battery Heights parking area is a relatively recent addition



Figure 2.12. The fencing along the Groveton-Sudley Road west of the Unfinished Railroad appears to be unmaintained. Some of the rails along this fence are damaged from wind blown trees and othere may have advanced decay. Only rails that are in good condition should be salvaged for fence restoration in other locations.

to the landscape designed to accommodate automobile touring, the use of worm fencing along its shoulders is inappropriate. As such, it is recommended that the worm fencing along the drive and parking area be removed. The existing segments of worm fence along the entrance road and parking area measure roughly 625 feet combined. Rails from the worm fence should be salvaged to be used for fence restoration in other locations. Unless administratively necessary, no replacement fencing should be added along the entrance road. The fencing at the parking area, however, should be replaced with contemporary, single rail pierced-post fencing, as this fencing helps define the parking area and assists in wayfinding. This will result in two short segments of single rail pierced-post fencing at the parking area, with a combined length of roughly 180 feet.

Task 30.4: Remove small amount of worm fencing along the Groveton Road at the entrance to the large parking area (Phase 3)
There are three short segments of fencing that are along Groveton Road at the entrance to the large parking area. As the large parking area was not added until the latter part of the 20th century, the worm fencing is known to post-date the Civil War. It is recommended that all three segments of the worm fence be removed (roughly 65 feet in fencing) and their rails salvaged to be used for fence restoration in other locations. If needed, the fence segments could be replaced with single rail pierced-post fencing.

Fence Restoration

Task 31.0: Restore historic fence line along the Warrenton Turnpike near the park's western entrance with worm fencing (Phase 3)
This fence line should be restored with a worm fence. The restored fence will be roughly 825 feet in length. Restoring this fence is important because it was historically present and it is near the park's western entrance and would provide a sense of arrival to the park. The restored fence would also be highly visible from the Warrenton Turnpike and, absent an entrance station, would be one of the first visible signs to visitors that they have entered the Manassas National Battlefield Park. Although the original fence would have extended for a greater distance, it is only recommended that roughly 825 feet of the fence line be restored at this time.

Several primary and secondary source maps depict this fence line, including the 1878 Judson survey, the 1862 Atkinson map, the 1996 McElfresh map, and the 1976 Jeck map.

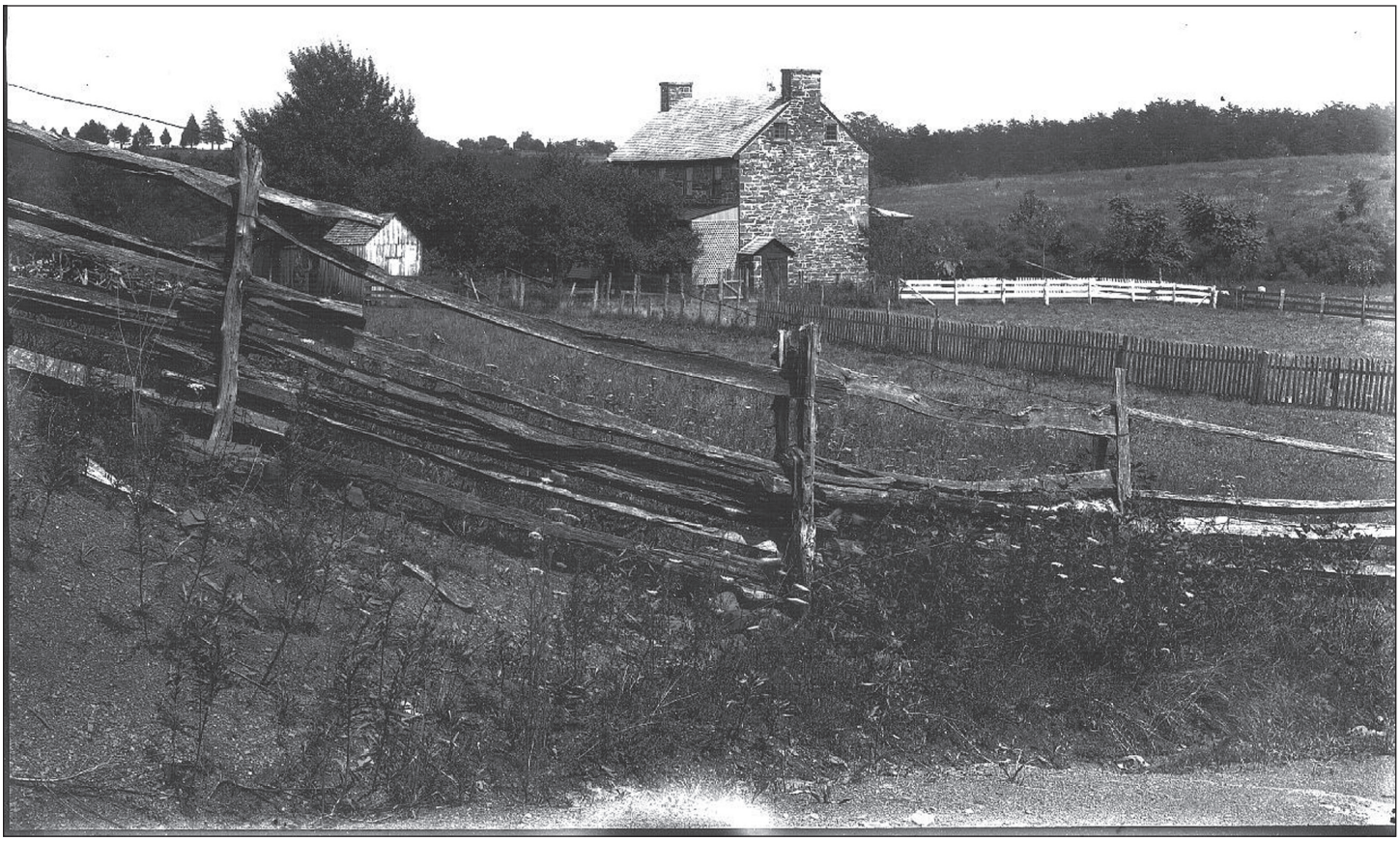
Task 31.1: Restore historic fence line at southwest and northwest corner of Groveton junction, with worm fencing (Phase 3)
The fence lines at the northwest and southwest corner of the Groveton junction should be restored with a worm fence. These two fence segments measure roughly 410 and 290 feet respectively, for a combined length of roughly 700 feet. The northwest fence line (adjacent to the Lucinda Dogan house) should have a break in it to allow for passage of pedestrians towards the house. Restoring these historic fences are important because they were historically present, they are located at a highly visible crossroads, and they are situated in a portion of the battlefield that saw substantial fighting that is adjacent to one of the park's few antebellum structures.

Several primary and secondary source maps depict these fence lines, including the 1862 Atkinson map, the 1878 Judson survey, the 1877 McDowell map, the 1996 McElfresh map, and the 1976 Jeck map.

Endnotes

1. Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (Washington, D.C.: National Park Service, 1998), 81.
2. DOI, *General Management Plan*, 8.
3. DOI, *General Management Plan*, 35-38.
4. DOI, *General Management Plan*, 35.
5. DOI, *General Management Plan*, 53.
6. National Park Service Planning, *"The National Park Service Organic Act"*, http://planning.nps.gov/document/organic_act.pdf.
7. The Walker Collaborative, *Viewshed Plan*, 1.
8. FHWA Safety, *"W-Beam Guardrail"*, last modified on October 16, 2012, http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/ctrmeasures/wbeam/
9. List of invasive species provided by Manassas National Battlefield Natural Resources Program Manager Bryan Gorsira and Biological Technician Courtney Asher via email correspondence.
10. Birnbaum and Madigan, *The Secretary of the Interior's Standards*, 48.
11. Birnbaum and Madigan, *The Secretary of the Interior's Standards*, 49.
12. A browse line is the open space created under the canopy of a tree from grazing animals.

13. Dictionary.com *"Fencerow"*, last modified on October 31, 2012, http://dictionary.reference.com/browse/fencerow?s=t
14. If fence construction is combined with the open field restoration and forest removal as a single undertaking, then the impacts and potential mitigations of fence construction will be resolved at the level of an Environmental Assessment (EA), which will take more than 90 days to prepare (See Task 0.0). If, however, they are treated as separate undertakings, fence construction alone is unlikely to rise to the level of an EA and would likely qualify for streamlined review at the level of a Categorical Exclusion (CE). With this latter CE pathway, the project will require at least 90 days review by appropriate subject matter experts after it has been entered into PEPC.
15. DOI*, General Management Plan*, 54.
16. Virginia Department of Conservation and Recreation, *A National Heritage Inventory of Manassas National Battlefield Park*, 62-63.
17. While the Chinn Loop Road in its entirety post-dates the creation of the battlefield park in 1940, the southern portion of the road likely overlaps or approximates the alignment of a Civil War era road that extended from Sudley Road to Lewis Lane, passing the Hazel Plain complex along the way.
18. The modest realignment of the roadway along this section of the Sudley Road likely dates to improvements made to the road in the 1930s, when the roadway was modernized into serving as a state public highway.
19. Williamsburg Environmental Group Inc., *Delineation Map; CWT Property at Manassas*, 2012.
20. Jefferson County News, October 16, 1862, *Eulogy at the Funeral of Maj. A. J. Barney.*
21. DOI*, General Management Plan*, 54.
22. Atkinson, *Map of the Battlefields of Manassas.*
23. Civil War Trust, "*Union Major General John Pope Was No Match for Robert E. Lee: Battle of Second Manassas*", http://www.civilwar.org/battlefields/secondmanassas/second-manassas-history-articles/second-battle-of-manassas.html
24. DOI*, General Management Plan*, 54, 129.



