COMMONWEALTH of VIRGINIA

Areas Recommended for Natural Heritage Surveys at Four Mid-Atlantic National Parks: Fredericksburg and Spotsylvania National Military Park, George Washington Birthplace National Monument, Richmond National Battlefield Park, and Petersburg National Battlefield

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CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

AREAS RECOMMENDED FOR NATURAL HERITAGE SURVEYS AT FOUR MID-ATLANTIC NATIONAL PARKS: FREDERICKSBURG AND SPOTSYLVANIA NATIONAL MILITARY PARK, GEORGE WASHINGTON BIRTHPLACE NATIONAL MONUMENT, RICHMOND NATIONAL BATTLEFIELD PARK, AND PETERSBURG NATIONAL BATTLEFIELD

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INTRODUCTION

In July 2002, the National Park Service (NPS), Northeast Region, entered into a cooperative agreement with the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) to conduct an analysis of the potential for natural heritage resources at four Virginia NPS units: Fredericksburg and Spotsylvania National Military Park, George Washington Birthplace National Monument, Richmond National Battlefield Park, and Petersburg National Battlefield. The agreement required that DCR-DNH develop a list of rare plants, rare animals, and significant natural communities that could potentially occur in each park and map areas within each park where those resources could potentially occur.

DCR-DNH is the state agency responsible by statutory authority under the Virginia Natural Area Preserves Act (§10.1-209 through 217, *Code of Virginia*) for inventory, database maintenance, protection, and management of Virginia's natural heritage resources. Such resources are defined as the habitats of rare, threatened, or endangered plant and animal species, rare or state significant communities, and other natural features. The Division represents the first comprehensive attempt to identify the Commonwealth's most significant natural areas through ongoing scientific biological survey.

For the purpose of this study, rare plants and animals are defined as: 1) species federally listed by the US Fish and Wildlife Service pursuant to the Endangered Species Act of 1973, as amended, in the categories of Endangered or Threatened, Proposed Endangered or Threatened, and Candidate; 2) Species state listed in Virginia pursuant to the Virginia Endangered Species Act or the Virginia Endangered Plant and Insect Act in the categories of Endangered, Threatened, Special Concern, and Candidate; and 3) Natural Heritage Program species with global rankings of G1, G2, G3, T1, T2, or T3 and state rankings of S1, S2, SH, or SX. Please see Appendix A for an explanation of these ranks.

An ecological community is an assemblage of co-existing, interacting species, considered together with the physical environment and associated ecological processes, which usually recurs on the landscape. A natural community is an ecological community that has experienced only minimal human alteration or has recovered from anthropogenic disturbance under mostly natural regimes of species interaction and disturbance. Significant natural communities are defined by DCR-DNH to include both outstanding examples of common community types (e.g., old-growth mixed hardwood forest) and all examples of rare community types (e.g., certain seepage-influenced, fire-maintained wetlands). No legal status is conveyed by this designation. Community nomenclature follows the Natural Communities of Virginia by Fleming et al., 2004. Rare species and significant natural communities are collectively referred to in this report as "natural heritage resources."

All biological information gathered through DCR-DNH inventory is incorporated into DCR-DNH's Biotics data management system (Biotics). Biotics is a sophisticated data system in which information on ecosystems and species, their biology, habitats, locations, conservation status, and management needs is maintained and updated. DCR-DNH, as part of an international

network of Natural Heritage Programs coordinated by NatureServe, uses standardized inventory methodologies and database management technologies such as Biotics.

This analysis is envisioned as the first stage of a comprehensive inventory of the four parks for natural heritage resources. A cursory natural heritage inventory of the four units was conducted in 1990-91 as part of an inventory of eight Mid-Atlantic parks (Ludwig et al., 1993; Ludwig and Pague, 1993a, 1993b, 1993c). Resources for that study were limited, however, and priority was given to Shenandoah National Park. In addition, with the maturation of DCR-DNH since the early 1990s, general knowledge of Virginia's rare species and significant communities has greatly increased. Additional inventory work is needed, therefore, to develop a more complete picture of the natural heritage resources in those four parks.

The natural heritage resources survey areas designated in this report are designed for NPS planning purposes only and are not mandated by federal or state regulation. They are simply areas where DCR-DNH recommends field surveys for rare species and significant natural communities before any significant land altering activity is undertaken.

METHODS

To develop the lists of potential rare species and significant natural communities, known natural heritage resources from within and from the vicinity of each park were obtained from Biotics and reviewed. Information contained in Biotics was derived from DCR-DNH fieldwork, other knowledgeable individuals, scientific literature, and from the examination of collections from the following institutions: College of William and Mary, George Mason University, Longwood College, Lynchburg College, National Arboretum, Old Dominion University, University of Richmond, U.S. Museum of Natural History (Smithsonian Institution), University of North Carolina, Virginia Commonwealth University, Virginia Polytechnic Institute and State University, Carnegie Museum, Lord Fairfax Community College, Eastern Mennonite College, and Virginia Museum of Natural History.

The NPSpecies databases were checked for the four parks. These NPS databases contain lists of vascular plants and vertebrate animals reported for various NPS units. The lists were compiled from a combination of specimen and sight records (Jen Keefer, NPS, pers. comm.). The plant list for Richmond National Battlefield Park contains two Virginia rare species: *Desmodium cuspidatum* (toothed tick-trefoil) and *Juncus articulatus* (jointed rush). *Juncus articulatus* is known in Virginia only from the mountains (Harvill et al. 1992); it is almost certain that the park record is an error. *Desmodium cuspidatum* is a plausible record for the Richmond National Battlefield Park area, and was added to the list of potential plants for the park.

The NPSpecies plant list for Petersburg National Battlefield contains five Virginia rare plants: *Desmodium sessilifolium* (sessile-leaf tick-trefoil), *Desmodium strictum* (pineland tick-trefoil), *Desmodium tenuifolium* (slim-leaf tick-trefoil), *Juniperus communis* (ground juniper), and

Utricularia fibrosa (=*U. striata*, fibrous bladderwort). *Juniperus communis* is found in Virginia only on mountain summits, high elevation old fields, and Coastal Plain sandhills (Weakley 2004). Thus, it appears that no habitat exists for this species at Petersburg National Battlefield. The other four species are plausible records and have been added to the list of potential plants for the park. It appears unlikely, however, that three rare *Desmodiums* occur there.

Two rare animals appear on the NPSpecies lists for the parks. *Sterna caspia* (Caspian Tern) is reported from George Washington Birthplace National Monument and *Aegolius acadicus* (Northern Saw-whet Owl) is reported from Richmond National Battlefield Park. These species are considered natural heritage resources by DCR-DNH only if breeding or resident populations are present. As the residence status of these birds is reported in the NPSpecies databases as "unknown," they have not been added to lists of potential rare animals for the parks. Lists of known plants from the parks were reviewed to check for species known to host rare arthropods, but no known host species were present on the lists.

Information about the habitats and other landscape features of the four parks was obtained from Biotics and other information sources. Field forms from prior DCR-DNH staff visits to the parks were reviewed. DCR-DNH staff involved in a separate project to classify and map the vegetation of seven NPS units (including the four parks) were consulted. Data collected from 2002 and 2003 rare plant and animal surveys at the Watt House and Malvern Hill units of Richmond Battlefield Park and 2004 surveys for lepidoptera and odonates at George Washington Birthplace National Monument were reviewed. Remote sensing data, including Digital Orthophoto Quadrangles from the late 1990s, were used, as well as topographic maps, geologic maps, and soil surveys. The contract provided for limited field reconnaissance to check gross vegetation characteristics and habitats. Fieldwork focused on the Five Forks Unit of Petersburg National Battlefield.

Based on this review of park landscape features, species known to occur in the vicinity of each park were added or deleted to the park lists of potential natural heritage resources. A species was deleted from a park list when it was certain that no habitat for the species existed at the park. A species was added if the park was in the known range of the species and suitable habitat was known to exist or appeared likely to exist.

Once lists of potential rare species and significant natural communities were developed for each Park, the landscape features of the parks were reviewed again on a finer scale. Using Digital Orthophoto Quadrangles and topographic maps, and relying heavily on staff field experience in the parks, the park areas most likely to support natural heritage resources were mapped in a geographical information system (GIS) using ArcView software (Environmental Systems Research Institute, Inc., 1996). These are the areas recommended for natural heritage surveys.

RESULTS

A list of potential rare plants, potential rare animals, and potential significant natural communities is provided for each park (Tables 1-12). Plant and animal lists give the scientific and common name for each species and show global rank, state rank, state status, and federal status. Please see Appendix A for an explanation of these ranks. Significant natural community lists provide the community name, global rank, and state rank. Many natural community types have not yet been ranked at either the global (GNR) or state (SNR) level.

Tables 1-12 also indicate which natural heritage resources are known to presently occur at the parks. All of the significant natural communities known to occur in the parks were located during vegetation mapping work conducted in the parks by DCR-DNH ecologists in 2002-04. (Additional significant natural communities may be designated for the parks once the data from this project is fully reviewed.) In addition, natural heritage resources known to occur near the parks (generally within 2.0 kilometers) are indicated. Finally, species new to DCR-DNH rare plant and animal lists since 1990-91 inventories for natural heritage resources in the mid-Atlantic Parks are indicated in Tables 1-12. These are species that would not have been reported if observed in the parks during those earlier surveys.

Figures 1-21 show the most likely areas within the parks where one or more of the natural heritage resources listed in Tables 1-12 could occur. These are areas recommended for on-the-ground surveys for these resources before any significant land altering activity is undertaken. Figures 1-21 show 78 recommended survey areas mapped on USGS topographic quadrangles using ArcView software (Environmental Systems Research Institute, Inc., 1996). Recommended survey areas are delineated for five units at Fredericksburg and Spotsylvania National Military Park (47 areas), eight units at Richmond National Battlefield Park (13 areas), three units at Petersburg National Battlefield (16 areas), and at George Washington Birthplace National Monument (two areas). Park units for which no map is provided were determined as unlikely to support natural heritage resources; surveys are not recommended for these areas.

Table 13 shows the primary natural heritage resource(s) that should be sought in each of the 78 recommended survey areas. Each area is also given a priority rank of "high," "medium," or "low" survey need. This rank was based on the following factors: 1) rank and status of natural heritage resource(s) to be sought, 2) number of natural heritage resources to be sought, 3) likelihood of appropriate habitat for natural heritage resources, and 4) extent to which natural heritage resources have been sought in the area in the past.

A compact disc is being submitted with this report, containing a copy of the entire report, a copy of the text portion of the report, and a copy of each figure in tag image file format.

Table 1. Potential rare plants for Fredericksburg and Spotsylvania National Military Park.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Asclepias rubra	Red milkweed	G4G5	S2	--	--	A
Cabomba caroliniana	Carolina fanwort	G3G5	S1	--	--	
Carex decomposita	Cypress-knee sedge	G3	S2	--	--	
Carex vestita	Velvety sedge	G5	S2	--	--	
Desmodium cuspidatum	Toothed tick-trefoil	G5T5?	S2	--	--	
Desmodium sessilifolium	Sessile-leaf tick-trefoil	G5	S2	--	--	
Eriocaulon parkeri	Parker's pipewort	G3	S2	--	--	
Helonias bullata	Swamp pink	G3	S2S3	LT	LE	
Isotria medeoloides	Small whorled pogonia	G2	S2	LT	LE	C
Juncus caesariensis	New Jersey rush	G2	S2	--	LT	C
Kalmia angustifolia	Sheep-laurel	G5	S2	--	--	
Mimosa quadrivalvis var. *angustata*	Little-leaf sensitive briar	G5T5	S2	--	--	
Quercus prinoides	Dwarf chinkapin oak	G5	S1	--	--	
Saccharum brevibarbe var. *brevibarbe*	Short-beard plumegrass	G3G5	S1?	--	--	
Sarracenia purpurea ssp. *venosa*	Southern purple pitcher-plant	G5T3T5	S2	--	--	C
Thelypteris simulata	Bog fern	G4G5	S1S2	--	--	
Wolffia columbiana	Columbia watermeal	G5	S1	--	--	

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare plant list since 1990-91 inventory.

Table 2. Potential rare animals for Fredericksburg and Spotsylvania National Military Park.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Vertebrates						
Haliaeetus leucocephalus	Bald eagle	G4	S2S3B/S3N	LT	LT	C
Invertebrates						
Bivalvia:						
Alasmidonta heterodon	Dwarf wedgemussel	G1G2	S1	LE	LE	
Elliptio lanceolata	Yellow lance	G2G3	S2S3	--	SC	
Lampsilis radiata	Eastern lampmussel	G5	S2	--	SC	
Lasmigona subviridis	Green floater	G3	S2	--	SC	
Amphipoda:						
Stygobromus sp. 21	Rappahannock spring amphipod	G1G2	S1S2	--	--	D
Coleoptera:						
Lordithon niger	Black Lordithon rove beetle	GU	SH	--	--	
Lepidoptera:						
Callophyrs irus	Frosted elfin	G3	S2	--	--	D
Euphyes bimacula	Two-spotted skipper	G4	S2	--	--	
Euphyes conspicua	Black dash	G4	S1S3	--	--	
Lithophane lemmeri	Lemmer's pinion moth	G4	S1S2	--	--	D
Odonata:						
Celithemis martha	Martha's pennant	G4	S2	--	--	
Epitheca costalis	Stripe-winged baskettail	G4	S2	--	--	
Epitheca spinosa	Robust baskettail	G4	S2	--	--	
Helocordulia selysii	Selys' sundragon	G4	S2	--	--	
Nehalennia gracilis	Sphagnum sprite	G5	S2	--	--	
Nehalennia integricollis	Southern sprite	G5	S2	--	--	
Somatochlora filosa	Fine-lined emerald	G5	S2	--	--	
Somatochlora georgiana	Coppery emerald	G3G4	S1	--	--	
Somatochlora provocans	Treetop emerald	G4	S2	--	--	
Heteroptera:						
Sigara depressa	Piedmont Water boatman	G1G2	S1S2	--	LE	D

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare animal list since 1990-91 inventory.

Table 3. Potential significant natural communities for Fredericksburg and Spotsylvania National Military Park.

Community Name	Global Rank	State Rank	Notes
Upland Forests:			
Acidic Oak - Hickory Forest	GNR	SNR	
Basic Oak - Hickory Forest	G4?	S4?	
Eastern White Pine - Hardwood Forest	G4	S4?	
Oak / Heath Forest	G4G5	S4S5	
Piedmont / Coastal Plain Oak - Beech / Heath Forest	G2G3	S2?	
Alluvial Floodplain Communites:			
Coastal Plain / Piedmont Floodplain Forest	GNR	SNR	
Piedmont / Mountain Swamp Forest	GNR	SNR	
Non-Alluvial Wetlands:			
Coastal Plain / Piedmont Acidic Seepage Swamp	G3?	S3?	
Coastal Plain Depression Wetland	GNR	SNR	B
Non-riverine Saturated Forest	G2?	S2?	B

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park.