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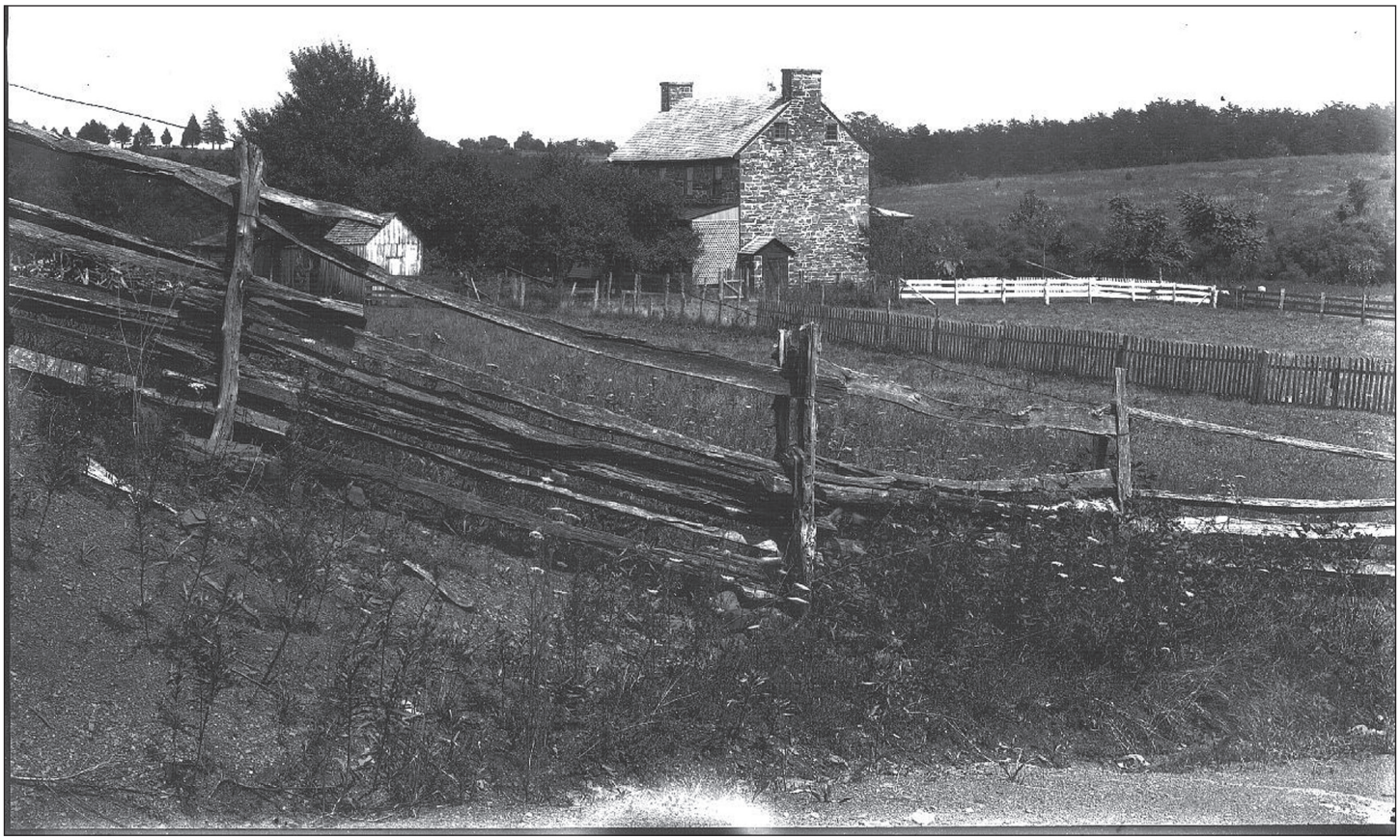
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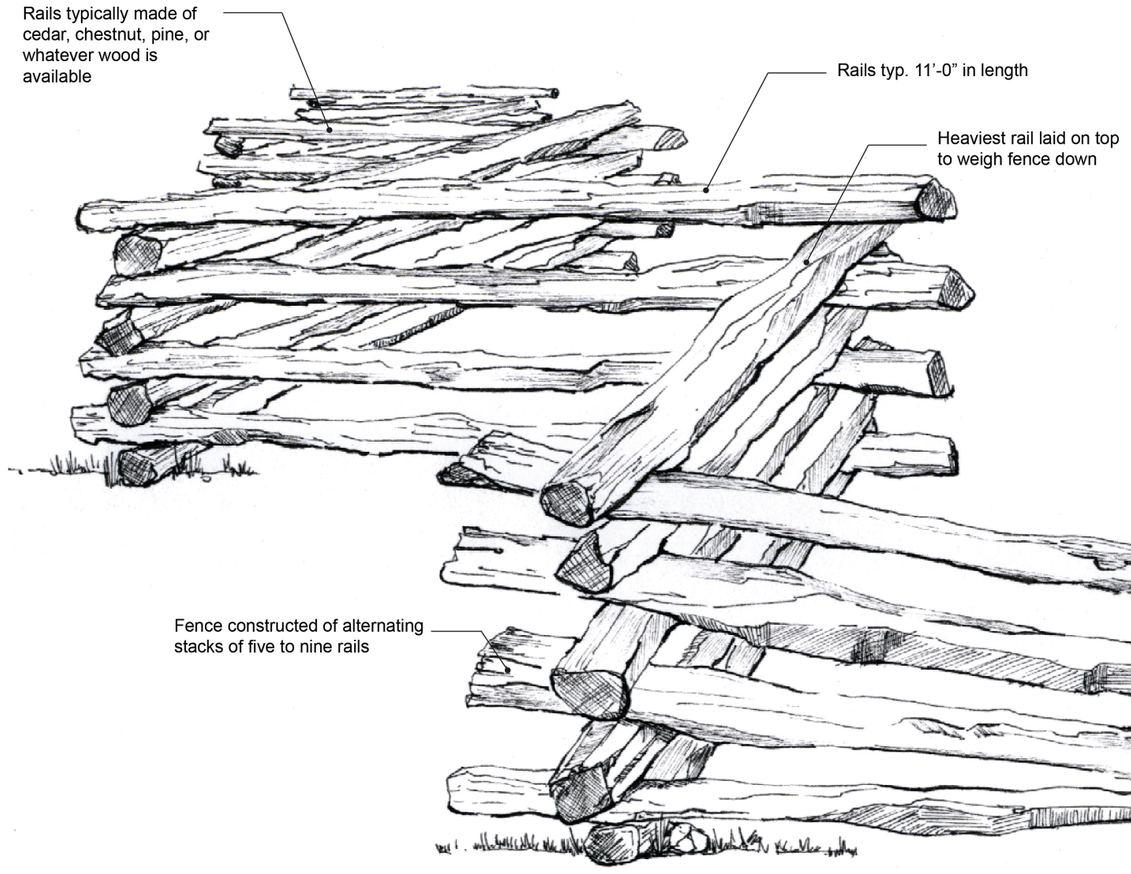
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Fence Lines, Fields, and Forests: Manassas Battlefield CLR

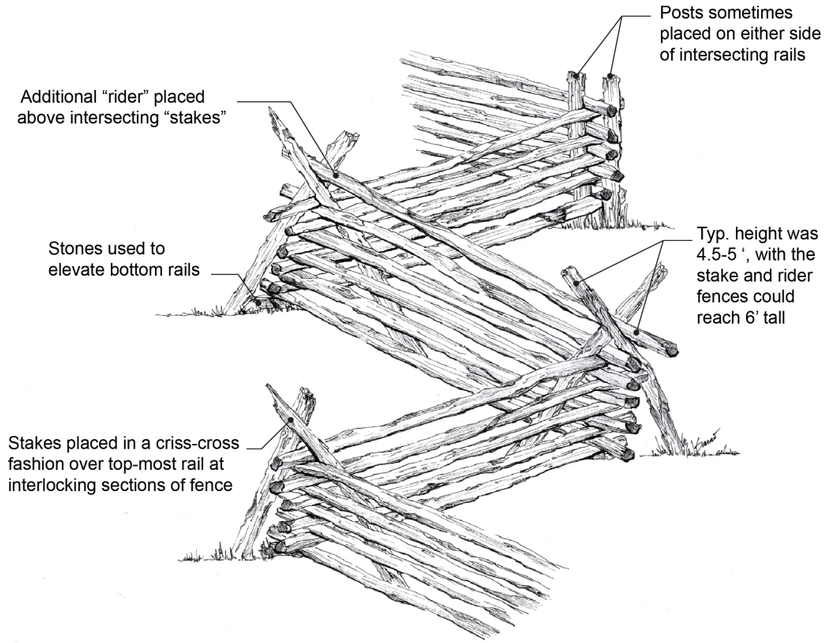


Appendices



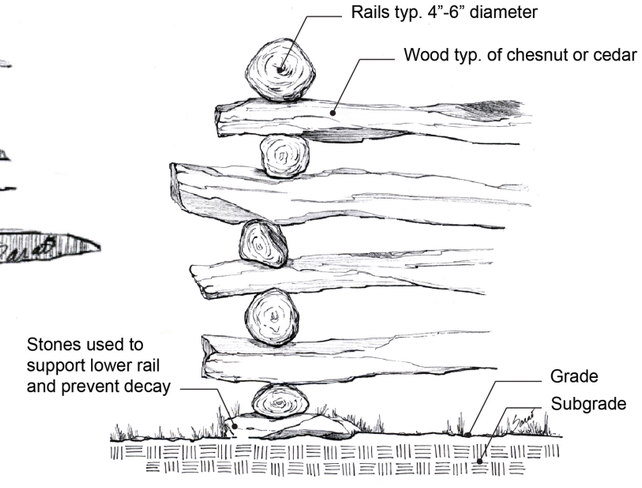
Typical Worm Fence Detail

No scale



Stake-and-Rider Fences Detail

No scale



Worm Fence Detail

No scale

Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Fence Types

Worm Fence

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov

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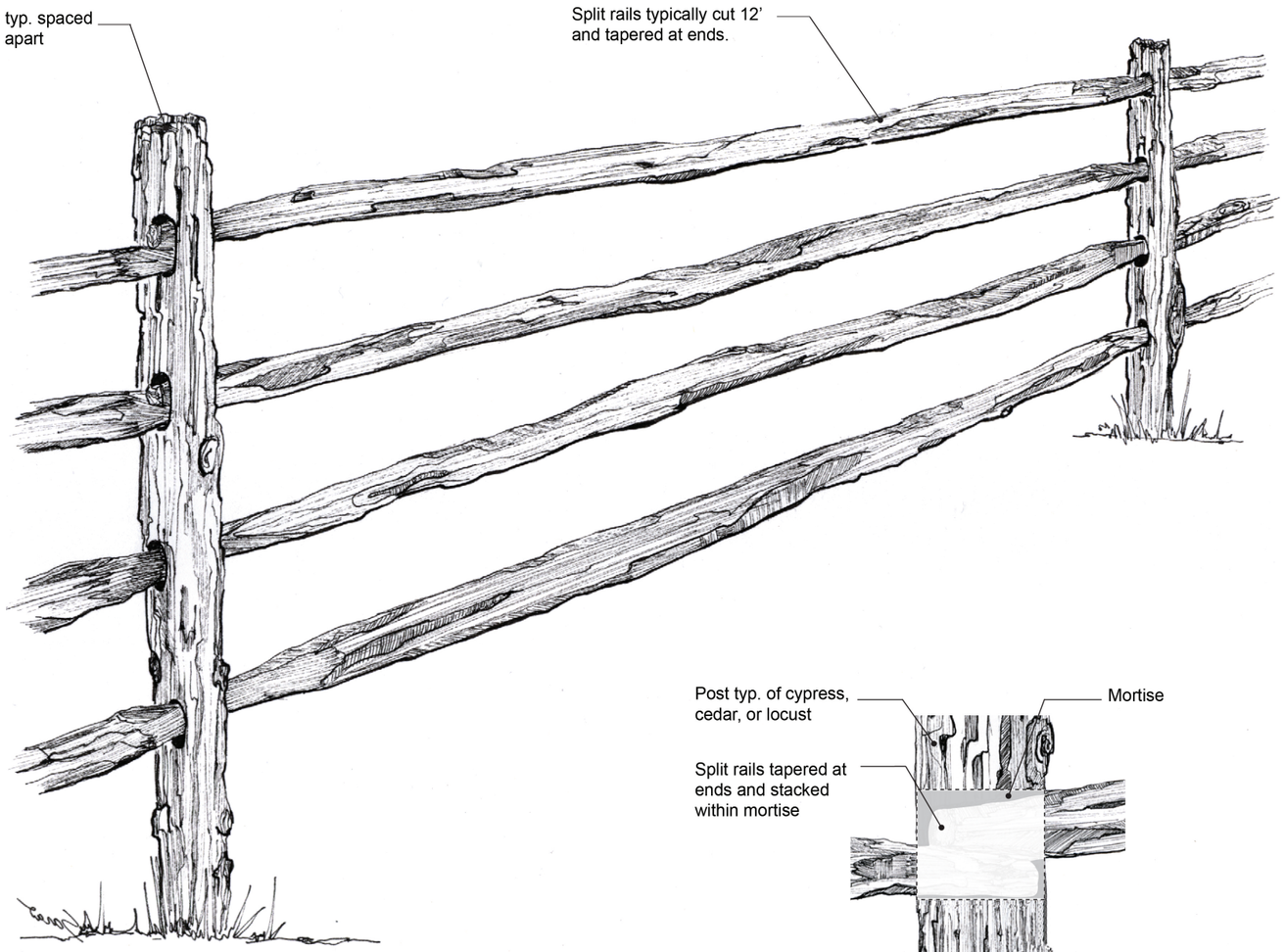
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August 2012

NOTES

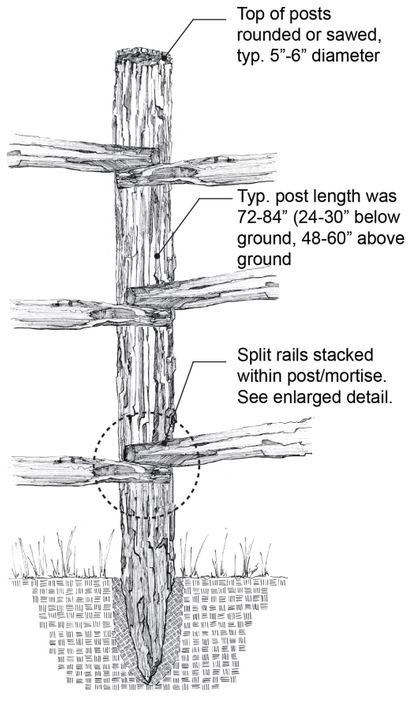
1. The worm fence’s chief advantage was its absence of posts, which required no digging of postholes.
2. The majority of the existing fences at Manassas Battlefield are worm fences with stake-and-riders.
3. At each interlocking section, fence rails were set at a roughly 120-degree angle.

Fence Types, Drawing A-1



Typical Post and Rail Fence Detail

No scale

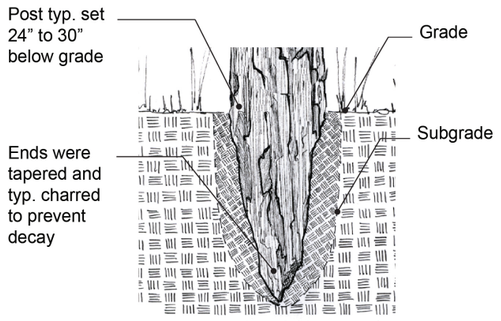


Post and Rail Detail

No scale

Mortise and Rail Detail

No scale



Post to Ground Detail

No scale

Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Fence Types

Post and Rail

National Park Service
National Capital Region
Cultural Landscapes Program
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SOURCES

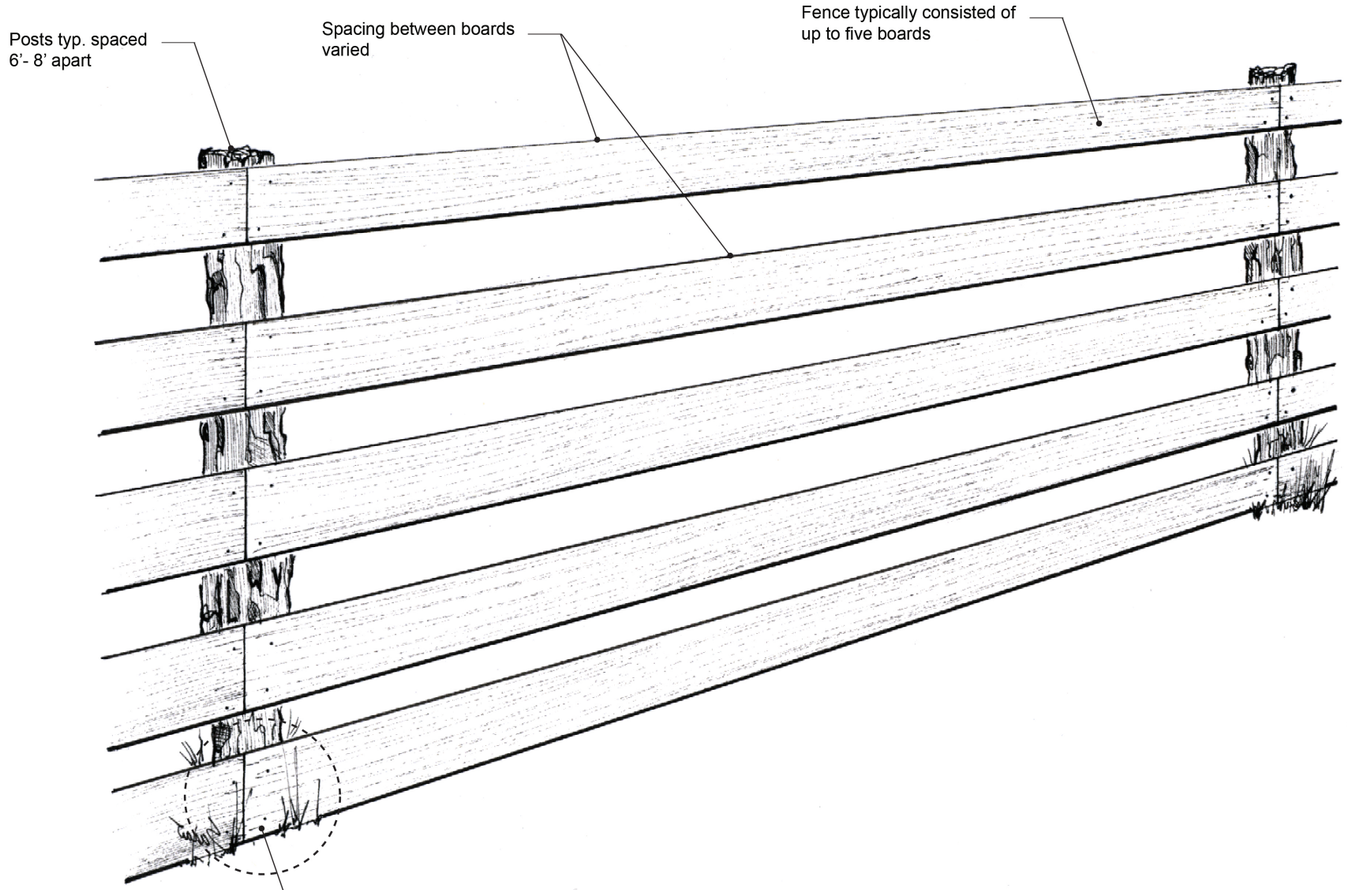
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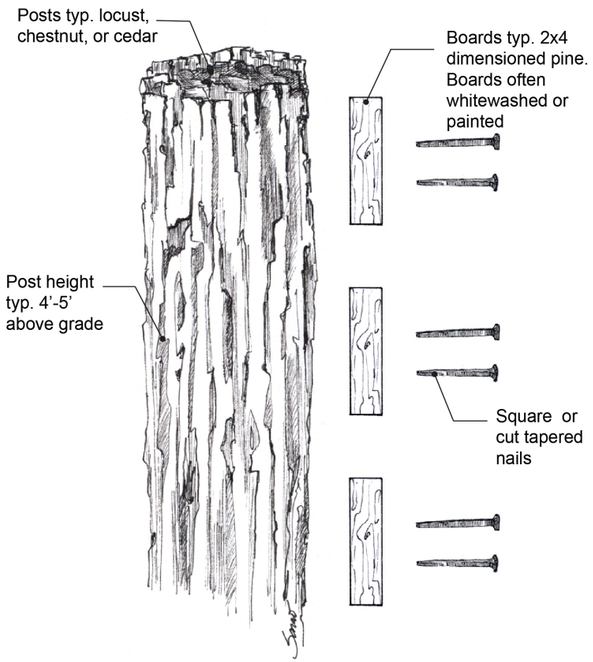
Drawings not to scale

Fence Types, Drawing A-2



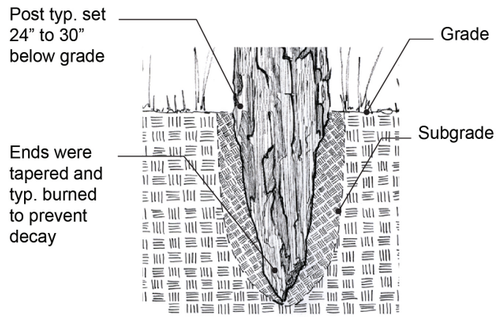
Typical Post and Board Fence Detail

No scale



Post and Board Detail

No scale



Post to Ground Detail

No scale

Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Fence Types

Post and Board

National Park Service
National Capital Region
Cultural Landscapes Program
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SOURCES

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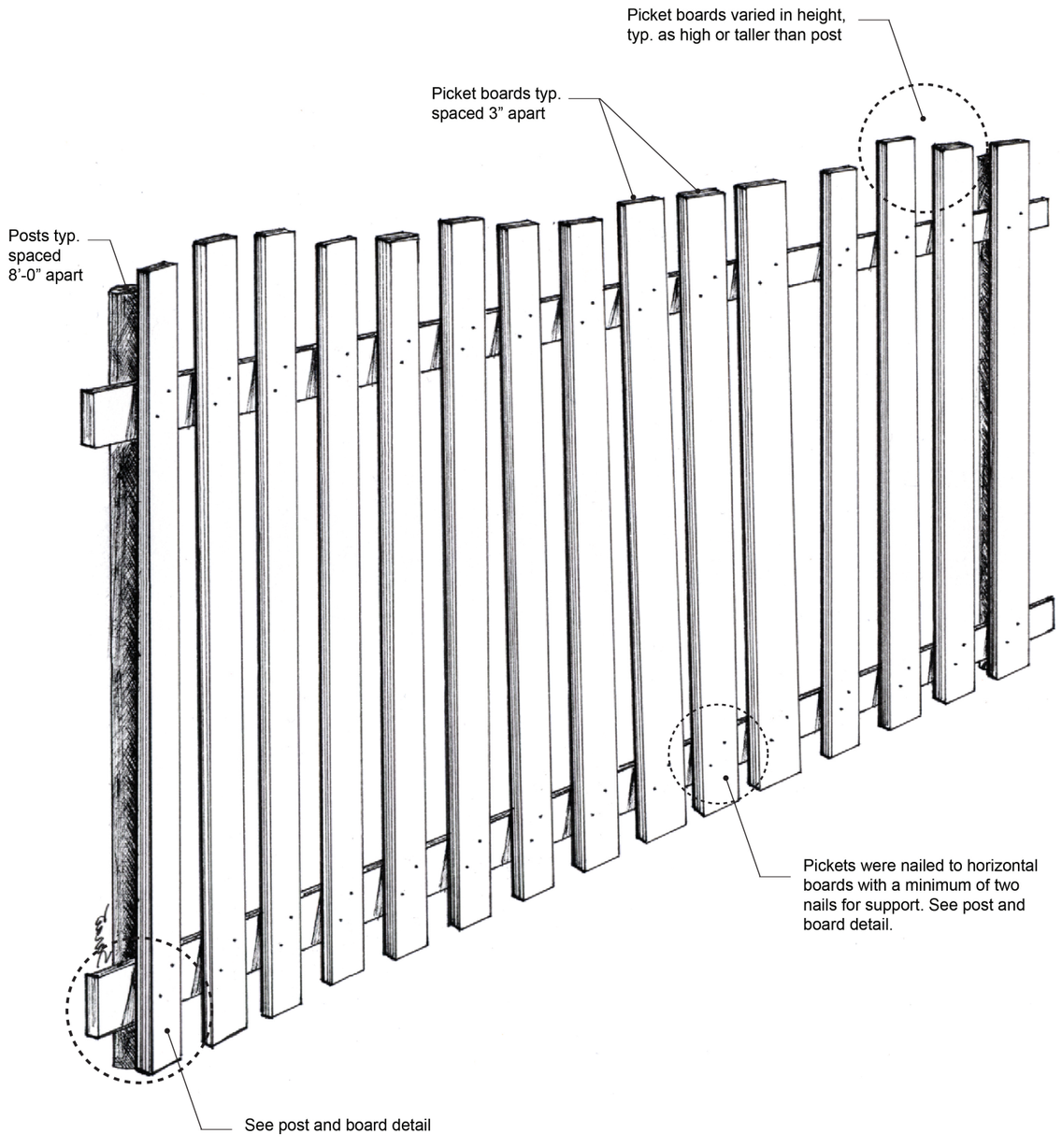
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NOTES
1. Based on historic photographs, posts were sometimes milled lumber too.