Table 4. Potential rare plants for George Washington Birthplace National Monument.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Carex lacustris	Lake-bank sedge	G5	S1	--	--	
Cuscuta polygonorum	Smartweed dodder	G5	S2?	--	--	
Potamogeton spirillus	Spiral pondweed	G5	S1	--	--	
Ranunculus hederaceus	Ivy-leaved water crowfoot	G5	SH	--	--	C,D
Thelypteris simulata	Bog fern	G4G5	S1S2	--	--	

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare plant list since 1990-91 inventory.

Table 5. Potential rare animals for George Washington Birthplace National Monument.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Vertebrates						
Ardea alba	Great egret	G5	S2BS3N	--	SC	D
Botaurus lentiginosus	American bittern	G4	S1BS2N	--	--	
Cistothorus platensis	Sedge wren	G5	S1BS1S2N	--	SC	
Haliaeetus leucocephalus	Bald eagle	G4	S2S3B/S3N	LT	LT	B
Laterallus jamaicensis	Black rail	G4	S2BS2N	--	--	
Rallus elegans	King rail	G4G5	S2BS3N	--	--	
Rallus limicola	Virginia rail	G5	S2BS3N	--	--	
Invertebrates						
Amphipoda:						
Crangonyx baculispina (formerly sp. 5)	Lancaster County amphipod	G1?	S1?	--	--	D
Lepidoptera:						
Erynnis martialis	Mottled duskywing	G3G4	S1S3	--	--	D
Euphyes bimacula	Two-spotted skipper	G4	S2	--	--	
Euphyes conspicua	Black dash	G4	S1S2	--	--	
Lithophane lemmeri	Lemmer's pinion moth	G4	S1S2	--	--	D
Odonata:						
Celithemis ornata	Faded pennant	G5	SH	--	--	
Epitheca costalis	Stripe-winged baskettail	G4	S2	--	--	
Epitheca spinosa	Robust baskettail	G4	S2	--	--	
Ladona exusta	White corporal skimmer	G5	S1	--	--	

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare animal list since 1990-91 inventory.

Table 6. Potential significant natural communities for George Washington Birthplace National Monument.

Community Name	Global Rank	State Rank	Notes
Upland Forests:			
Coastal Plain Dry Calcareous Forest	GNR	S1	B
Mesic Mixed Hardwood Forest	GNR	S4?	
Non - Alluvial Wetlands:			
Coastal Plain / Piedmont Acidic Seepage Swamp	GNR	SNR	
Non-Riverine Saturated Forest	G2?	S2?	B
Tidal Wetlands:			
Salt scrub	G5	S5	
Tidal Mesohaline and Polyhaline Marsh	GNR	SNR	
Tidal Oligohaline Marsh	GNR	SNR	

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park.

Table 7. Potential rare plants for Richmond National Battlefield Park.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Asclepias rubra	Red milkweed	G4G5	S2	--	--	
Cabomba caroliniana	Carolina fanwort	G3G5	S1	--	--	
Carex vestita	Velvety sedge	G5	S2	--	--	
Chelone cuthbertii	Cuthbert turtlehead	G3	S2	--	--	
Cirsium virginianum	Virginia thistle	G3	S2	--	--	
Desmodium tenuifolium	Slim-leaf tick-trefoil	G4	S1	--	--	D
Dicliptera brachiata	Wild mudwort	G5	S2	--	--	C
Eriocaulon parkeri	Parker's pipewort	G3	S2	--	--	
Helonias bullata	Swamp pink	G3	S2S3	LT	LE	
Isotria medeoloides	Small whorled pogonia	G2	S2	LT	LE	
Juncus caesariensis	New Jersey rush	G2	S2	--	LT	
Kalmia angustifolia	Sheep-laurel	G5	S2	--	--	
Liparis loeselii	Bog twayblade	G5	S2	--	--	
Mimosa quadrivalvis var. *angustata*	Little-leaf sensitive briar	G5T5	S2	--	--	
Quercus prinoides	Dwarf chinkapin oak	G5	S1	--	--	
Sarracenia purpurea ssp. *venosa*	Southern purple pitcher-plant	G5T3T5	S2	--	--	
Solidago latissimifolia	Elliott goldenrod	G5	S2	--	--	D
Tetragonotheca helianthoides	Pineland squarehead	G5	S1	--	--	
Trillium pusillum var. *virginianum*	Virginia least trillium	G3T2	S2	--	--	

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare plant list since 1990-91 inventory.

Table 8. Potential rare animals for Richmond National Battlefield Park.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Vertebrates						
Amphibians:						
Hyla gratiosa	Barking treefrog	G5	S1	--	LT	
Siren intermedia	Lesser siren	G5	S2	--	--	
Birds:						
Haliaeetus leucocephalus	Bald eagle	G4	S2S3B/S3N	LT	LT	C
Lanius ludovicianus	Loggerhead shrike	G4	S2BS3N	--	--	
Invertebrates						
Lepidoptera:						
Callophyrs irus	Frosted elfin	G3	S2	--	--	D
Euphyes bimacula	Two-spotted skipper	G4	S2	--	--	
Euphyes conspicua	Black dash	G4	S1S3	--	--	
Lithophane lemmeri	Lemmer's pinion moth	G4	S1S2	--	--	D
Odonata:						
Celithemis martha	Martha's pennant	G4	S2	--	--	
Celithemis ornata	Faded pennant	G5	SH	--	--	
Enallagma dubium	Burgundy bluet	G5	S2	--	--	
Epitheca costalis	Stripe-winged baskettail	G4	S2	--	--	
Epitheca spinosa	Robust baskettail	G4	S2	--	--	
Helocordulia selysii	Selys' sundragon	G4	S2	--	--	
Nehalennia gracilis	Sphagnum Sprite	G5	S2	--	--	
Nehalennia integricollis	Southern Sprite	G5	S2	--	--	
Somatochlora filosa	Fine-lined emerald	G5	S2	--	--	
Somatochlora georgiana	Coppery emerald	G3G4	S1	--	--	
Somatochlora provocans	Treetop emerald	G4	S2	--	--	
Stylurus laurae	Laura's clubtail	G4	S2	--	--	
Heteroptera:						
Sigara depressa	Piedmont Water boatman	G1G2	S1S2	--	LT	D

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare animal list since 1990-91 inventory.

Table 9. Potential significant natural communities for Richmond National Battlefield Park.

Community Name	Global Rank	State Rank	Notes
Upland Forests:			
Acidic Oak - Hickory Forest	G5?	SNR	
Basic Mesic Forest	G4?	SNR	
Mesic Mixed Hardwood Forest	GNR	S4?	
Oak / Heath Forest	G4G5	S4S5	
Piedmont / Coastal Plain Oak - Beech / Heath Forest	GNR	S3?	
Alluvial Floodplain Communities:			
Coastal Plain / Piedmont Floodplain Forest	GNR	SNR	
Piedmont / Mountain Floodplain Forest	GNR	SNR	
Non - Alluvial Wetlands:			
Coastal Plain / Piedmont Acidic Seepage Swamp	G3?	S3?	B

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park.

Table 10. Potential rare plants for Petersburg National Battlefield.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Asclepias rubra	Red milkweed	G4G5	S2	--	--	C
Cabomba caroliniana	Carolina fanwort	G3G5	S1	--	--	
Calamovilfa brevipilis	Pine barrens	G4	S1	--	--	C
Carex barrattii	Barratt's sedge	G4	S2	--	--	
Carex vestita	Velvety sedge	G5	S2	--	--	
Chelone cuthbertii	Cuthbert turtlehead	G3	S2	--	--	
Cirsium virginianum	Virginia thistle	G3	S2	--	--	C
Cleistes divaricata	Spreading pogonia	G4	S1	--	--	
Desmodium ochroleucum	Creamflower tick-trefoil	G2G3	SH	--	--	
Desmodium sessilifolium	Sessile-leaf tick-trefoil					
Desmodium strictum	Pineland tick-trefoil	G4	S2	--	--	
Desmodium tenuifolium	Slim-leaf tick-trefoil	G4	S1	--	--	D
Digitaria cognata	Fall witch grass	G5	S2	--	--	C
Eleocharis baldwinii	Baldwin spikerush	G4G5	S1	--	--	
Eriocaulon decangulare	Ten-angle pipewort	G5	S2	--	--	C
Eryngium yuccifolium var. *yuccifolium*	Rattlesnake-master	G5T?	S2	--	--	D
Helenium brevifolium	Shortleaf sneezeweed	G3G4	S2	--	--	C
Hypericum setosum	A St. John's-wort	G4G5	S1S2	--	--	D
Isoetes melanopoda	Blackfoot quillwort	G5	S1?	--	--	D
Isoetes virginica	Virginia quillwort	G1	S1?	--	--	D
Isotria medeoloides	Small whorled pogonia	G2	S2	LT	LE	
Juncus caesariensis	New Jersey rush	G2	S2	--	LT	
Kalmia angustifolia	Sheep-laurel	G5	S2	--	--	
Lachnocaulon anceps	Bog-buttons	G5	S2	--	--	D
Ludwigia hirtella	Rafinesque's seedbox	G5	S1	--	--	C,D
Mimosa quadrivalvis var. *angustata*	Little-leaf sensitive briar	G5T5	S2	--	--	
Paspalum praecox	Early paspalum	G4	S1	--	--	C
Pinus palustris	Long-leaf pine	G5?	S1	--	--	C
Platanthera blephariglottis var. *conspicua*	Large white fringed orchid	G4G5T3T4	S1	--	--	
Prenanthes autumnalis	Slender rattlesnake-root	G4G5	S2	--	--	C,D

Table 10 continued. Potential rare plants for Petersburg National Battlefield.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Quercus prinoides	Dwarf chinkapin oak	G5	S1	--	--	
Rhus michauxii	Michaux's sumac	G2	S1	LE	LT	
Rhynchospora cephalantha var. *attenuata*	Small capitate beakrush	G5T3?	S2	--	--	C,D
Rhynchospora debilis	Savannah beakrush	G4?	S1	--	--	C,D
Rhynchospora fascicularis var. *fascicularis*	Fasciculate beakrush	G5T?	S1?	--	--	
Rhynchospora perplexa var. *virginiana*	A beakrush	G5T?	S1S2	--	--	
Sabatia campanulata	Slender marsh rose-pink	G5	S2	--	--	D
Sabatia difformis	Two-formed rose-pink	G4G5	S1	--	--	
Sarracenia flava	Yellow pitcher-plant	G5?	S1	--	--	C
Sarracenia purpurea ssp. *venosa*	Southern purple pitcher-plant	G5T3T5	S2	--	--	
Scleria ciliata	Fringed nutrush	G5	S1	--	--	D
Solidago latissimifolia	Elliott goldenrod	G5	S2	--	--	D
Tetragonotheca helianthoides	Pineland squarehead	G5	S1	--	--	
Thalictrum macrostylum	Small-leaved meadowrue	G3G4	S1	--	--	
Trillium pusillum var. *virginianum*	Virginia least trillium	G3T2	S2	--	--	
Utricularia striata	Fibrous bladderwort	G4G5	S1	--	--	
Wisteria frutescens	American wisteria	G5	S2	--	--	
Xyris difformis var. *curtissii*	Curtiss' yellow-eyed-	G5T5	S1	--	--	C,D
Zigadenus glaberrimus	Large-flowered camus	G5	S1	--	--	C

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare plant list since 1990-91 inventory.

Table 11. Potential rare animals for Petersburg National Battlefield.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Vertebrates						
Amphibians:						
Hyla gratiosa	Barking treefrog	G5	S1	--	LT	
Pseudacris nigrita	Southern chorus frog	G5	S2?	--	--	D
Siren intermedia	Lesser siren	G5	S2	--	--	
Birds:						
Haliaeetus leucocephalus	Bald eagle	G4	S2S3B/S3N	LT	LT	C
Invertebrates						
Bivalvia:						
Alasmidonta heterodon	Dwarf wedgemussel	G1G2	S1	LE	LE	
Elliptio lanceolata	Yellow lance	G2G3	S2S3	--	SC	
Fusconaia masoni	Atlantic pigtow	G2	S2	--	LT	
Lampsilis cariosa	Yellow lampmussel	G3G4	S2		SC	
Lampsilis radiata	Eastern lampmussel	G5	S2	--	SC	
Lasmigona subviridis	Green floater	G3	S2	--	SC	
Decapoda:						
Orconectes virginiensis	Chowanoke crayfish	G3	S2S3	--	--	
Lepidoptera:						
Callophyrs irus	Frosted elfin	G3	S2	--	--	D
Callosamia securifera	Sweetbay silkmoth	G4	S1S2	--	--	D
Euphyes bimacula	Two-spotted skipper	G4	S2	--	--	
Euphyes conspicua	Black dash	G4	S1S3	--	--	
Lithophane lemmeri	Lemmer's pinion moth	G4	S1S2	--	--	D
Odonata:						
Celithemis martha	Martha's pennant	G5	S2	--	--	
Celithemis ornata	Faded pennant	G5	SH	--	--	
Enallagma dubium	Burgandy bluet	G5	S2	--	--	
Epitheca costalis	Stripe-winged baskettail	G4	S2	--	--	
Epitheca spinosa	Robust baskettail	G4	S2	--	--	
Helocordulia selysii	Selys' sundragon	G4	S2	--	--	

Table 11 continued. Potential rare animals for Petersburg National Battlefield.

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Notes
Nehalennia gracilis	Sphagnum Sprite	G5	S2	--	--	
Nehalennia integricollis	Southern Sprite	G5	S2	--	--	
Somatochlora filosa	Fine-lined emerald	G5	S2	--	--	
Somatochlora georgiana	Coppery emerald	G3G4	S1	--	--	
Somatochlora provocans	Treetop emerald	G4	S2	--	--	
Stylurus laurae	Laura's clubtail	G4	S2	--	--	
Heteroptera:						
Sigara depressa	Piedmont Water boatman	G1G2	S1S2	--	LT	D

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park. D = Species new to DCR-DNH rare animal list since 1990-91 inventory.

Table 12. Potential significant natural communities for Petersburg National Battlefield.

Community Name	Global Rank	State Rank	Notes
Upland Forests:			
Acidic Oak - Hickory Forest	G5?	SNR	
Mesic Mixed Hardwood Forest	GNR	S4?	
Oak / Heath Forest	G4G5	S4S5	
Piedmont / Coastal Plain Oak - Beech / Heath Forest	GNR	S3?	
Alluvial Floodplain Communities:			
Coastal Plain / Piedmont Floodplain Forest	GNR	SNR	C
Non - Alluvial Wetlands:			
Coastal Plain / Piedmont Acidic Seepage Swamp	G3?	S3?	B

Notes: A = Natural heritage resource located within park during 1990-91 inventory. B = Natural heritage resource located in park since 1990-91 inventory. C = Natural heritage resource located near park.