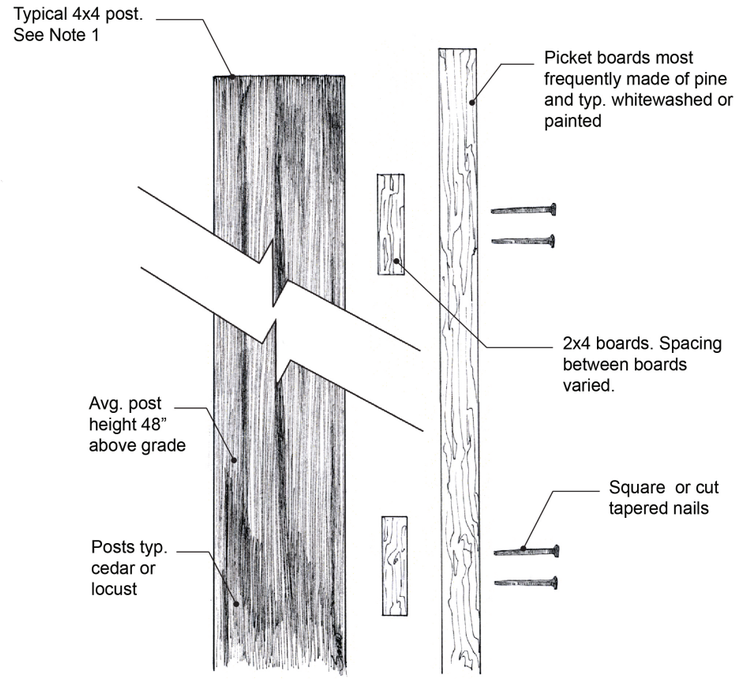
Drawings not to scale

Fence Types, Drawing A-3



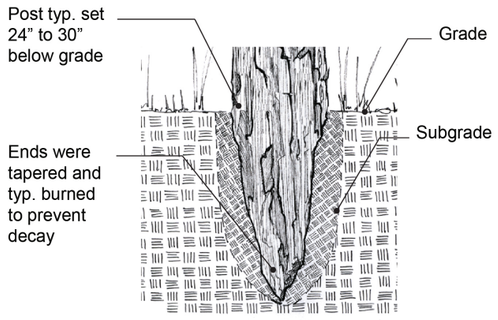
Typical Picket/Paling Fence Detail

No scale



Post and Board Detail

No scale



Post to Ground Detail

No scale

Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Fence Types

Picket/Paling

National Park Service
National Capital Region
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SOURCES

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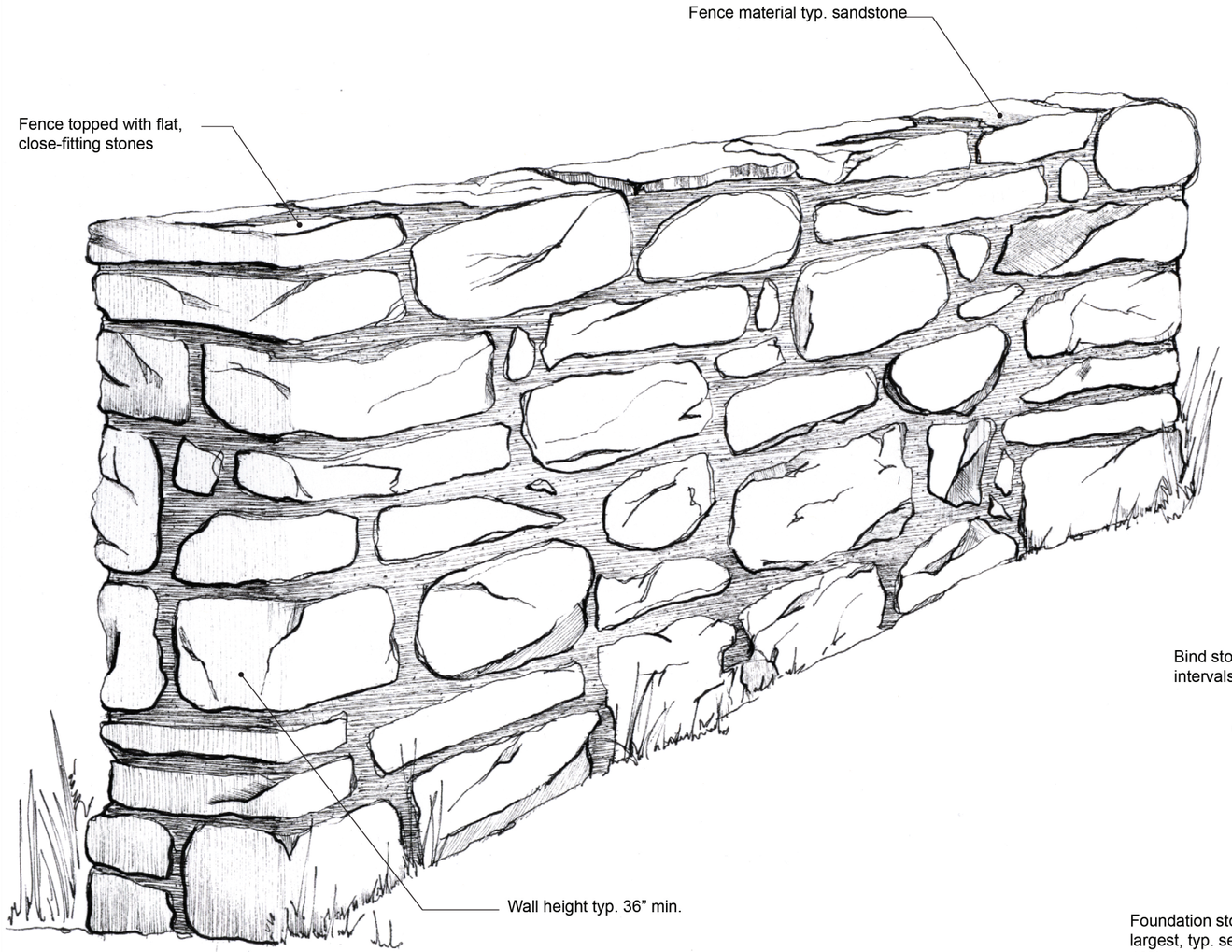
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NOTES
1. Based on historic photographs, posts most likely varied between milled 4x4 lumber and rough wooden logs.

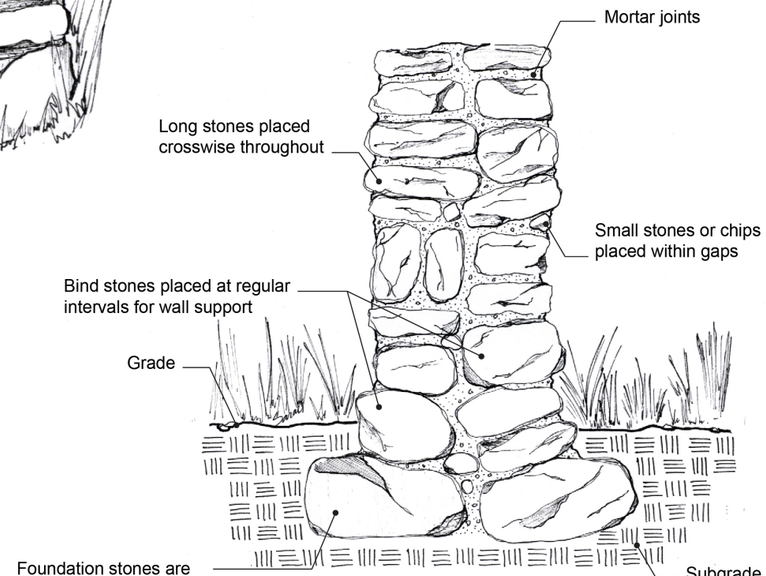
Drawings not to scale

Fence Types, Drawing A-4



Typical Stone Fence Detail

No scale



Stone Fence Section-Detail

No scale

Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Fence Types

Stone

National Park Service
National Capital Region
Cultural Landscapes Program
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SOURCES

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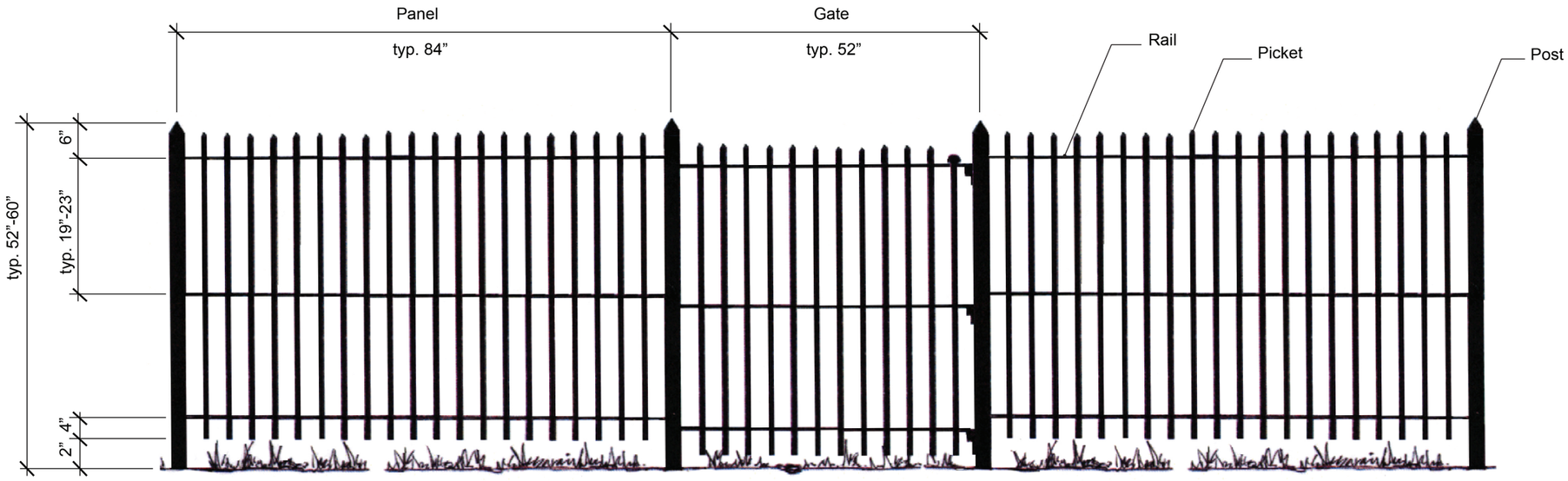
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NOTES

1. The stone fences around Manassas were originally dry-stacked. Mortar was added by the National Park Service at a later date.
2. Stone walls were used for cemetery enclosures because the sandstone material was long-lasting.

Drawings not to scale

Fence Types, Drawing A-5



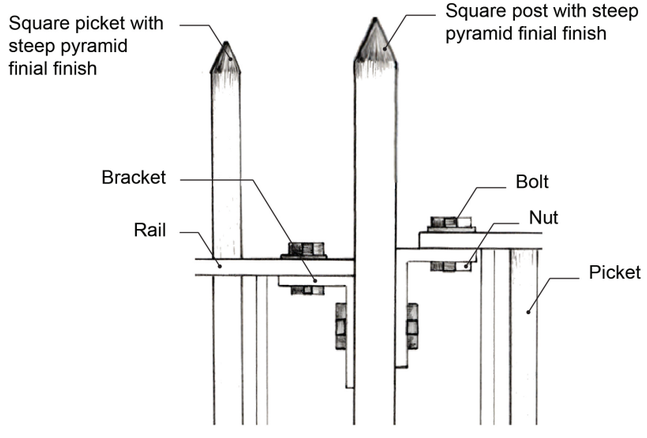
Iron Fence

Henry Cemetery



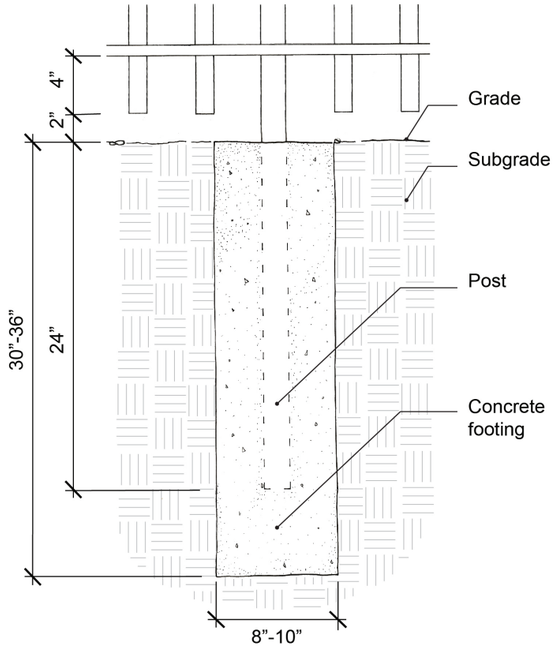
Post Finial

Groveton Cemetery



Panel Connection

Typical for all fence types



Concrete Footing

Typical for all fence types

Fence Lines, Fields, & Forests
Cultural Landscape Report

Manassas National Battlefield Park
Manassas, Virginia

Fence Types

Iron Fence

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National Capital Region
Cultural Landscapes Program
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SOURCES
1. NPS/NCR Photo Collection, 2012

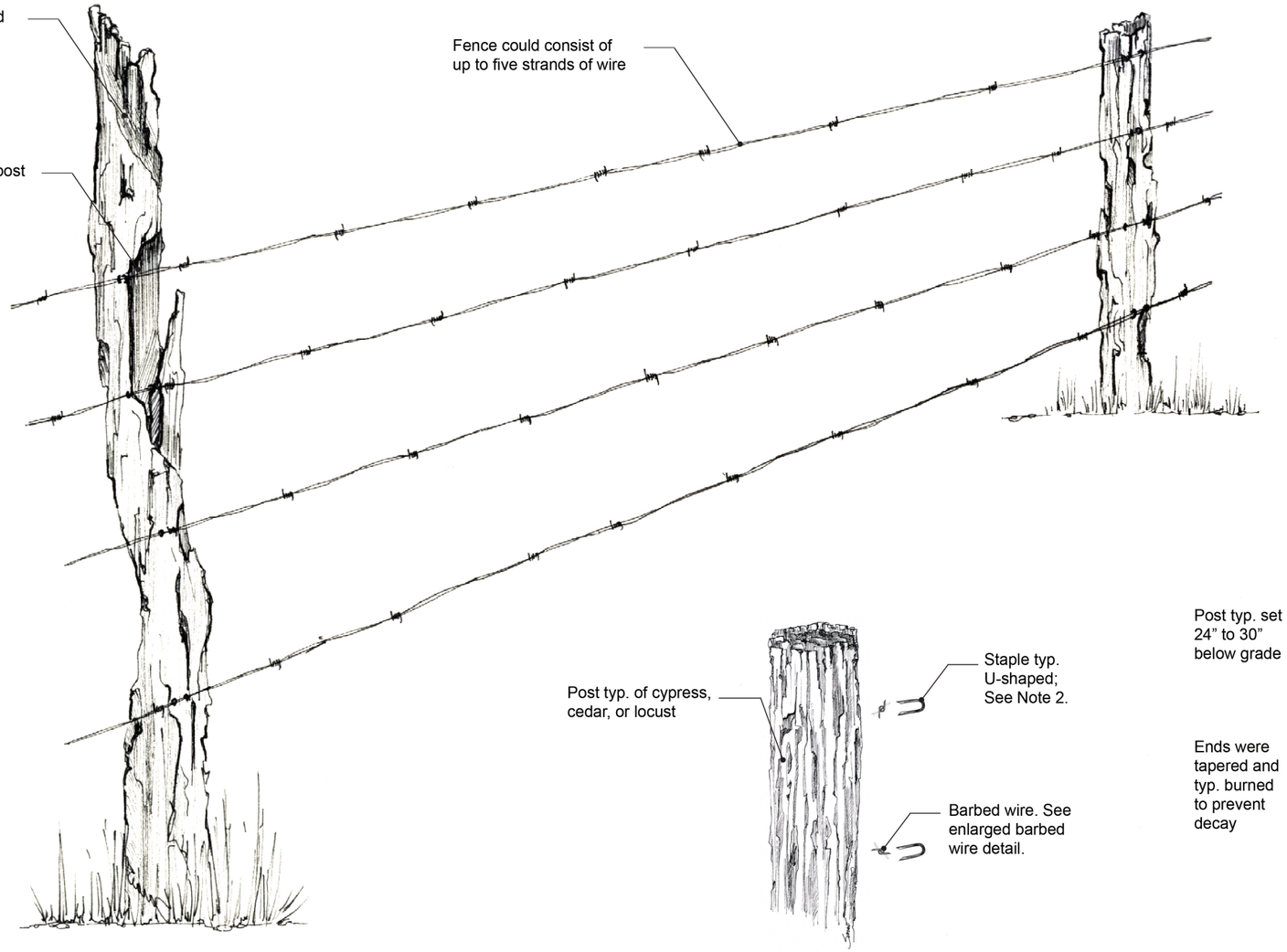
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NOTES
1. Dimensions shown are typical only and vary from fence to fence.
2. Iron fencing at Manassas NBP was installed over a period of time and came to include fences of various shapes, sizes, and styles. There is greater diversity of iron fencing than what these drawings display.
3. It is believed that Manasssas NBP contains both wrought iron (Groveton Cemetery) and cast iron (New York Monuments) iron fencing.

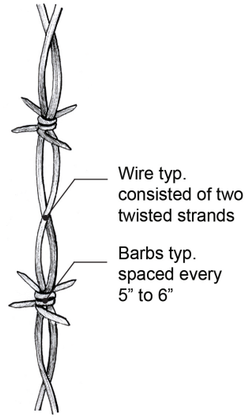
Drawings not to scale

Fence Types, Drawing A-6



Typical Barbed Wire Fence Detail

No scale

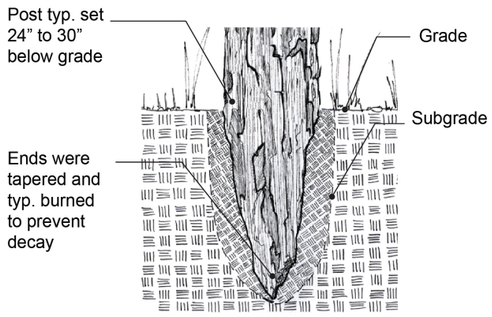


Barbed Wire Detail

No scale

Wire to Post Detail

No scale



Post to Ground Detail

No scale

Fencelines, Fields, & Forests

Cultural Landscape Report

Manassas National Battlefield Park

Manassas, Virginia

Fence Types

Barbed Wire

National Park Service
National Capital Region
Cultural Landscapes Program
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SOURCES

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3. NPS/NCR Photo Collection, 2012

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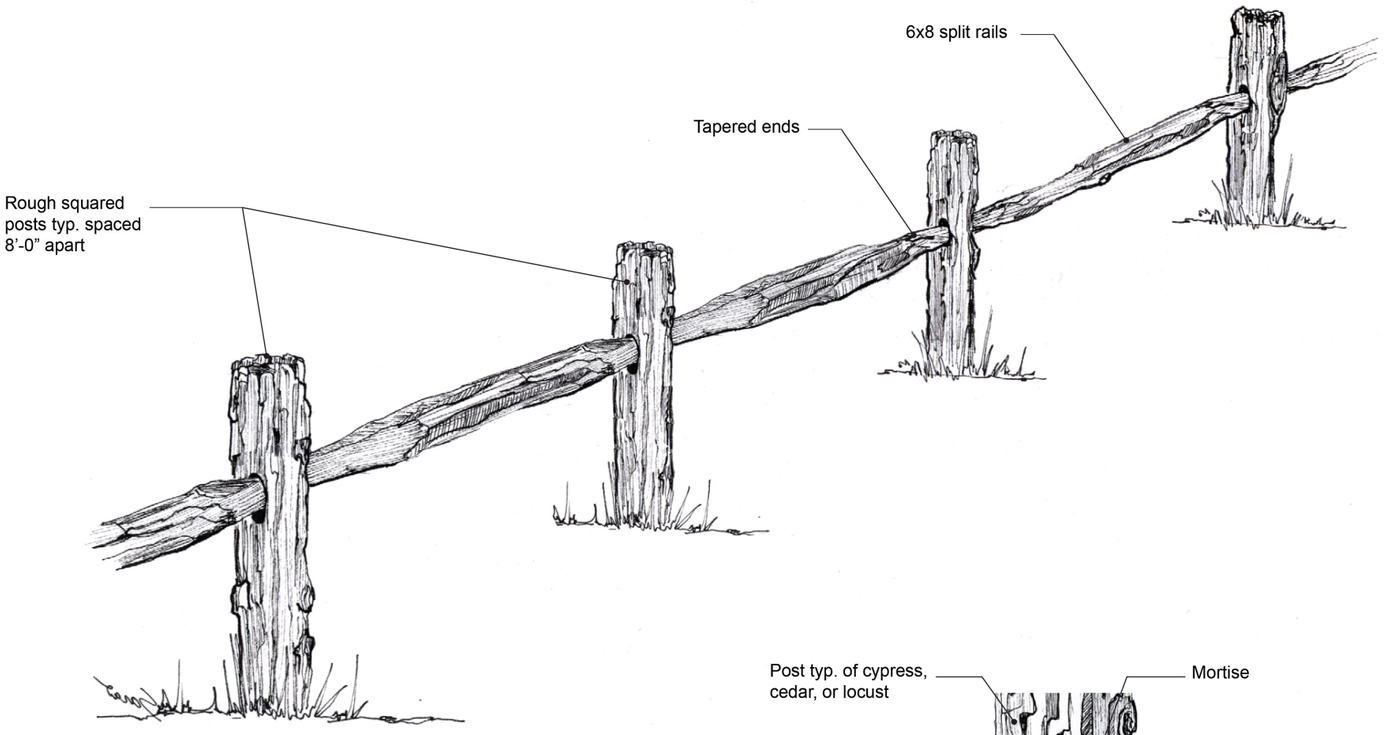
August 2012

NOTES

1. Field observations at Manassas show that barbed wire strands often wrapped twice around post.
2. Staples were typically driven into post at a downward, diagonal angle.
3. Various types of wire fencing are present at the battlefield, some without barbs, and all post-dating the Civil War.
4. Although still present, barbed wire fences at Manassas recieve little maintenance and have filled in with vegetation.