Table 13. Natural heritage resources recommended for survey by area (see Figures1-21).

Survey Area No.	Primary Natural Heritage Resource(s) Recommended for Survey	Survey Need Priority
1	Bog plants, *Stygobromus* sp. 21	Medium
2	Bog plants, *Stygobromus* sp. 21	Medium
3	Bog plants, *Stygobromus* sp. 21	Medium
4	*Isotria medeoloides*, Bog plants, *Stygobromus* sp. 21, *Haliaeetus leucocephalus*	Medium
5	*Isotria medeoloides*, Bog plants, *Stygobromus* sp. 21, *Haliaeetus leucocephalus*	Medium
6	Freshwater mussels, *Somatochlora* species, *Sigara depressa*	Low
7	*Isotria medeoloides*, Bog plants, Lepidoptera, *Stygobromus* sp. 21, *Helocordulia selysii*, *Somatochlora* species, *Sigara depressa*, Coastal Plain / Piedmont Floodplain Forest	High
8	*Isotria medeoloides*, Bog plants, Lepidoptera, *Stygobromus* sp. 21, Odonata, *Sigara depressa*	Medium
9	Odonata, *Euphyes* species	Low
10	Bog plants, *Stygobromus* sp. 21, Coastal Plain / Piedmont Acidic Seepage Swamp	Medium
11	Bog plants, *Stygobromus* sp. 21	Medium
11a	*Stygobromus* sp. 21, *Somatochlora* sp.	Low
12	*Isotria medeoloides*, Bog plants, Lepidoptera, *Stygobromus* sp. 21, *Helocordulia selysii, Somatochlora* species, Known location for Coastal Plain Depression Wetland	High
13	Bog plants, *Stygobromus* sp. 21	Medium
14	*Isotria medeoloides*, Bog plants, *Stygobromus* sp. 21	Medium
15	*Isotria medeoloides*, Bog plants, *Stygobromus* sp. 21	Medium
16	Lepidoptera, Odonata, *Sigara depressa*	Medium
17	Bog plants, *Stygobromus* sp. 21	Medium
18	Bog plants, *Stygobromus* sp. 21	Medium
19	Bog plants, *Stygobromus* sp. 21	Medium
20	Lepidoptera, Odonata, *Sigara depressa*	Medium
21	*Isotria medeoloides*, Bog plants, *Stygobromus* sp. 21	Medium
22	*Isotria medeoloides*, Bog plants, *Stygobromus* sp. 21	Medium
23	Known location for *Asclepias rubra*, Other bog plants, *Isotria medeoloides*, *Lithophane lemmeri, Stygobromus* sp. 21, Coastal Plain / Piedmont Acidic Seepage Swamp	High
24	Bog plants, *Stygobromus* sp. 21	Medium
25	*Stygobromus* sp. 21	Low

Table 13 continued. Natural heritage resources recommended for survey by area (see Figures1-21).

Survey Area No.	Primary Natural Heritage Resource(s) Recommended for Survey	Survey Need Priority
26	*Stygobromus* sp. 21	Low
27	Known location for *Asclepias rubra*, Other bog plants, *Isotria medeoloides*, *Stygobromus* sp. 21	Medium
28	Bog plants, *Stygobromus* sp.21	Medium
29	Bog plants, *Stygobromus* sp.21, *Somatochlora* species	Medium
30	Bog plants, Lepidoptera, Odonata, *Haliaeetus leucocephalus, Stygobromus* sp.21, *Sigara depresa*	High
31	Bog plants, *Stygobromus* sp.21	Medium
32	Bog plants, *Callophyrs irus, Stygobromus* sp.21	Low
33	Bog plants, *Stygobromus* sp.21	Low
34	Bog plants, *Stygobromus* sp.21	Low
35	Bog plants, *Callophyrs irus, Stygobromus* sp.21	Low
36	Bog plants, *Stygobromus* sp.21	Low
37	Bog plants, *Stygobromus* sp.21	Low
38	Bog plants, *Stygobromus* sp.21	Low
39	*Isotria medeoloides*, Bog plants, Lepidoptera, Odonata, *Stygobromus* sp.21, *Sigara depresa*	High
40	*Haliaeetus leucocephalus*	Medium
41	*Haliaeetus leucocephalus*	Medium
42	Freshwater mussels, *Stygobromus* sp.21	Medium
43	Bog plants, *Haliaeetus leucocephalus, Stygobromus* sp.21, Coastal Plain / Piedmont Acidic Seepage Swamp	Medium
44	Bog plants, *Callopyrs irus, Haliaeetus leucocephalus, Celithemis martha, Stygobromus* sp.21, Known location for Non-riverine Saturated Forest	Medium
45	*Celithemis martha, Epitheca* species	Low
46	*Celithemis martha, Epitheca* species	Low
47	All plants in Table 4, pond-breeding Odonata, *Haliaeetus leucocephalus*, Known location for Coastal Plain Dry Calcareous Forest	Low
48	All plants in Table 4, Birds, *Crangonyx baculispina,* Lepidoptera, Odonata, all birds, Known locations for *Haliaeetus leucocephalus* (2), Known location for Non-riverine Saturated Forest	Low
49	All plants in Table 4, *Haliaeetus leucocephalus,* marsh birds, *Lithophane lemmeri*, pond-breeding Odonata	Low
50	*Callophyrs irus, Lithophane lemmeri*	Low
51	*Somatochlora* species	Low

Table 13 continued. Natural heritage resources recommended for survey by area (see Figures1-21).

Survey Area No.	Primary Natural Heritage Resource(s) Recommended for Survey	Survey Need Priority
52	Bog plants, *Trillium pusillum* var. *virginianum*	Medium
53	Bog plants, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Helocordulia selysii, Somatochlora* species, *Stylurus laurae*	Medium
54	Bog plants, *Trillium pusillum* var. *virginianum*, *Lanius ludovicianus*, *Hyla gratiosa, Callophyrs irus, Lithophane lemmeri*, *Somatochlora* species, Known location for Coastal Plain / Piedmont Acidic Seepage Swamp	High
55	*Isotria medeoloides, Hyla gratiosa, Callophyrs irus, Helocordulia selysii, Somatochlora* species, *Stylurus laurae*	Low
56	*Haliaeetus leucocephalus*	Low
57	*Trillium pusillum* var. *virginianum*, *Carex vestita, Hyla gratiosa, Enallagma dubium, Epitheca spinosa, Somatochlora provocans*	Medium
58	*Trillium pusillum* var. *virginianum*, *Haliaeetus leucocephalus,*	Low
59	*Isotria medeoloides, Liparis loeselii*, *Haliaeetus leucocephalus, Hyla gratiosa, Siren intermedia,* Lepidoperta, *Enallagma dubium, Epitheca spinosa, Helocordulia selysii, Somatochlora* species, *Sigara depressa*	High
60	*Isotria medeoloides, Haliaeetus leucocephalus, Hyla gratiosa, Siren intermedia,* Lepidoperta, Odonata, *Sigara depressa*	High
61	*Quercus prinoides*	Low
62	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum*	Low
63	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Callophyrs irus, Somatochlora* species	Low
64	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Somatochlora* species	Low
65	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Siren intermedia, Haliaeetus leucocephalus,* Freshwater mussels, *Orconectes virginiensis,* Odonata, *Sigara depressa*	High
66	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Siren intermedia,* Freshwater mussels, *Orconectes virginiensis, Callophyrs irus, Euphyes bimacula, Euphyes conspicua,* stream-breeding Odonata, *Sigara depressa*	High
67	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Siren intermedia, Haliaeetus leucocephalus,* Freshwater mussels, *Orconectes virginiensis,* stream-breeding Odonata, *Sigara depressa*	Low
68	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Somatochlora provocans*	Low
69	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Somatochlora provocans*	Low

Table 13 continued. Natural heritage resources recommended for survey by area (see Figures1-21).

Survey Area No.	Primary Natural Heritage Resource(s) Recommended for Survey	Survey Need Priority
70	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Orconectes virginiensis, Somatochlora* species	Low
71	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Pseudacris nigrita, Siren intermedia, Orconectes virginiensis, Callosamia securifera, Euphyes bimacula, Euphyes conspicua,* Odonata, *Sigara depressa*	High
72	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Orconectes virginiensis, Euphyes bimacula, Euphyes conspicua, Lithophane lemmeri,* Odonata, *Sigara depressa*	Medium
73	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Orconectes virginiensis, Somatochlora* species	Low
74	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Orconectes virginiensis, Euphyes bimacula, Euphyes conspicua, Lithophane lemmeri,* Odonata, *Sigara depressa*	Low
75	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum*	Low
76	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Hyla gratiosa, Orconectes virginiensis, Euphyes bimacula, Euphyes conspicua, Lithophane lemmeri,* Odonata, *Sigara depressa*	Low
77	Bog plants, *Isoetes virginica*, *Trillium pusillum* var. *virginianum, Orconectes virginiensis, Callosamia securifera, Somatochlora* species, Known location for Coastal Plain / Piedmont Acidic Seepage Swamp	High

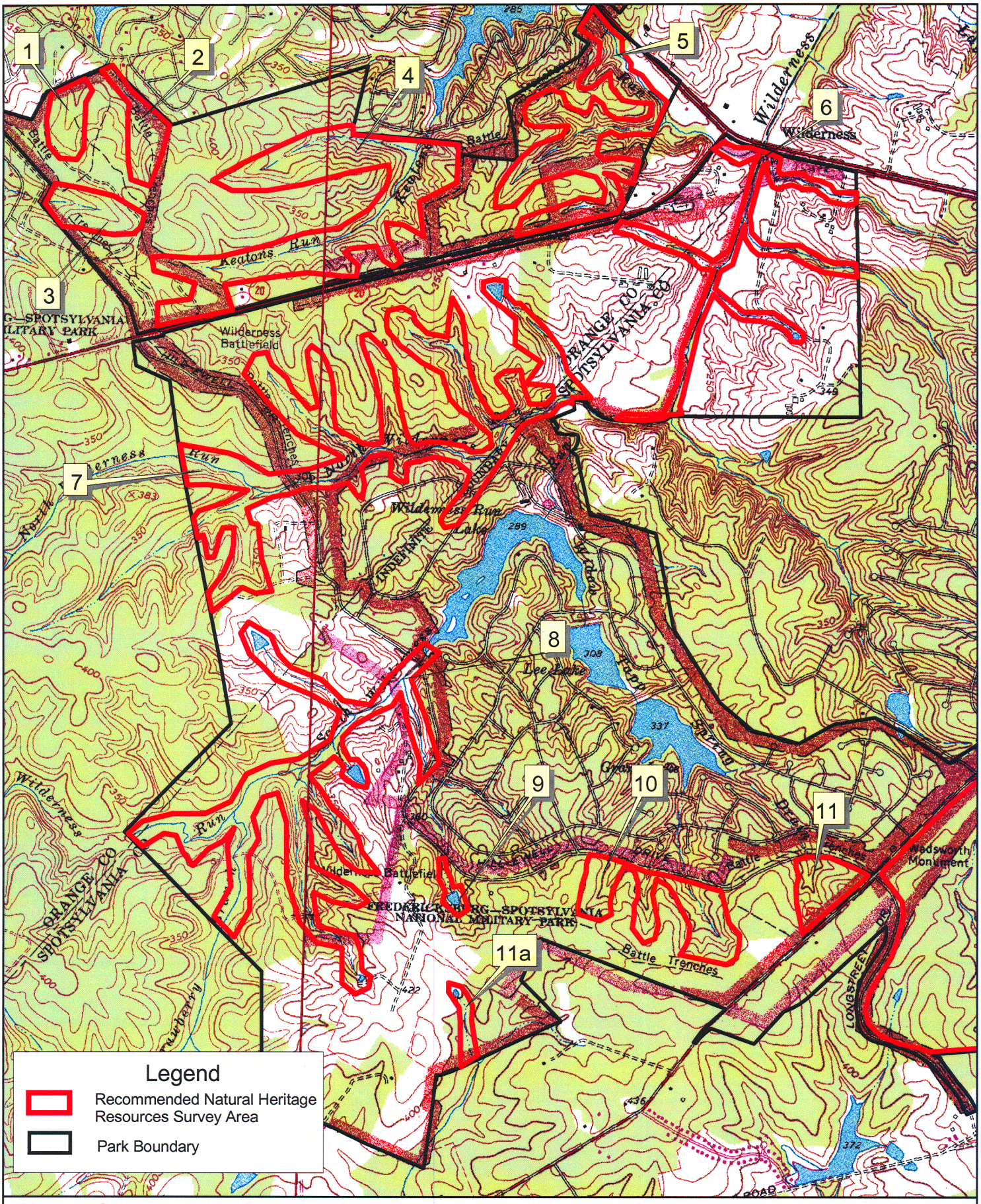


Figure 1. Wilderness Unit West

Fredericksburg and Spotsylvania National Military Park

Mine Run and Chancellorsville USGS 7.5 Quadrangles
Numbers refer to Table 13

235 0 235 470 Meters

1:23458

Map printed 5/18/2004

N

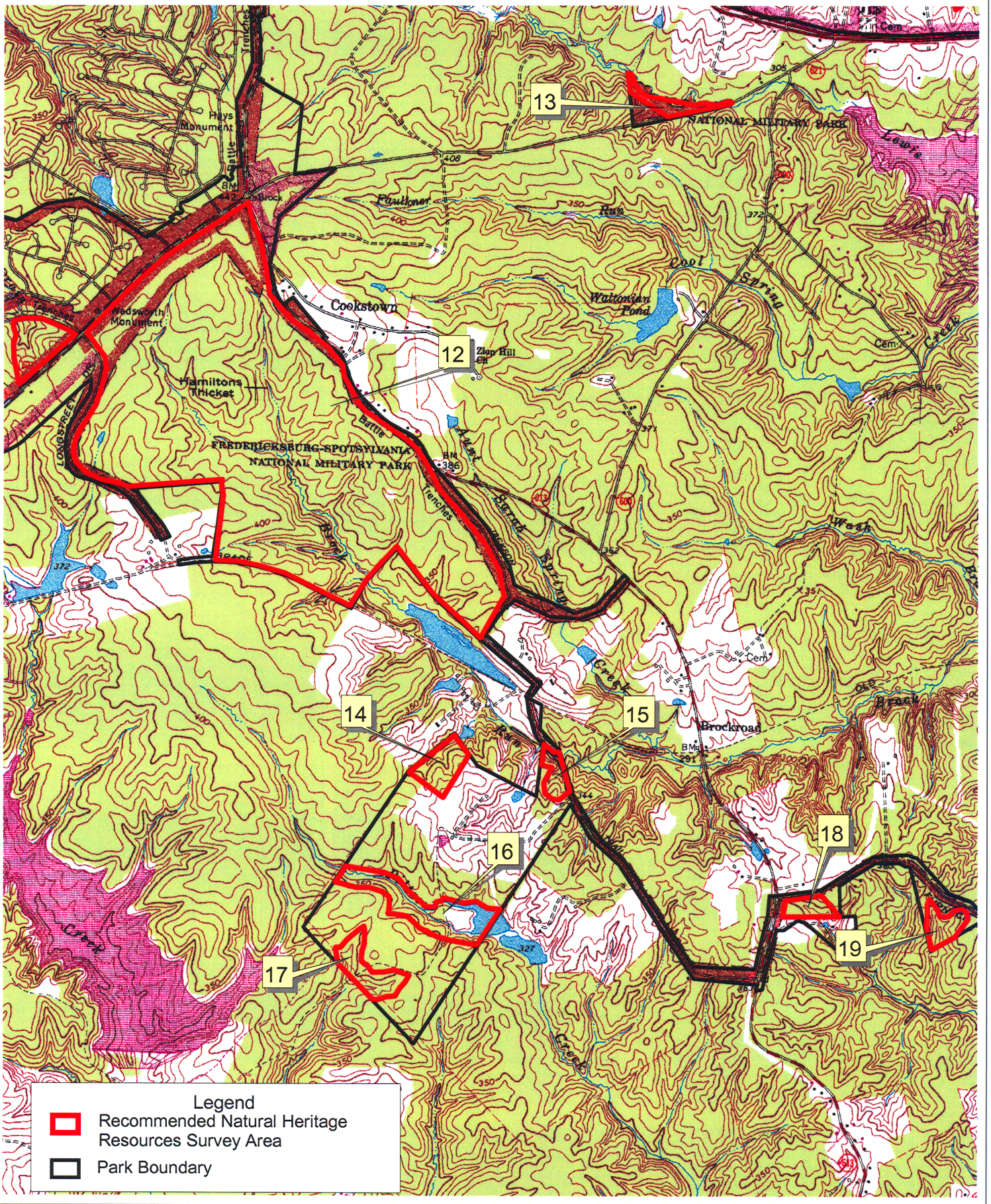


Figure 2. Wilderness Unit Central

Fredericksburg and Spotsylvania National Military Park

Chancellorsville USGS 7.5 Quadrangle
Numbers refer to Table 13

300 0 300 600 Meters

Map printed 5/18/2004

N

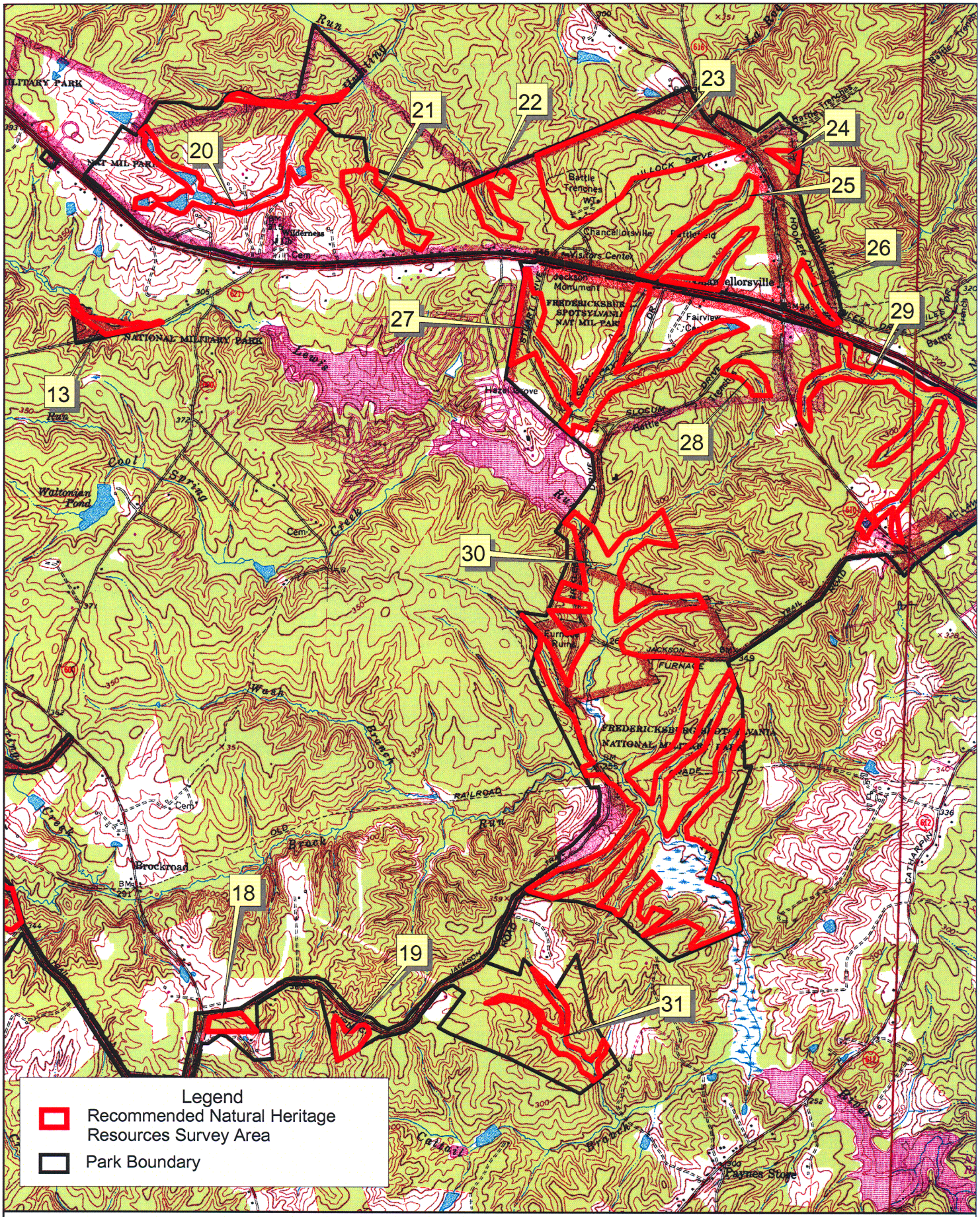


Figure 3. Wilderness Unit East

Fredericksburg and Spotsylvania National Military Park

Chancellorsville and Salem Church USGS 7.5 Quadrangles
Numbers refer to Table 13

312 0 312 624 Meters

1:31185

Map printed 5/18/2004

N

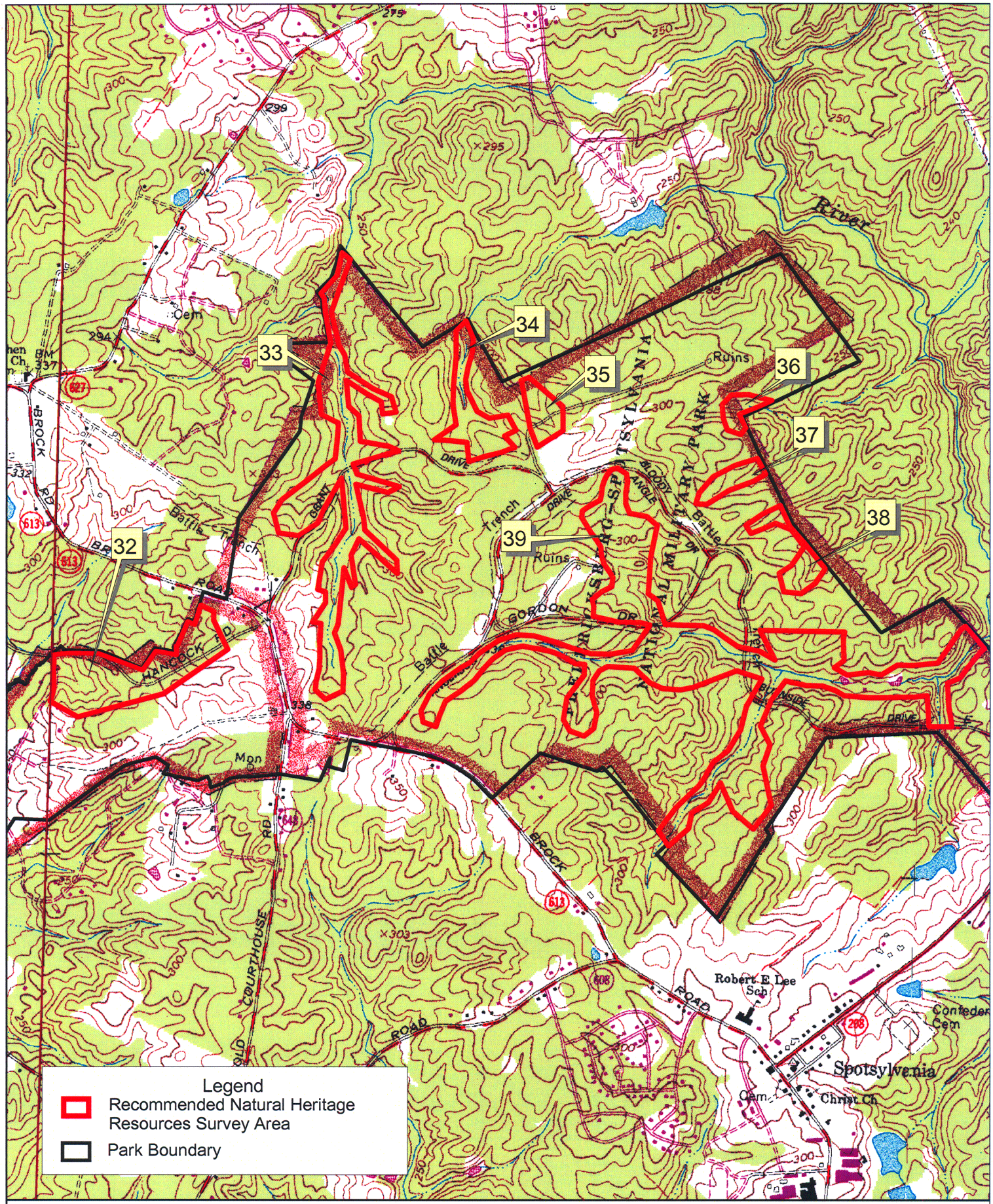


Figure 4. Spotsylvania Courthouse Unit

Fredericksburg and Spotsylvania National Military Park

Brokenburg and Spotsylvania USGS 7.5 Quadrangles
Numbers refer to Table 13

207 0 207 414 Meters

1:20695

Map printed 5/18/2004

N