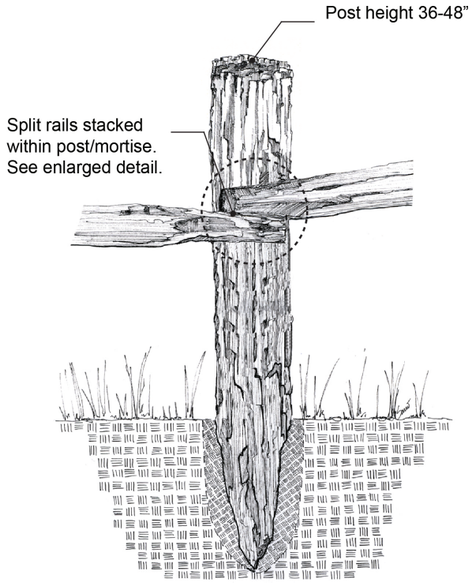
Drawings not to scale

Fence Types, Drawing A-7



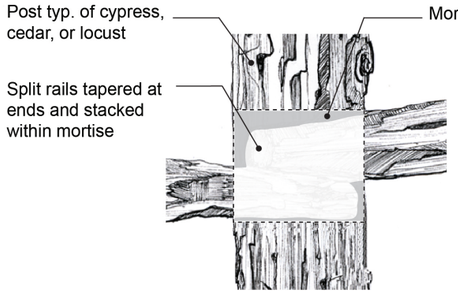
Typical Single Rail Pierced-Post Fence

No scale



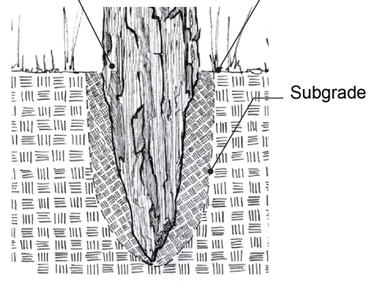
Post and Rail Detail

No scale



Mortise and Rail Detail

No scale



Post to Ground Detail

No scale

Fence Lines, Fields, & Forests

Cultural Landscape Report

Manassas National
Battlefield Park
Manassas, Virginia

Fence Types

Single rail pierced-post fence

National Park Service
National Capital Region
Cultural Landscapes Program
www.nps.gov

SOURCES

1. Darrell A. Norris, "Ontario Fences and the American Scene", The American Review of Canadian Studies, (Summer, 1982)
2. Mamie J. Meredith, "The Importance of Fences to the American Pioneer," Nebraska History, Vol 32, (1952)
3. Mamie J. Meredith, "The Nomenclature of American Pioneer Fences," Southern Folklore Quarterly, Volume XV, Number 2, (June, 1951)
4. Peter J. Harrison, Fences: Authentic Details for Design and Restoration, (New York, John Wiley and Sons, Inc., 1999)
5. Susan Allport, Sermons in Stone: The Stone Walls of New England and New York, (W.W. Norton and Compant, 1994)
6. NPS/NCR Photo Collection, 2012
7. National Park Service, A Sense of Place: Design Guidelines for Yosemite National Park, (Second Edition, 2012)

DRAWN BY

National Park Service, N.Vazquez
National Capital Region/ Cultural Landscapes Program
Illustrator/Photoshop CS4

DATE

August 2012

NOTES

1. Fence can have either one or two rails. More than two rails should be avoided as it will begin to resemble the post-and-rail fence.
2. Posts are secured in compacted, backfilled holes.
3. This fence type is recommended to be used in locations where fencing is needed that were historically unfenced.

Drawings not to scale

Fence Types, Drawing A-8

Whitewash Formula[1]

WHITEWASH MATERIALS:

1. Salt: Common Sodium Chloride
2. Alum: Powdered, Common Potash Aluminum
3. Molasses: Unsulfured, Light Brown/Clear
4. Water: Potable
5. Quick Lime if you want to "slack" it, or Non Caustic, Hydrated Lime if you don't want to "slack" it
6. Optional: Type I or Type II Portland Cement

MIX:

A. 12 pounds salt, 6 ounces alum, and 1 quart molasses dissolved in 1.5 gallons water.
B. 50 pounds (1 sack) quick lime, mix with 5 gallons hot water. Allow to stand for 24 hours. Mix parts "A" & "B" for a brushable consistency.

NOTES:

- It is recommended to substitute white, non-staining, Type I or Type II Portland Cement for ten percent of the lime material to produce a more durable coating.
- Ordinary lime, or quick lime, is caustic. To get the lime you want for whitewash you have to "slack" the quick lime with hot water at least overnight. The result of slacking is hydrated lime, or Ca(OH2). But if the slacking is not complete or thorough it can burn your skin. If you are worried about incomplete slacking, buy hydrated lime instead of quick lime. Regular garden lime, which is really ground limestone, is of no use.
- The whitewash will need repeat applications, especially early on. Once the fence builds up a good coat, this will be less necessary (and the cement will help with this). I would recommend doing two coats within the first year (maybe fall/spring) and then as needed from there on, but likely every 2-3 years. The whitewash can be sprayed on to save time.

[1] This whitewash formula was borrowed from the Crisp Point Light Historical Society webpage, *Historic Whitewash Formula", http://www.crisppointlighthouse.org/formula.html*

L. Preston Bryant, Jr.
Secretary of Natural
Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951 FAX (804) 371-2674

January 25, 2006

Mr. Robert Sutton, Superintendant
Manassas National Battlefield Park
12521 Lee Highway
Manassas, Virginia 20109

Re: Brawner Farm / Deep Cut Vista Enhancement

Dear Mr. Sutton,

Thank you for your careful consideration of our concerns and recommendations regarding the Brawner Farm / Deep Cut Vista Enhancement at the Manassas National Battlefield Park. We recognize that the Park's mission and need for interpretation of cultural resources may limit your ability to incorporate all of our recommendations into your plans for this enhancement.

It is with that understanding that we appreciate your agreeing not to clear two of the three areas we delineated for avoidance. We also commend your effort to leave an occasional extremely old tree within the cleared areas. During the civil war period, it is likely that scattered trees amidst the fields would oak (white or post oak in particular) or perhaps a hickory species.

Also, thank you for agreement on recommendations 2-4 regarding seeding with natives, using prescribed fire, and keeping white-tailed deer populations controlled. We look forward to assisting you in any way possible with these initiatives. I know that your staff is committed to maintaining the biodiversity of your Park while properly interpreting its rich cultural resources.

Sincerely,

J. Christopher Ludwig, Chief Biologist
Division of Natural Heritage

cc: Gary Fleming, VANHP, Bryan Gorsira, MANA

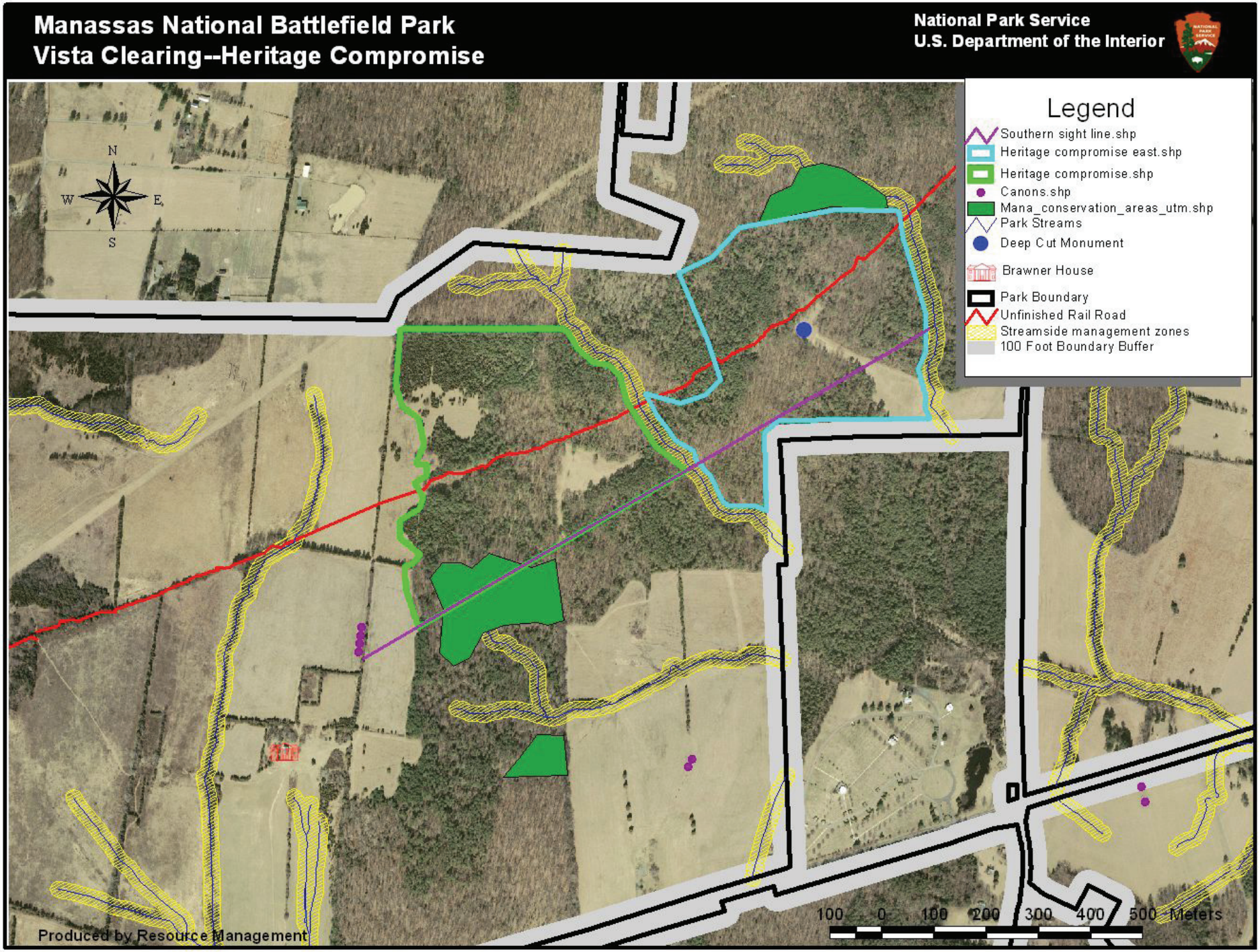

Manassas National Battlefield Park
Vista Clearing--Heritage Compromise
National Park Service
U.S. Department of the Interior
Legend
Southern sight line.shp
Heritage compromise east.shp
Heritage compromise.shp
Canons.shp
Mana_conservation_areas_utm.shp
Park Streams
Deep Cut Monument
Brawner House
Park Boundary
Unfinished Rail Road
Streamside management zones
100 Foot Boundary Buffer
N
W
E
S
100 0 100 200 300 400 500 Meters
Produced by Resource Management