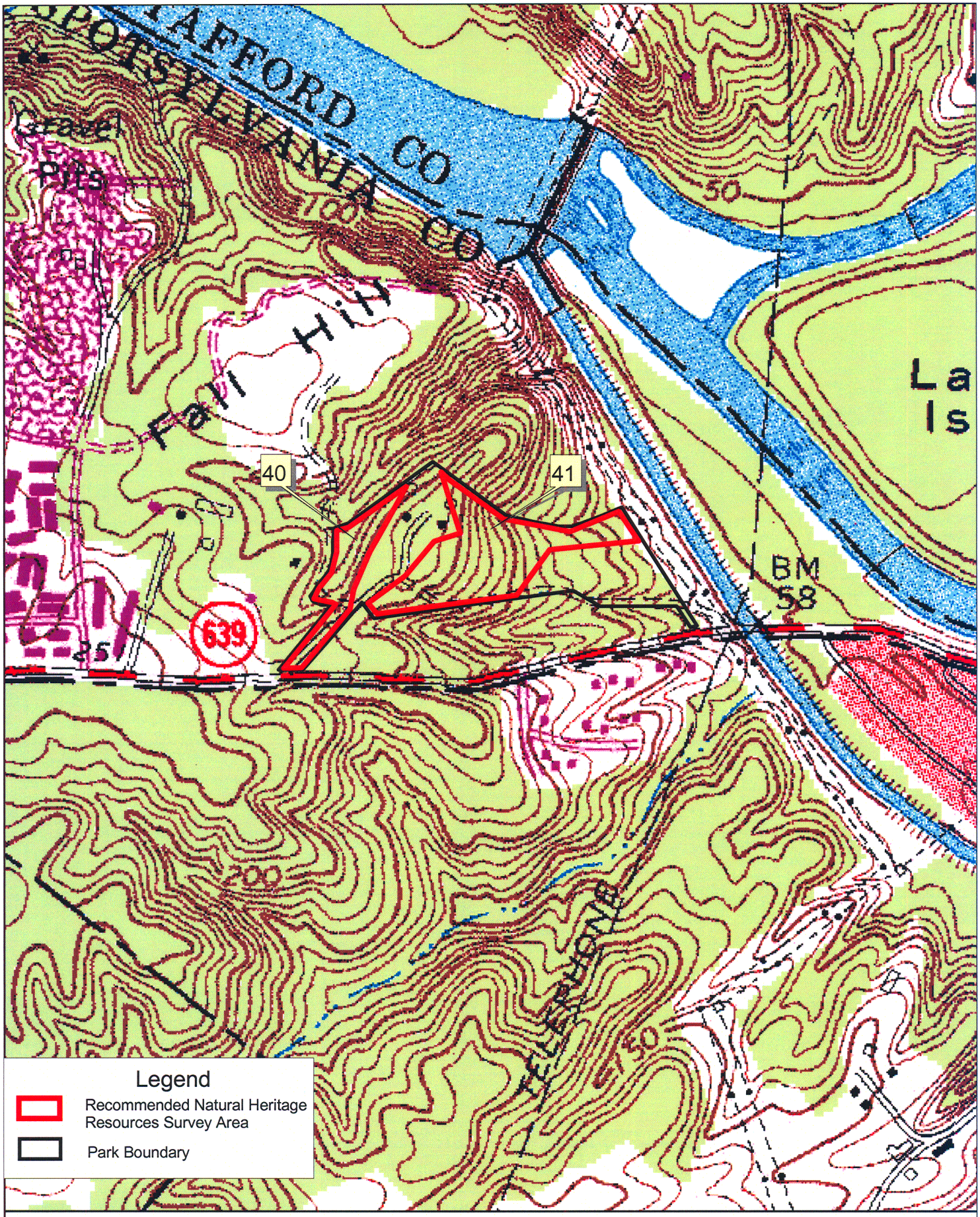


Figure 5. Fall Hill Unit

Fredericksburg and Spotsylvania National Military Park

Fredericksburg USGS 7.5 Quadrangle
Numbers refer to Table 13

60 0 60 120 Meters

1:7679

Map printed 5/18/2004

N

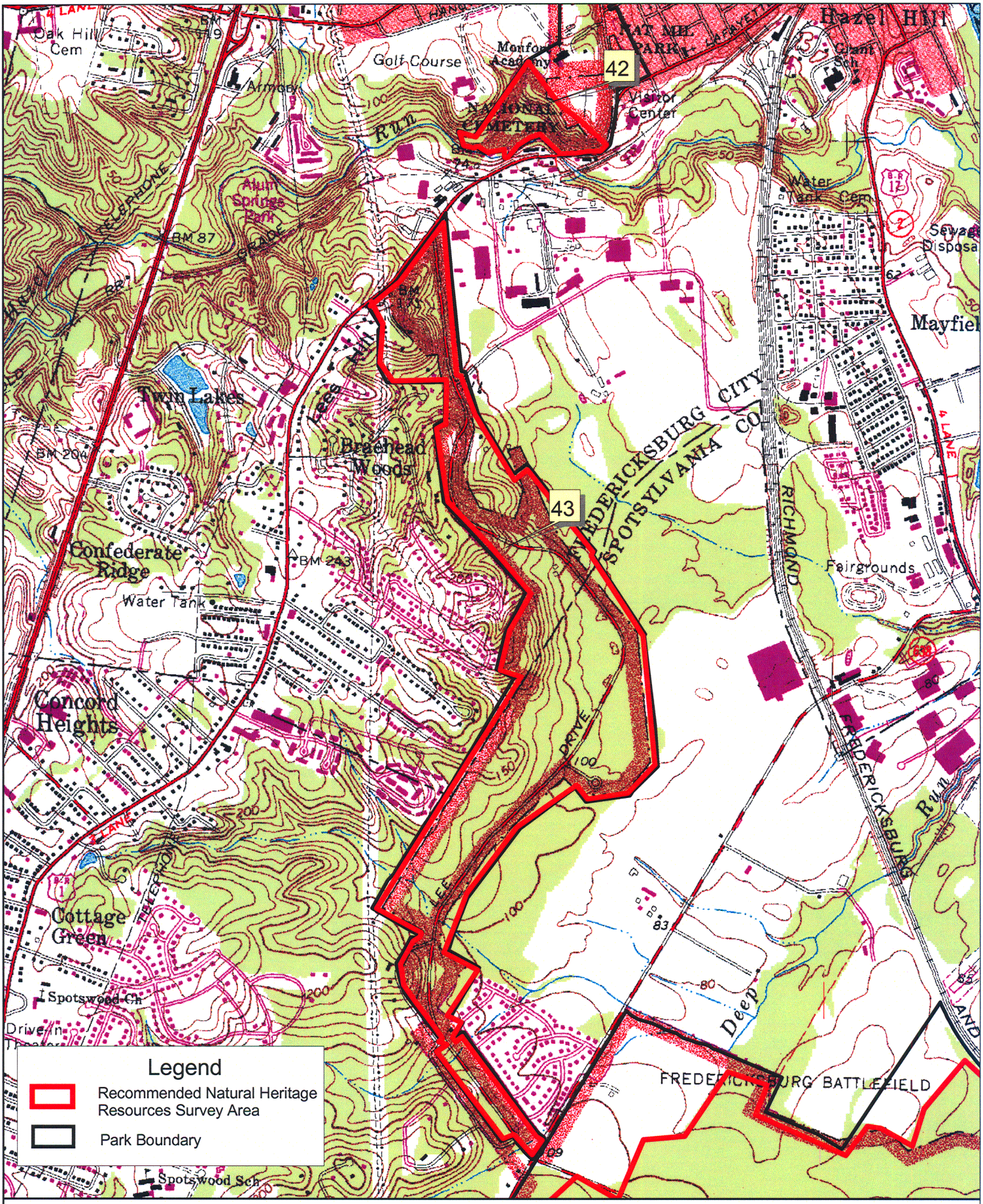


Figure 6. Fredericksburg Unit North

Fredericksburg and Spotsylvania National Military Park

Fredericksburg USGS 7.5 Quadrangle
Numbers refer to Table 13

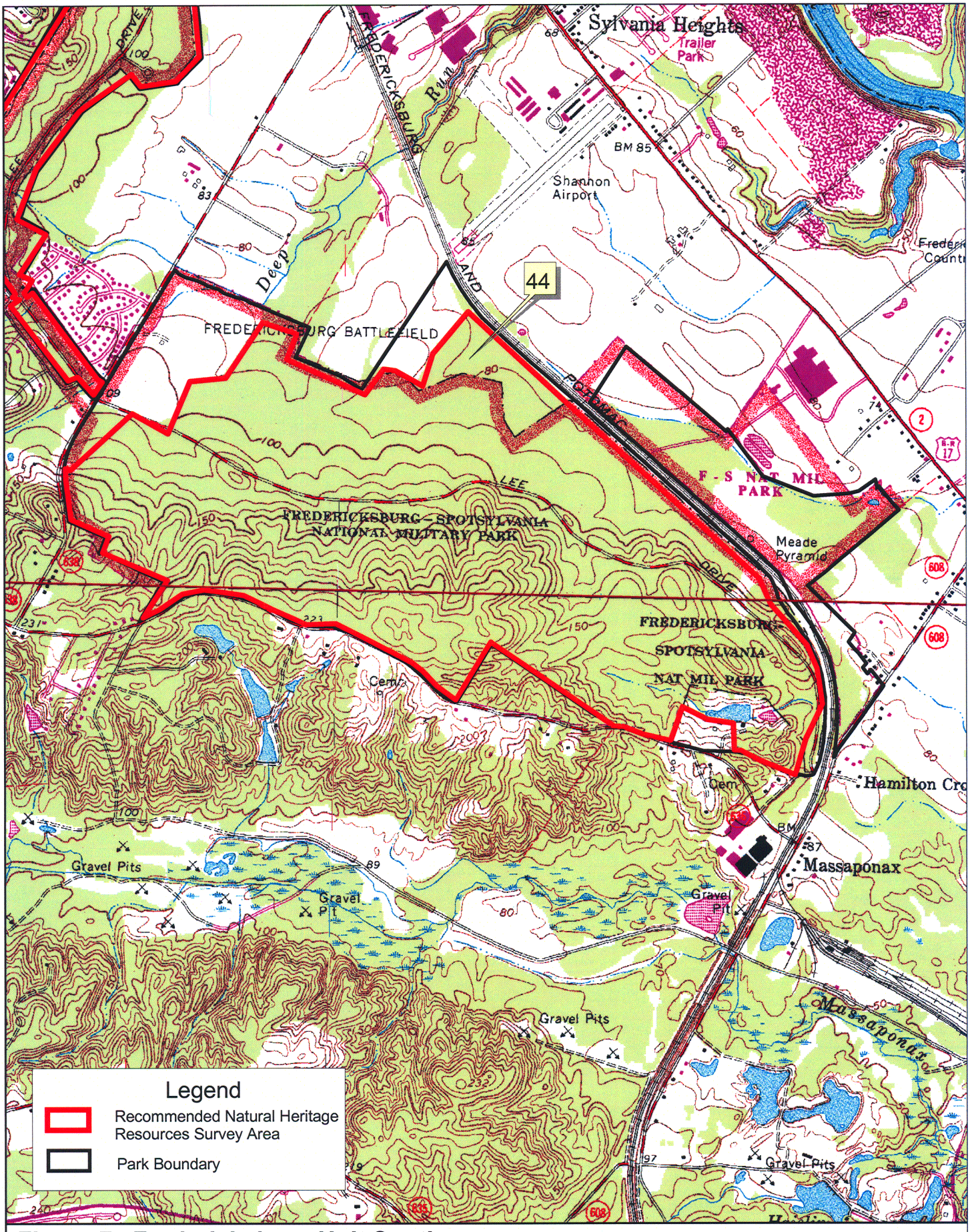


Figure 7. Fredericksburg Unit South

Fredericksburg and Spotsylvania National Military Park

Fredericksburg and Guinea USGS 7.5 Quadrangles
Numbers refer to Table 13

204 0 204 408 Meters

1:21398

Map printed 5/18/2004

N

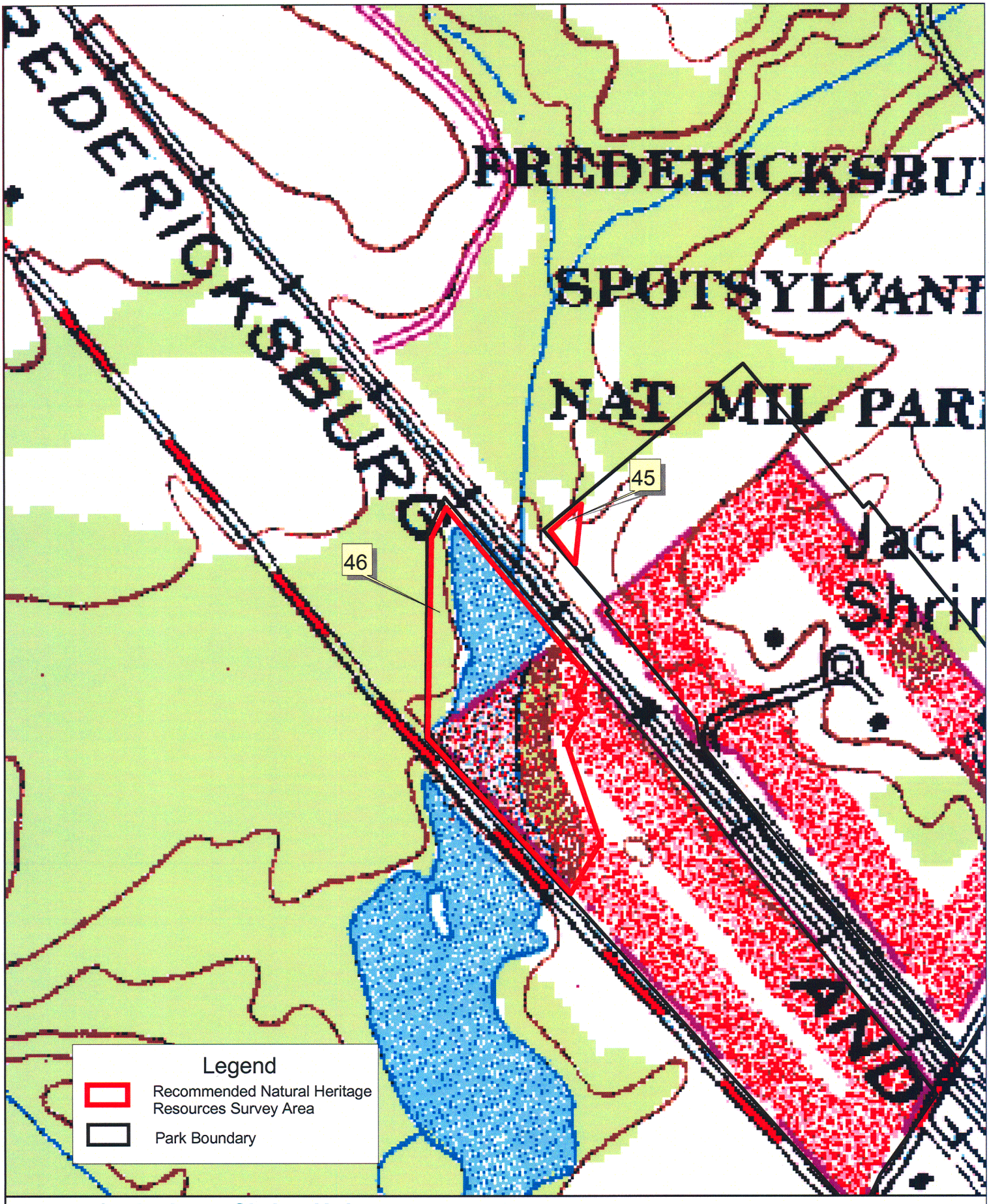


Figure 8. Jackson Shrine Unit

Fredericksburg and Spotsylvania National Military Park

Guinea USGS 7.5 Quadrangle
Numbers refer to Table 13

43 0 43 86 Meters

1:4314

Map printed 5/18/2004

N

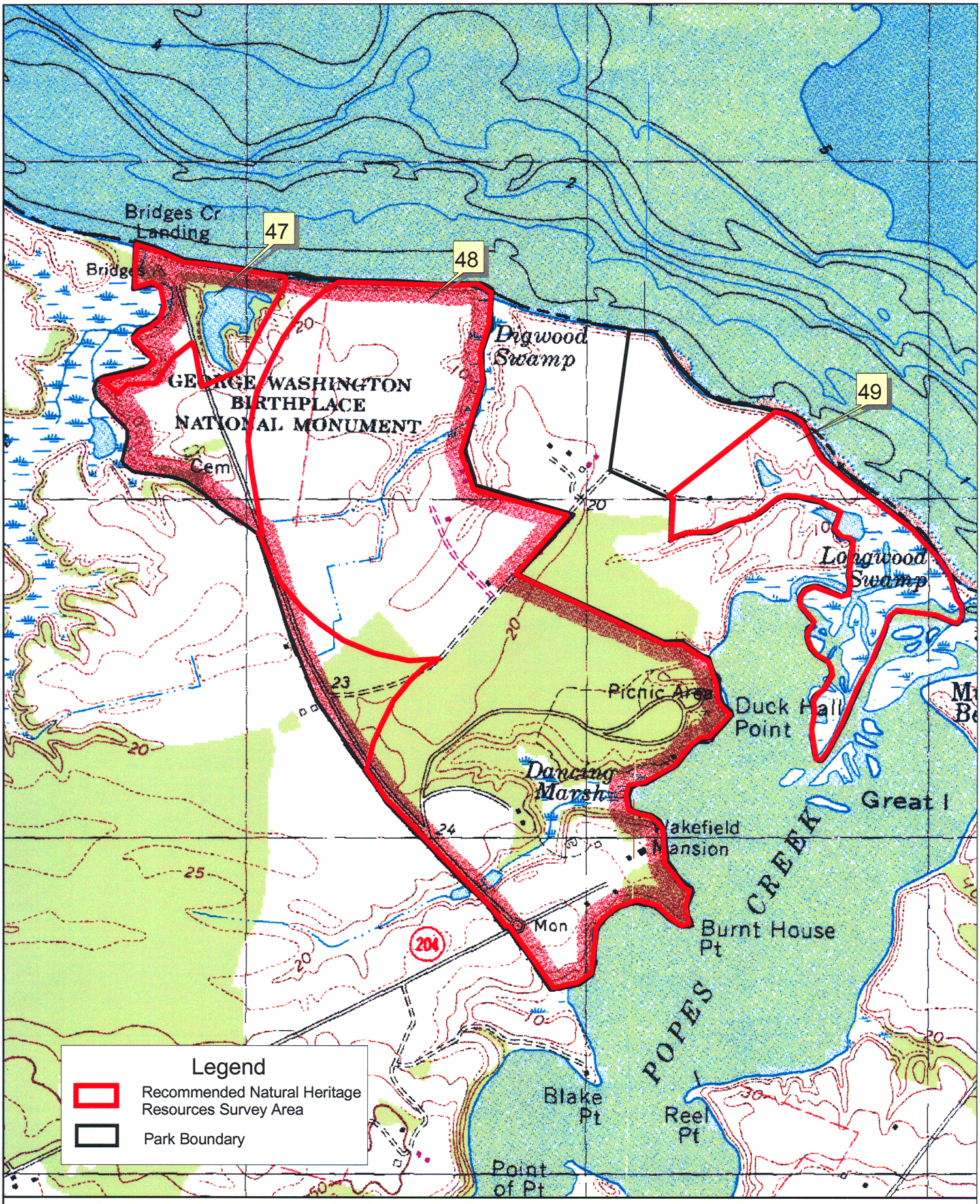


Figure 9. George Washington Birthplace National Monument
Colonial Beach South USGS 7.5 Quadrangle