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park						
CLR Treatment Recommendations and Tasks	**Items and Assumptions**	**Sequencing/ Prioritization**	*** NEPA Environmental Compliance/ NHPA Section 106**	**Unit Cost (Range)**	**** Subtotal (Range)**	**Source**
Prior to beginning implementation						
Task 0.0: Conduct an Environmental Assessment (EA) for all aspects of the project related to open field restoration and forest removal	EA may be prepared in-house by MANA and NCRO staff or by a private contractor	Phase 1	Yes, Consider combining NHPA Section 106 Consultation into the EA.	100,000 to complete an EA	$100,000	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible, with input from park Chief of Natural Resources Bryan Gorsira
Task 0.1: Conduct a Phase One Archeological Survey in advance of ground disturbance associated with fence installation in areas that have not previously been surveyed	Phase One Archeological Survey will likely need to be completed by a private contractor	Phase 1	Yes	20,000 to complete the Archeological Assessment	$20,000	Cost estimate provided by NPS National Capital Region archeologist Stephen Potter.
	Subtotal for prior to beginning treatment recommendation implementation			**$120,000**		
General Treatment Recommendations						
Task 1: Continue maintaining the open, pastoral character of the landscape through hay harvesting and mowing	N/A	N/A	N/A	N/A	N/A	N/A
Task 2: Maintain newly restored grasslands through expanded hay harvesting or, when necessary, mowing	N/A	N/A	N/A	N/A	N/A	N/A
Task 3: When necessary, consider alternate means of vegetation management, including goat grazing and prescribed fire	N/A	N/A	N/A	N/A	N/A	N/A
Task 4: When restoring second-growth forests to grasslands, follow the guidelines established in the *Brawner Farm- Deep Cut Vista Enhancement Environmental Assessment*	N/A	N/A	N/A	N/A	N/A	N/A
Task 5: Unless otherwise noted, maintain and preserve the existing inventory of fencing within the park	N/A	N/A	N/A	N/A	N/A	N/A
Task 6: Upon implementation of the Manassas National Battlefield Park Bypass EIS, consider options for eliminating the need for contemporary guardrails within the park, or replacing contemporary guardrails with a design that is compatible with historic character	N/A	N/A	N/A	N/A	N/A	N/A
Task 7: Restoration of historic fence lines should focus on additional field fencing rather than road fencing	N/A	N/A	N/A	N/A	N/A	N/A
Task 8: Preserve historic fencerows	N/A	N/A	N/A	N/A	N/A	N/A
Task 9: Use worm fencing as default fence type for restored fences within the park	N/A	N/A	N/A	N/A	N/A	N/A

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park

CLR Treatment Recommendations and Tasks	Items and Assumptions	Sequencing/ Prioritization	* NEPA Environmental Compliance/ NHPA Section 106	Unit Cost (Range)	** Subtotal (Range)	Source
Task 10: Where historic documentation is available, restore fences to their historic fence type	N/A	N/A	N/A	N/A	N/A	N/A
Task 11: Replace worm fences in non-historic locations with compatible single rail pierced-post fences	N/A	N/A	N/A	N/A	N/A	N/A
Task 12: Consult with an Archeologist before ground disturbance	N/A	N/A	N/A	N/A	N/A	N/A
Treatment Recommendations for Brawner Farmstead						
General Recommendations						
Task 13: Retain existing footprint of Brawner Woods	N/A	N/A	N/A	N/A	N/A	N/A
Vegetation Management						
Task 14.0: Remove thin strip of forest cover along the western edge of Brawner Woods	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	1.5 acres @ 2150/per acre 1.5 acres @ 13482/per acre	$3,225 - $20,223	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 14.1: Thin fencerow north of Brawner Woods to clear space for a restored fence line	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	.25 acres @ 2150/per acre .25 acres @13482/per acre	$537 - $3,371	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Fence Removal/Replacement						
Task 15: Remove the worm fencing south of the Brawner Farmhouse along the former access road	Rails to be salvaged for future fence restoration	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	200 linear feet @ 1.50 per linear foot	$300	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible
Fence Restoration						
Task 16.0: Restore historic fence line along the western edge of Brawner Woods north towards the Unfinished Railroad with a worm fence	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	2850 linear feet @ 10.00 per linear foot 2850 linear feet @ 18.22/per linear foot	$28,500 - $51,927	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 16.1: Restore historic fence line along the eastern edge of Brawner Woods with a worm fence	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	2000 linear feet @ 10.00 per linear foot 2000 linear feet @ 18.22/per linear foot	$20,000 - $36,440	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 16.2: Restore section of road fencing along the Warrenton Turnpike, west of Brawner Woods, with a worm fence	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	400 linear feet @ 10.00 per linear foot 400 linear feet @ 18.22/per linear foot	$4,000 - $7,288	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
	Subtotal (Range) for Brawner Farmstead Treatment Recommendations			**$56,562 - $119,549**		

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park						
CLR Treatment Recommendations and Tasks	**Items and Assumptions**	**Sequencing/ Prioritization**	*** NEPA Environmental Compliance/ NHPA Section 106**	**Unit Cost (Range)**	**** Subtotal (Range)**	**Source**
Treatment Recommendations for Chinn Ridge						
Vegetation Management						
Task 17.0: Clear woods between Chinn Ridge and the New York Monuments and restore to open fields	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	61 acres @ 2150/per acre 61 acres @13482/per acre	$131,150 - $822,402	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 17.1: Thin overgrown fencerow near the midpoint of Chinn Ridge to enhance view towards Stone House and Matthews Hill	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	3 acres @ 2150/per acre 3 acres @13482/per acre	$6,450 - $40,446	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 17.2: Convert second-growth forests to grasslands along the northeastern perimeter of Chinn Ridge to restore view to Henry Hill and the Stone House	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	28 acres @ 2150/per acre 28 acres @13482/per acre	$60,200 - $377,496	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 17.3: Reduce footprint of forest cover at confluence of Chinn and Young's Branch to enhance view towards stone house and Matthews Hill	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	2.5 acres @ 2150/per acre 2.5 acres @13482/per acre	$5,375 - $33,705	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Fence Removal/Replacement						
Task 18.0: Remove the two segments of worm fence along the Chinn Loop Road	Rails to be salvaged for future fence restoration	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	1040 linear feet @ 1.50 per linear foot	$1,560	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible
Task 18.1: Remove the worm fence at the Chinn Ridge parking area and replace with single rail pierced-post fence	- Rails to be salvaged for future fence restoration - Single rail pierced-post fence - Consult with an archeologist prior to soil disturbance	Phase 3	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard Review Process (Potential for adverse effect with soil disturbance related to post hole setting)	Fence removal: 1040 linear feet @ 1.50 per linear foot Fence Construction: 600 linear feet @ 10.00 per linear foot 600 Linear feet @ 18.22 per linear foot	Fence removal: $900 Fence construction: $6,000 - $10,932	Fence Removal: Cost estimated by CLR preparer and Landscape Architect Daniel Schaible Fence Construction: Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 18.2: Remove the worm fence from the modern road alignment and replace it with a worm fence along the abandoned historic road alignment	Rails to be salvaged for future fence restoration	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	Fence removal: 2450 linear feet @ 1.50 per linear foot Fence Construction: 1500 linear feet @ 10.00 per linear foot 1500 Linear feet @ 18.22 per linear foot	Fence removal: $3,675 Fence construction: $15,000 - $27,330	Fence Removal: Cost estimated by CLR preparer and Landscape Architect Daniel Schaible Fence Construction: Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Fence Restoration						
Task 19.0: Continue existing worm fence line westward to opposite side of Second Manassas Trail	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	190 linear feet @ 10.00 per linear foot 190 linear feet @ 18.22/per linear foot	$1,900 - $3,462	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park

CLR Treatment Recommendations and Tasks	Items and Assumptions	Sequencing/ Prioritization	* NEPA Environmental Compliance/ NHPA Section 106	Unit Cost (Range)	** Subtotal (Range)	Source
Task 19.1: Thin overgrown fencerow near the midpoint of Chinn Ridge and replace with a worm fence	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	850 linear feet @ 10.00 per linear foot 850 linear feet @ 18.22/per linear foot	$8,500 - $15,487	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
	Subtotal (Range) for Chinn Ridge Treatment Recommendations			**$240,710 - $1,337,395**		
Treatment Recommendations for Deep Cut/Unfinished Railroad						
Vegetation Management						
Task 20.0: In consultation and partnership with the Civil War Trust, clear woods at Dogan Farm tract and convert to open fields	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2 (contingent on Congressional Action and consultation with the Civil War Trust)	NEPA- EA NHPA- Streamlined review	33 acres @ 2150/per acre 33 acres @13482/per acre	$70,950 - $444,906	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 20.1 : Restore the four eastern red cedar trees that were historically located upon the berm at the corners of the Groveton Monument	- four 25 gallon unglazed clay pots - four eastern red cedars, 3 feet in height	Phase 2	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard Review Process (Potential for adverse effect with soil disturbance related to tree planting)		$1,000	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible
Fence Restoration						
Task 21: Restore the historic fence line that runs parallel to the southeastern edge of the Unfinished Railroad with worm fencing	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	500 linear feet @ 10.00 per linear foot 500 linear feet @ 18.22/per linear foot	$5,000 - $9,110	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
	Subtotal (Range) for Deep Cut Treatment Recommendations			**$76,950 - $455,016**		
Treatment Recommendations for Henry Hill						
General Recommendations						
Task 22.0: Maintain worm fence around Robinson House	N/A	N/A	N/A	N/A	N/A	N/A
Task 22.1: Maintain worm fence around Henry House	N/A	N/A	N/A	N/A	N/A	N/A
Vegetation Management						
Task 23.0: Preserve the eastern red cedar to the northeast of the Henry Hill visitor center, which is believed to be a witness tree	N/A	N/A	N/A	N/A	N/A	N/A