Numbers refer to Table 13

144 0 144 288 Meters

1:14398

Map printed 5/18/2004

N

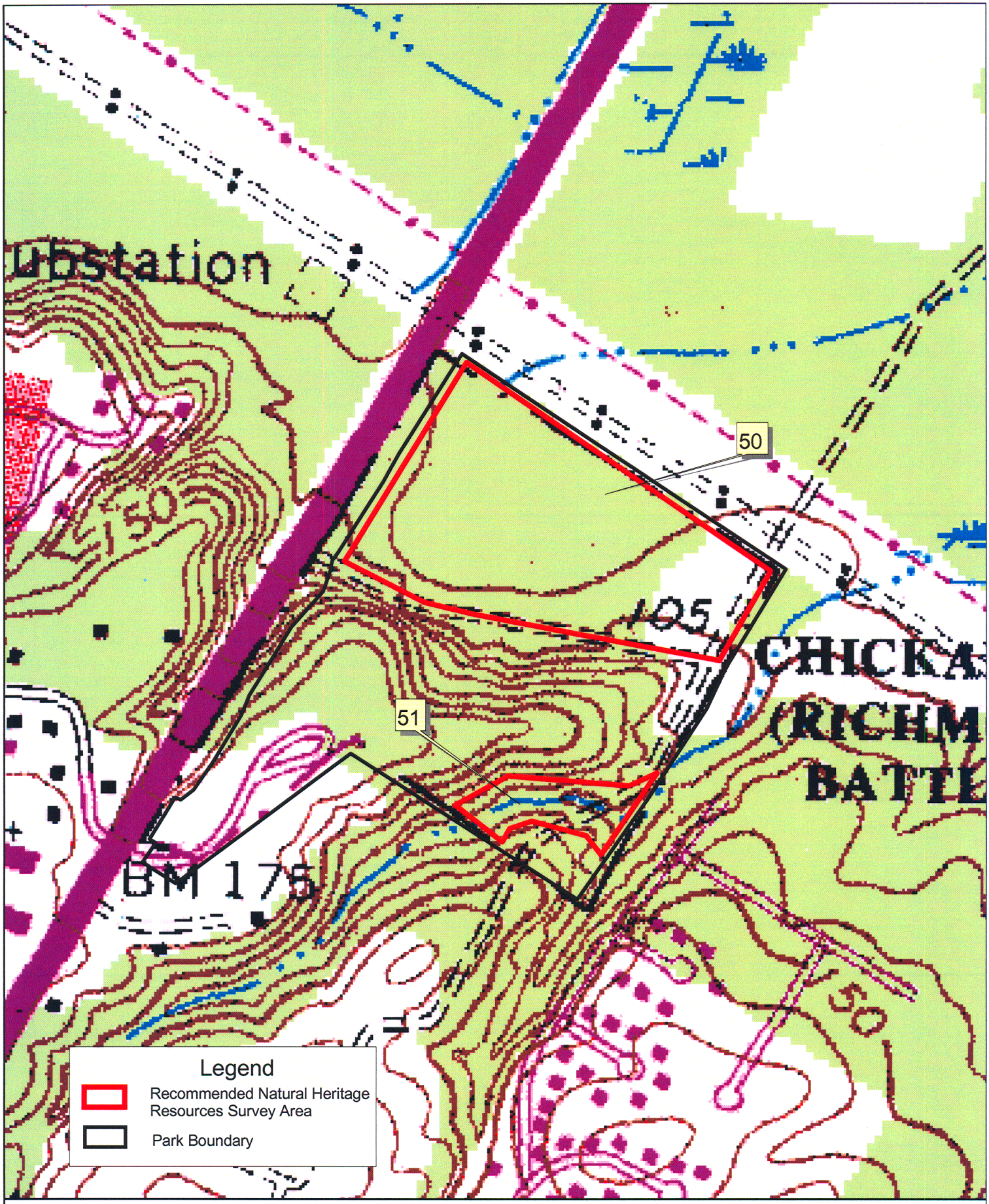


Figure 10. Chickahominy Bluffs Unit

Richmond National Battlefield Park

Richmond USGS 7.5 Qaudrangle
Numbers refer to Table 13

47 0 47 94 Meters

1:4714

Map printed 5/18/2004

N

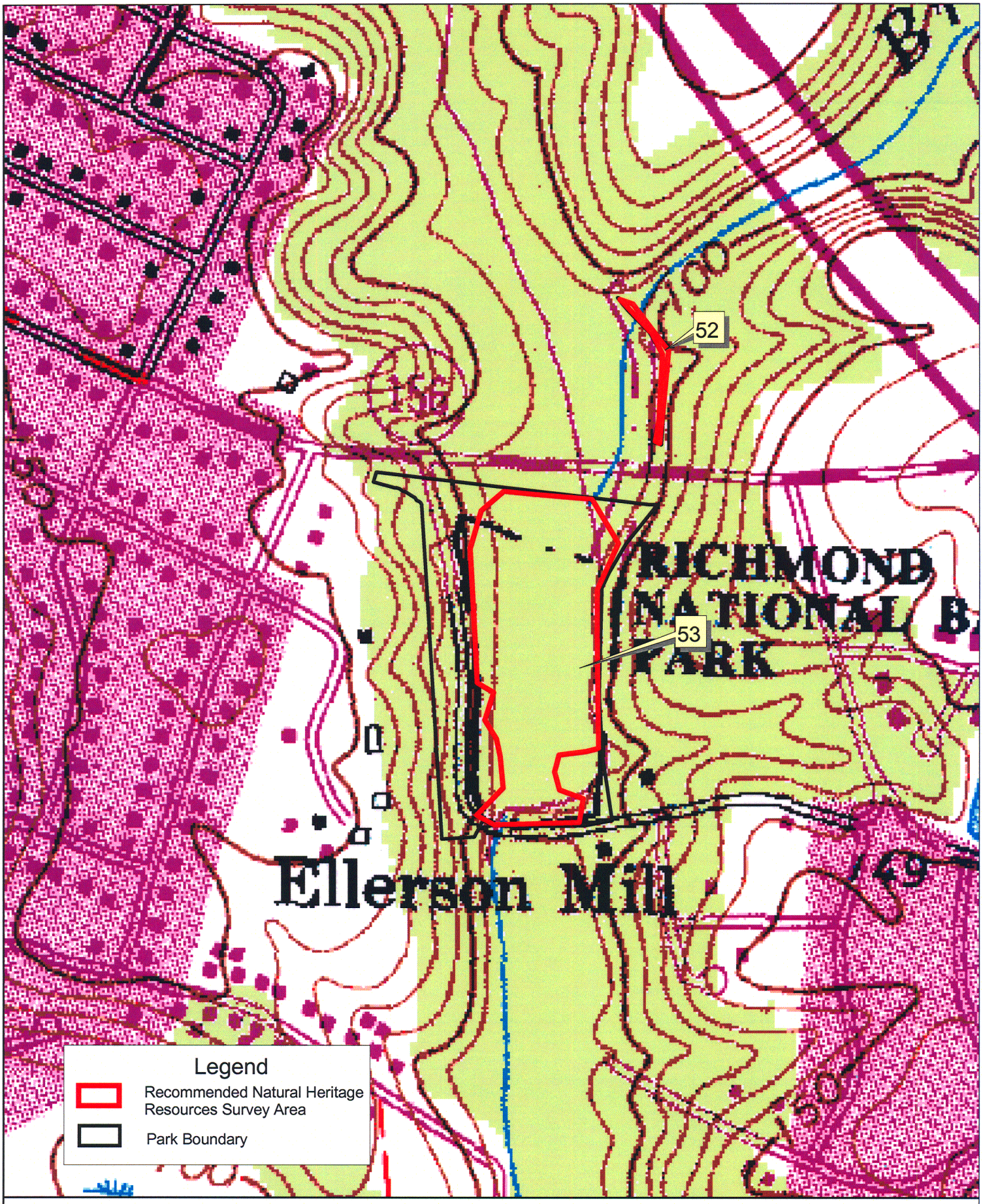


Figure 11. Beaverdam Creek Unit

Richmond National Battlefield Park

Seven Pines USGS 7.5 Qaudrangle
Numbers refer to Table 13

50 0 50 100 Meters

1:5024

Map printed 5/18/2004

N

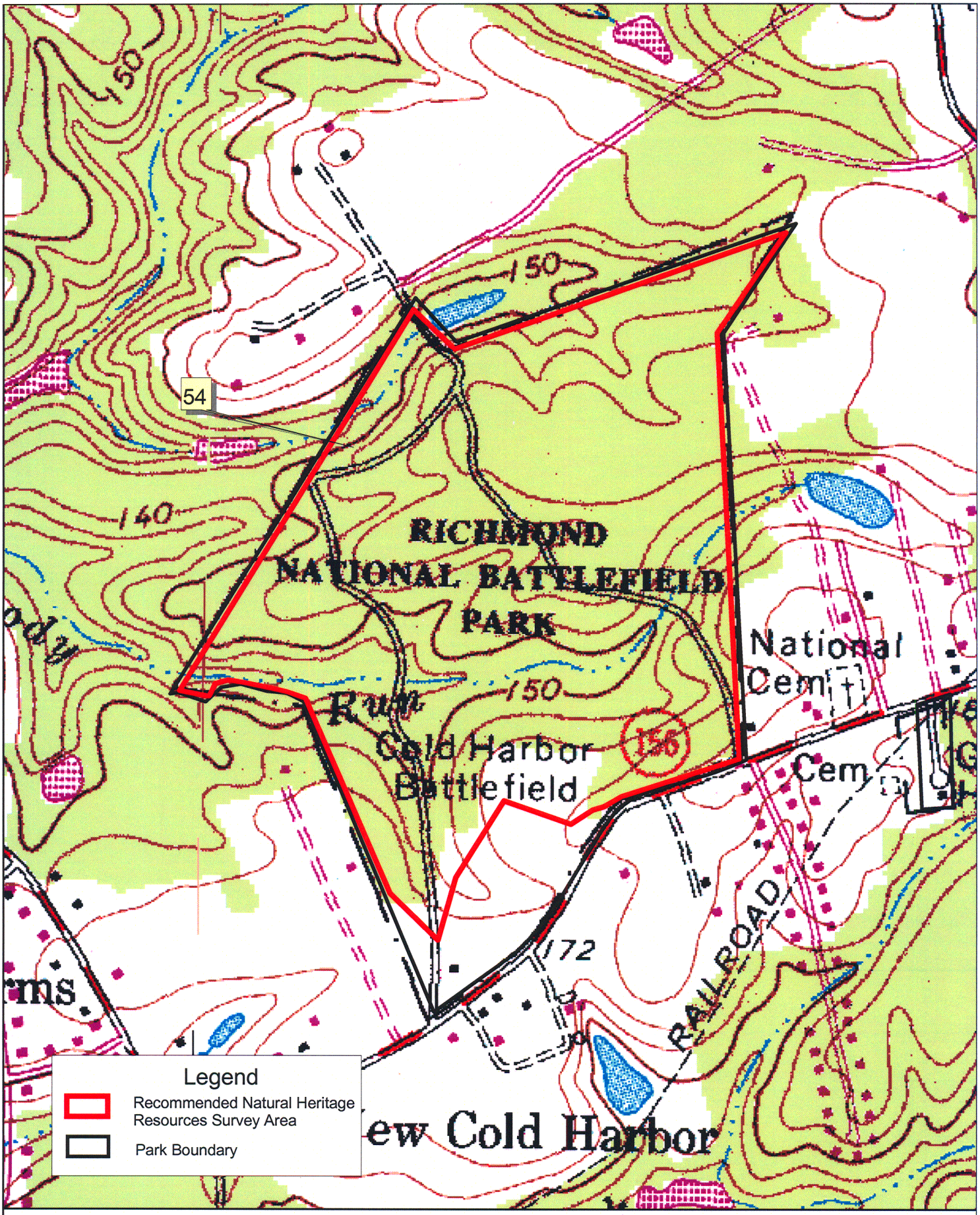


Figure 12. Cold Harbor Unit

Richmond National Battlefield Park

Seven Pines USGS 7.5 Quadrangle
Numbers refer to Table 13

76 0 76 152 Meters

1:7629

Map printed 5/19/2004

N

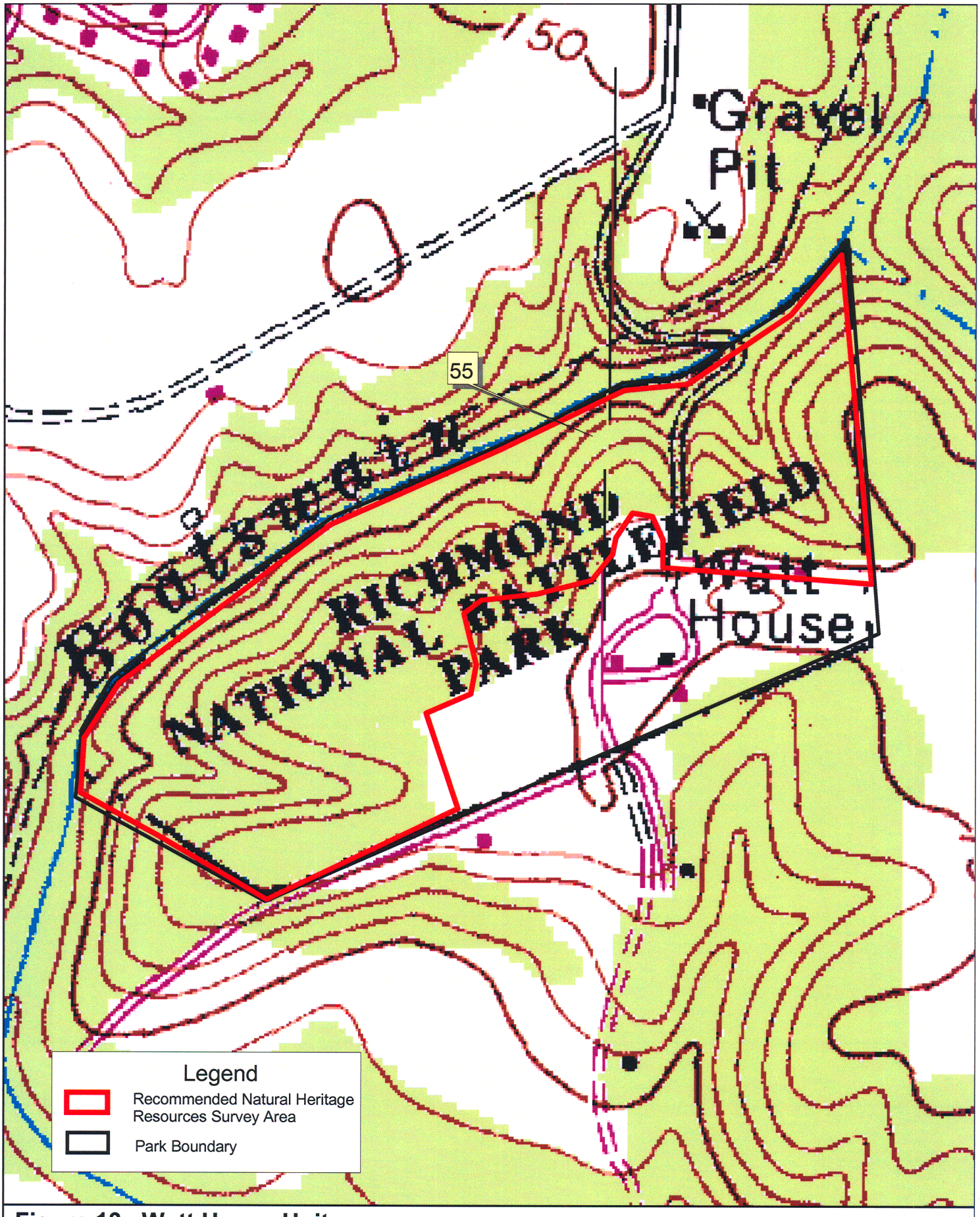


Figure 13. Watt House Unit