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park						
CLR Treatment Recommendations and Tasks	**Items and Assumptions**	**Sequencing/ Prioritization**	*** NEPA Environmental Compliance/ NHPA Section 106**	**Unit Cost (Range)**	**** Subtotal (Range)**	**Source**
Task 23.1: Clear small stand of trees near service road to Henry House to enhance view between Henry Hill and Chinn Ridge	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	.5 acres @ 2150/per acre .5 acres @13482/per acre	$1,075 - $6,741	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 23.2: Thin fencerow that extends from just north of the Robinson House site westward	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	.12 acres @ 2150/per acre .12 acres @13482/per acre	$258 - $1,617	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 23.3: Restore the four eastern red cedar trees that were historically located at the base of the berm at the corners of the Henry Hill Monument	- four 25 gallon unglazed clay pots - four eastern red cedars, 6 feet in height	Phase 2	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard Review Process (Potential for adverse effect with soil disturbance related to tree planting)		$1,200	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible
Task 23.4: Clear woods that have encroached into the former corn field near Young's Branch	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	4.5 acres @ 2150/per acre 4.5 acres @13482/per acre	$9,675 - $60,669	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Fence Restoration						
Task 24.0: Restore the diagonal fence line around the historic cornfield in the northwestern portion of Henry Hill	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	1450 linear feet @ 10.00 per linear foot 1450 linear feet @ 18.22/per linear foot	$14,500 - $26,419	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 24.1: Restore the fence line that extends westward from the southwest corner of the Robinson farmyard to the ravine along the unnamed tributary to Young's Branch	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	750 linear feet @ 10.00 per linear foot 750 linear feet @ 18.22/per linear foot	$7,500 – $13,665	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
	Subtotal (Range) for Henry Hill Treatment Recommendations			**$34,208 - $110,311**		
Treatment Recommendations for Matthews Hill						
Vegetation Management						
Task 25.0: Clear woods on Matthews Hill at the former site of Martin Matthews' farmhouse	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	39 acres @ 2150/per acre 39 acres @13482/per acre	$83,850 - $525,798	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 25.1: Clear woods at the curve in Sudley Road and restore to open fields	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	3 acres @ 2150/per acre 3 acres @13482/per acre	$6,450 - $40,446	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Fence Restoration						
Task 26.0: Restore the historic picket fence at the site of the Martin Matthews farmhouse	- Picket Fence - Consult with an archeologist prior to soil disturbance	Phase 3	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard	700 linear feet @ 10.00 per linear foot 700 linear feet @ 18.22/per linear foot	$7,000 - $12,754	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park						
CLR Treatment Recommendations and Tasks	**Items and Assumptions**	**Sequencing/ Prioritization**	*** NEPA Environmental Compliance/ NHPA Section 106**	**Unit Cost (Range)**	**** Subtotal (Range)**	**Source**
			Review Process (Potential for adverse effect with soil disturbance related to post hole setting)			
Task 26.1: Restore historic fence line along existing forest margin south of Martin Matthews' farmstead site with a worm fence	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	1400 linear feet @ 10.00 per linear foot 1400 linear feet @ 18.22/per linear foot	$14,000 - $25,508	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 26.2: Restore historic fence line between the Sudley Road and the existing forest margin, following the existing fencerow, with a worm fence	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	900 linear feet @ 10.00 per linear foot 900 linear feet @ 18.22/per linear foot	$9,000 - $16,398	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 26.3: Restore historic fence line on John Dogan property, following the existing fencerow alignment, with a worm fence	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	1900 linear feet @ 10.00 per linear foot 1900 linear feet @ 18.22/per linear foot	$19,000 - $34,618	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
	Subtotal (Range) for Matthews Hill Treatment Recommendations			**$139,300 - $655,522**		
Treatment Recommendations for Sudley/Thornberry House						
Vegetation Management						
Task 27.0: Preserve the white oak to the west of the Thornberry House, which is believed to be a witness tree	N/A	N/A	N/A	N/A	N/A	N/A
Task 27.1: Restore open fields to the landscape surrounding the Thornberry House	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	3.5 acres @ 2150/per acre 3.5 acres @13482/per acre	$7,525 - $47,187	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Task 27.2: Clear woods west of the Unfinished Railroad to open up the "Rocky Knoll"	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	13.5 acres @ 2150/per acre 13.5 acres @13482/per acre	$29,025 - $182,007	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Fence Restoration						
Task 28: Restore the historic picket, post-and-rail, and worm fence at the Thornberry House	- Picket Fence, Post-and-Rail, Worm Fence - Consult with an archeologist prior to soil disturbance	Phase 3	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard Review Process (Potential for adverse effect with soil disturbance related to post hole setting)	265 linear feet @ 10.00 per linear foot 265 linear feet @ 18.22/per linear foot	$2,650 - $4,828	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
	Subtotal (Range) for Sudley-Thornberry Treatment Recommendations			**$39,200 - $234,022**		
Treatment Recommendations for Other Areas						

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park

CLR Treatment Recommendations and Tasks	Items and Assumptions	Sequencing/ Prioritization	* NEPA Environmental Compliance/ NHPA Section 106	Unit Cost (Range)	** Subtotal (Range)	Source
Vegetation Management						
Task 29.0: Reforest areas that have been previously identified in the General Management Plan	- Cessation of mowing and hay harvesting - Allow reforestation through natural succession	Phase 2	NEPA- Categorical exclusion NHPA- Streamlined review	85 acres @0.00/per acre	$0.00	As advised by MANA Chief of Natural Resources, Bryan Gorsira
Task 29.1: Remove mature white poplars from area around Stone House and replace with big-tooth aspen saplings	- Flush cut trees when removing - Consult with an archeologist prior to soil disturbance	Phase 3	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard Review Process (Potential for adverse effect with soil disturbance)	$3,000	$3,000	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible
Task 29.2: Clear woods in areas that are identified in the GMP and restore to open conditions	- large timber hauled away - brush and limbs chipped and hauled away - 50ft vegetated buffer should be maintained around all streams	Phase 2	NEPA- EA NHPA- Streamlined review	70 acres @ 2150/per acre 70 acres @13482/per acre	$150,500 - $943,740	Based on cost of Brawner/Deep Cut Restoration ($300k for 140 acres) RS Means 2010
Fence Removal/Replacement						
Task 30.0: Remove fencing from entrance to Stuart Hill administrative headquarters and along the Stuart Hill Admin area road	Rails to be salvaged for future fence restoration	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	1000 linear feet @ 1.50 per linear foot	$1,500	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible
Task 30.1: Remove fencing along the east side of the Groveton Road, south of the intersection at Groveton	Rails to be salvaged for future fence restoration	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	300 linear feet @ 1.50 per linear foot	$450	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible
Task 30.2: Remove fencing along the Groveton-Sudley Road, just west of the Unfinished Railroad, and replace the portion near the Unfinished Railroad parking area and trailhead with single rail, pierced-post fencing	- Rails to be salvaged for future fence restoration - Single rail pierced-post fence - Consult with an archeologist prior to soil disturbance	Phase 3	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard Review Process (Potential for adverse effect with soil disturbance related to post hole setting)	Fence removal: 965 linear feet @ 1.50 per linear foot Fence Construction: 75 Linear feet @ 10.00 per linear foot 75 Linear feet @ 18.22 per linear foot	Fence removal: $1447 Fence construction: $750 - $1,366	Fence Removal: Cost estimated by CLR preparer and Landscape Architect Daniel Schaible Fence Construction: Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 30.3: Remove the worm fence along the entrance road and parking area at Battery Heights and replace the fencing at the parking area with single rail pierced-post fence	- Rails to be salvaged for future fence restoration - Single rail pierced-post fence - Consult with an archeologist prior to soil disturbance	Phase 3	NEPA- Categorical exclusion NHPA- Possibly requires Section 106 Standard Review Process (Potential for adverse effect with soil disturbance related to post hole setting)	Fence removal: 625 linear feet @ 1.50 per linear foot Fence Construction: 180 Linear feet @ 10.00 per linear foot 180 Linear feet @ 18.22 per linear foot	Fence removal: $937 Fence construction: $1,800 - $3,279	Fence Removal: Cost estimated by CLR preparer and Landscape Architect Daniel Schaible Fence Construction: Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 30.4: Remove the small amount of worm fencing along the Groveton Road at the entrance to the large parking area	- Rails to be salvaged for future fence restoration	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	Fence removal: 65 linear feet @ 1.50 per linear foot	Fence removal: $97	Cost estimated by CLR preparer and Landscape Architect Daniel Schaible\
Fence Restoration						

Table 3: Landscape Construction Class D Cost Estimate for Manassas National Battlefield Park						
CLR Treatment Recommendations and Tasks	**Items and Assumptions**	**Sequencing/ Prioritization**	*** NEPA Environmental Compliance/ NHPA Section 106**	**Unit Cost (Range)**	**** Subtotal (Range)**	**Source**
Task 31.0: Restore historic fence line along the Warrenton Turnpike near the park's western entrance with worm fencing	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	825 Linear feet @ 10.00 per linear foot 825 linear feet @ 18.22/per linear foot	$8,250 - $15,031	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
Task 31.1: Restore historic fence line at southwest and northwest corner of Groveton junction, with worm fencing	Worm Fence	Phase 3	NEPA- Categorical exclusion NHPA- Streamlined review	700 Linear feet @ 10.00 per linear foot 700 linear feet @ 18.22/per linear foot	$7,000 - $12,754	Based on estimated provided by Dave Ammon, Acting MANA Chief of Facilities RS Means 2010
	Subtotal (Range) for Other Areas Treatment Recommendations			**$175,731 - $983,601**		
	SUBTOTAL (RANGE) BEFORE ADD-ONS			**$882,661 – $4,015,416**		
Compliance Add-on (Range)	**5% of Project Net Cost**			**$44,133 – $200,770**		
Construction Management Add-on (Range)	**8% of Project Net Cost**			**$70,613 – $321,233**		
Construction Contingency Add-on (Range)	**10% od Project Net Cost**			**$88,266 – $401,542**		
	CLASS D ESTIMATE TOTAL COST			***** $1,085,673 - $4,938,961**		

* Some treatment actions, such as the restoration of historic worm fences, will require lesser degrees of NEPA/NHPA compliance. These individual treatment actions may be implemented independent from the full suite of treatment recommendations, which will require an EA and Section 106 Standard Review Process.

** The principle reason for the sizable difference between the low-end price range and the high-end price range are uncertainties related to the vegetation management recommendations. For landscape restoration efforts, the low-end figure is based upon the per acre cost for implementing the Brawner/Deep Cut Restoration. The Brawner/Deep Cut Restoration was relatively inexpensive because the harvestable timber included in the cut offset the overall cost of the restoration. In addition, the terrain and vegetative cover of the Brawner/Deep Cut Restoration allowed for relatively efficient removal of forest cover utilizing heavy machinery. At this point, it is undetermined if the outstanding plots of land that have been identified for restoration to open conditions contain harvestable timber or if they have terrain that is conducive to the use of heavy machinery. Once a determination of these factors has been made, the gap between the low-end and high-end price should narrow substantially.

*** If the total cost is prohibitively expensive, consideration should be given to eliminating some of the Vegetation Management task items related to converting woods into open fields as these are the most expensive line items. Combined, these treatment recommendations account for 63 percent of the low-end cost and 87 percent of the high-end cost (the total cost of implementation without these treatment recommendations would be $395,426 - $649,121).

National Park Service
U.S. Department of the Interior

Manassas National Battlefield
6511 Sudley Road
Manassas VA 20109

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