Richmond National Battlefield Park

Seven Pines USGS 7.5 Quadrangle
Numbers refer to Table 13

49 0 49 98 Meters

1:4881

Map printed 5/19/2004

N

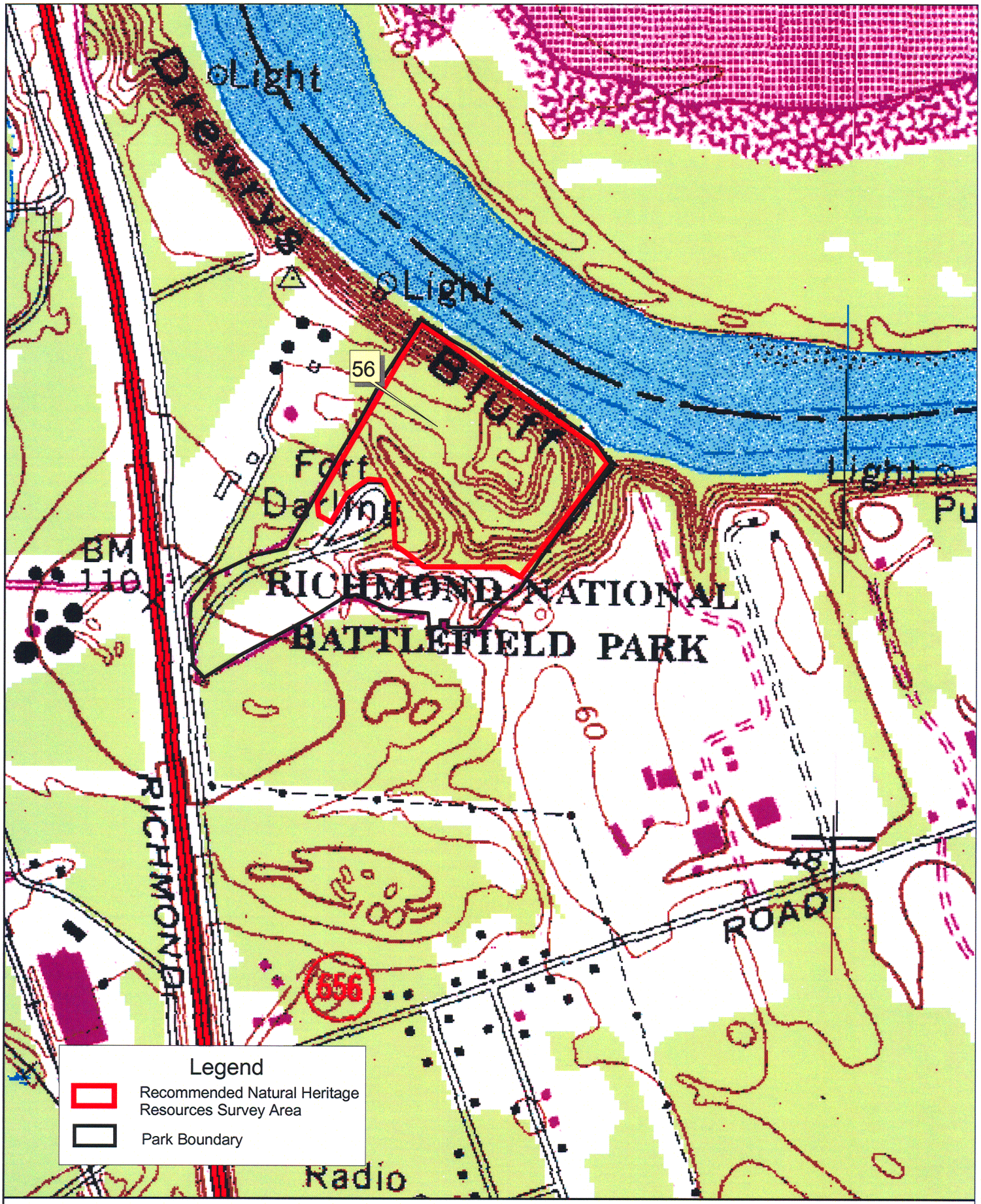


Figure 14. Fort Darling Unit

Richmond National Battlefield Park

Drewrys Bluff USGS 7.5 Quadrangle
Numbers refer to Table 13

57 0 57 114 Meters

1:7266

Map printed 5/19/2004

N

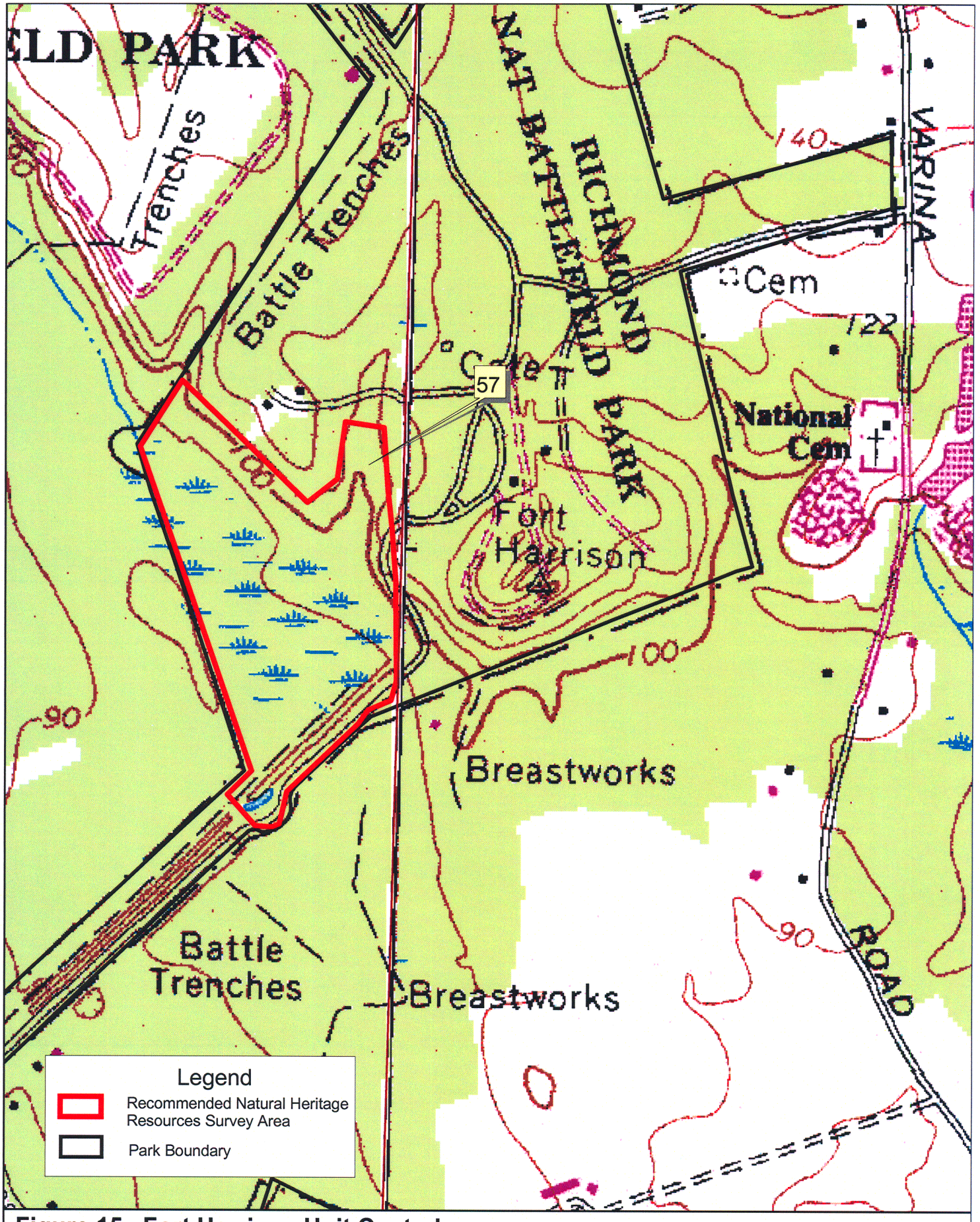


Figure 15. Fort Harrison Unit Central

Richmond National Battlefield Park

Drewrys Bluff and Dutch Gap USGS 7.5 Quadrangles
Numbers refer to Table 13

77 0 77 Meters

1:7730

Map printed 5/19/2004

N

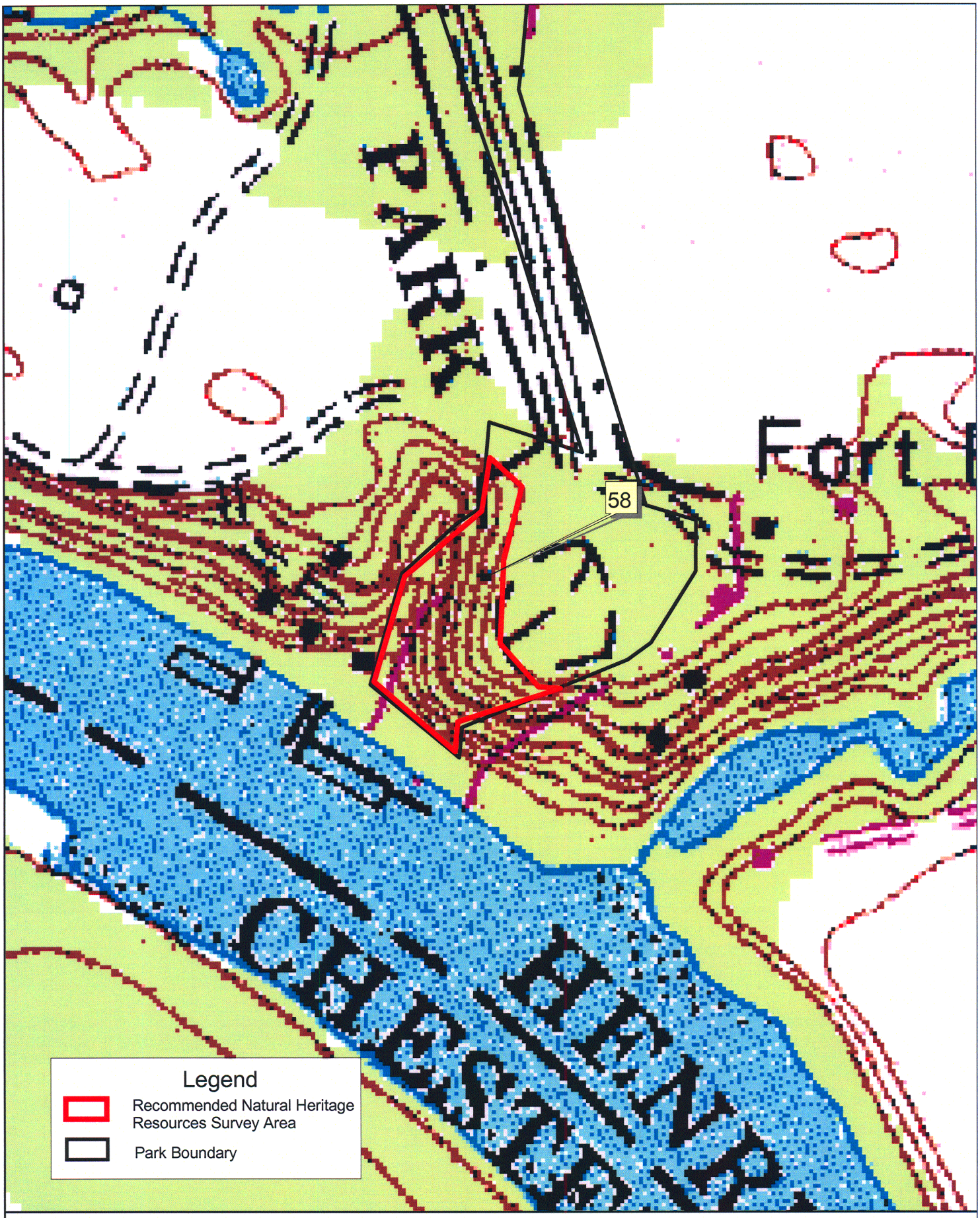


Figure 16. Fort Harrison Unit South

Richmond National Battlefield Park

Dutch Gap USGS 7.5 Quadrangle
Numbers refer to Table 13

32 0 32 64 Meters

1:3214

Map printed 5/19/2004

N

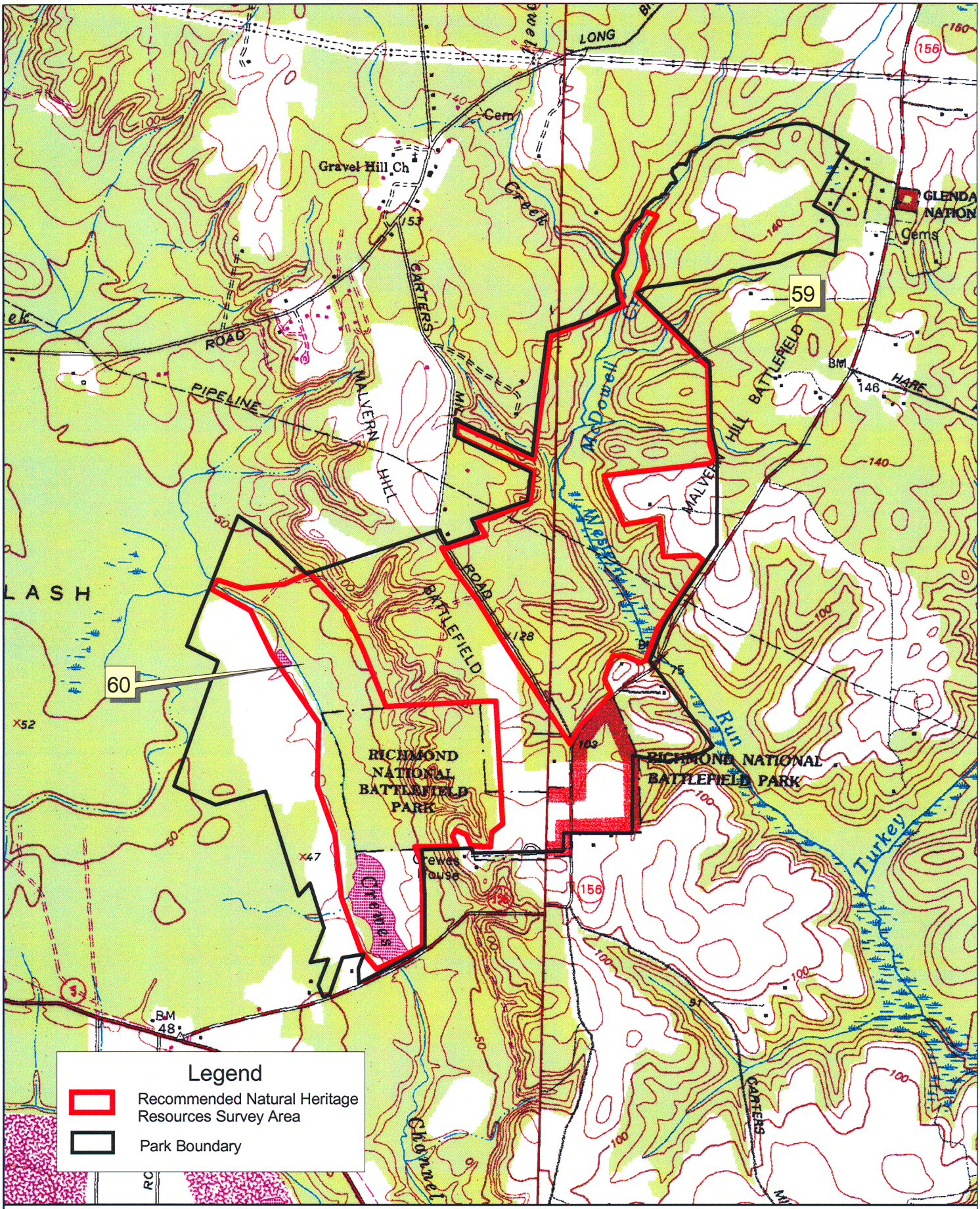


Figure 17. Malvern Hill Unit

Richmond National Battlefield Park

Dutch Gap and Roxbury USGS 7.5 Quadrangles
Numbers refer to Table 13

184 0 184 368 Meters

1:19528

Map printed 5/19/2004

N

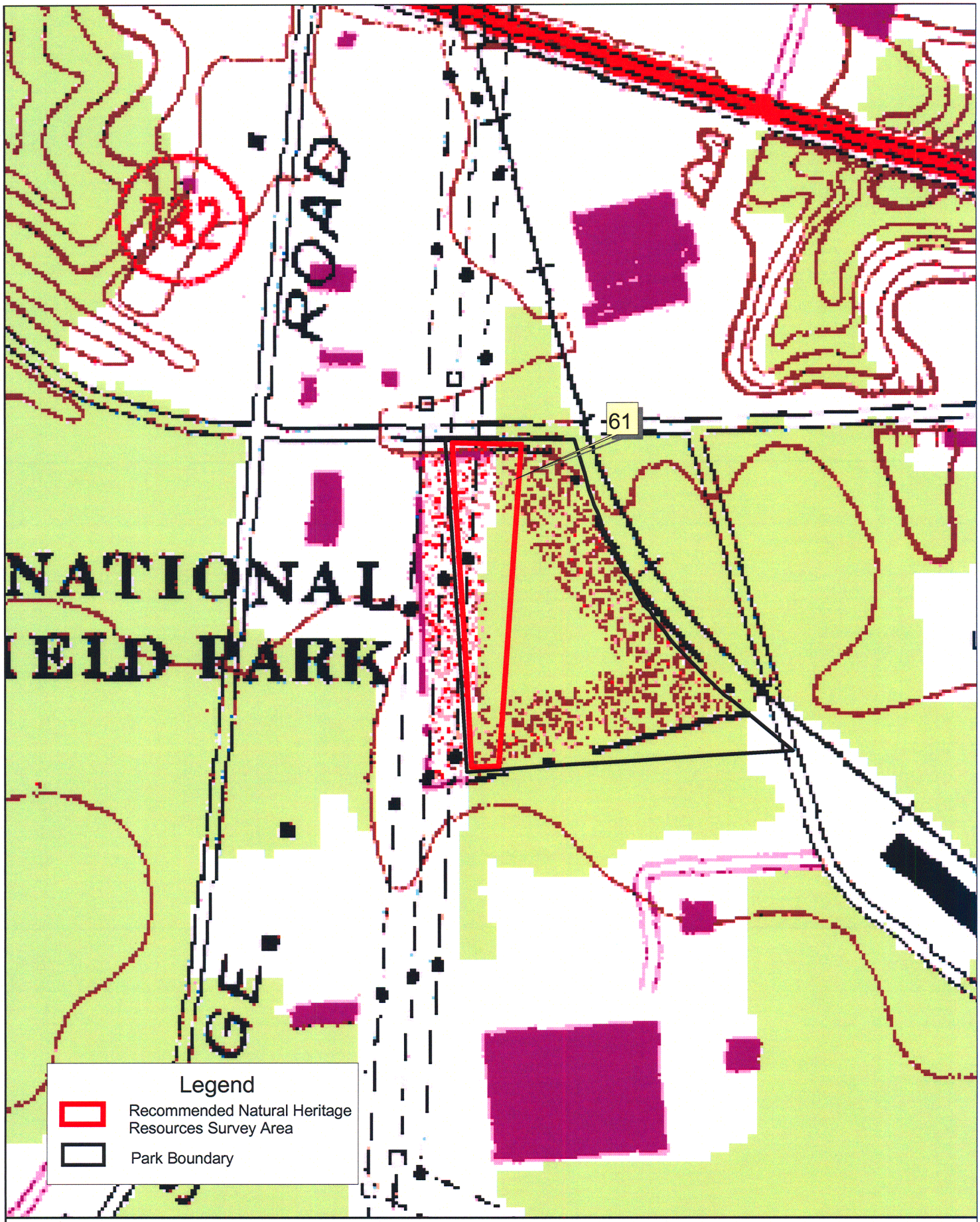


Figure 18. Parker's Battery Unit

Richmond National Battlefield Park

Chester USGS 7.5 Quadrangle
Numbers refer to Table 13

39 0 39 78 Meters

1:3932

Map printed 5/19/2004

N

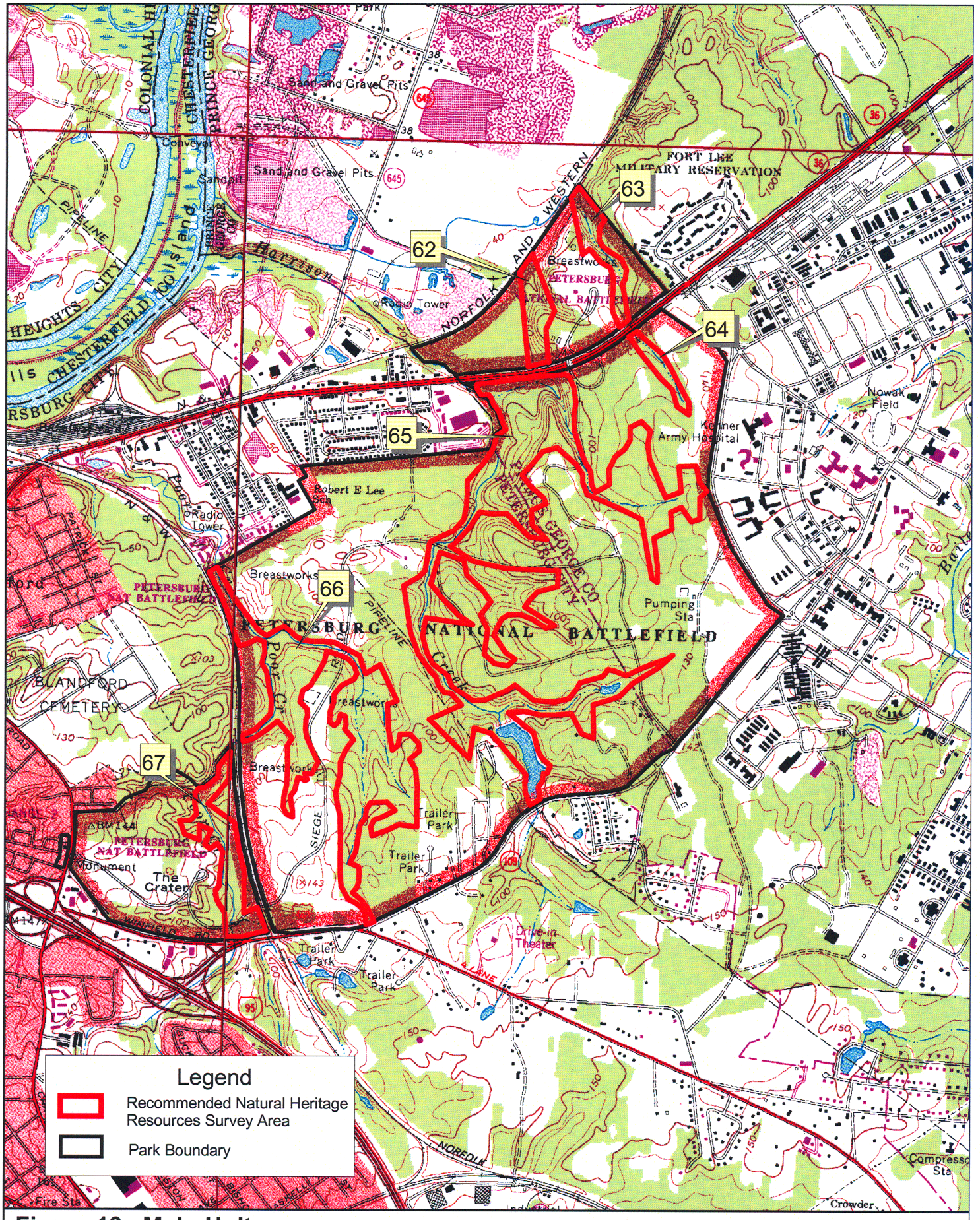


Figure 19. Main Unit

Petersburg National Battlefield

Petersburg and Prince George USGS 7.5 Quadrangles
Numbers refer to Table 13

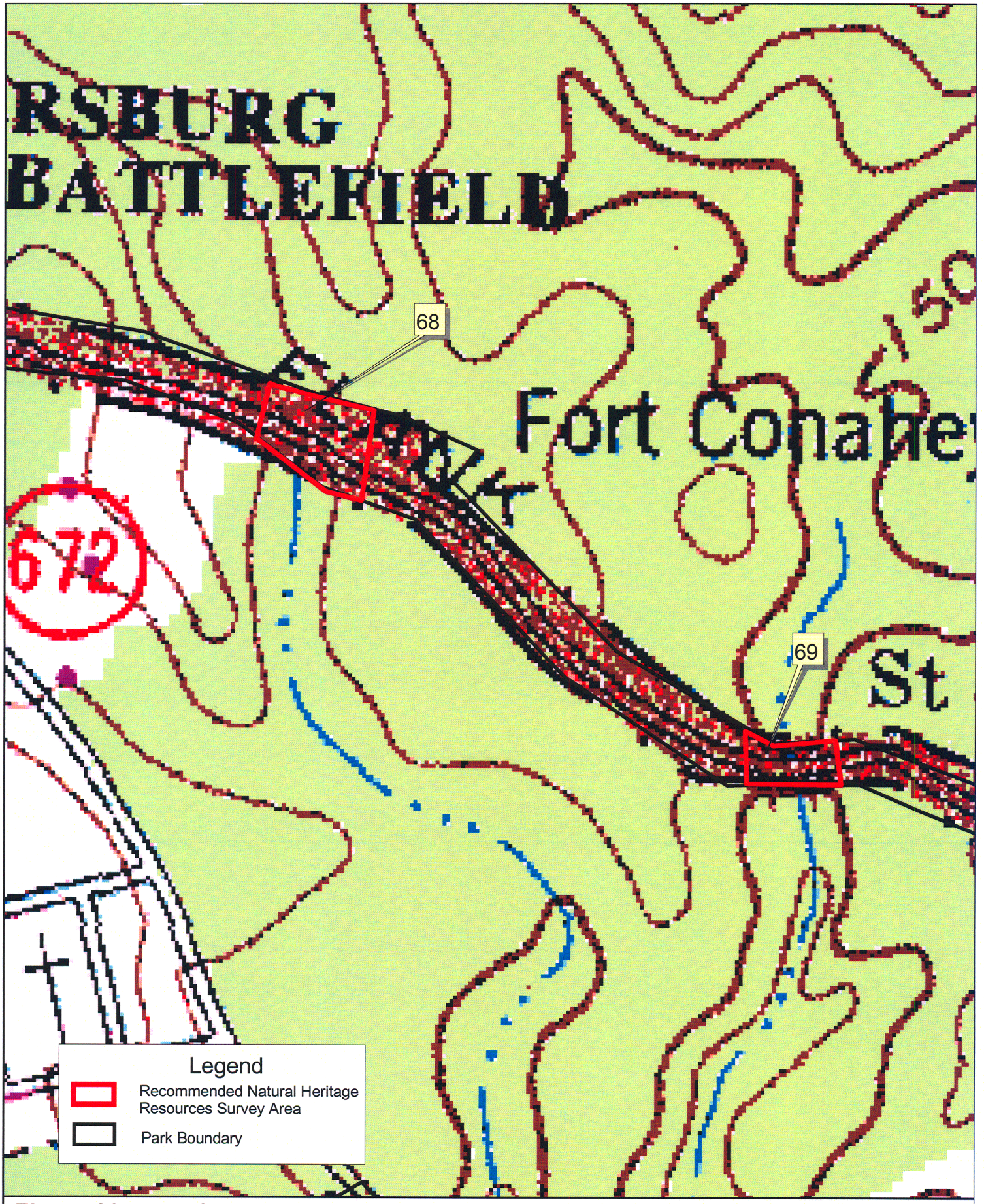


Figure 20. Fort Conahey Area

Petersburg National Battlefield

Petersburg USGS 7.5 Quadrangle
Numbers refer to Table 13

33 0 33 66 Meters

1:3272

Map printed 5/19/2004

N

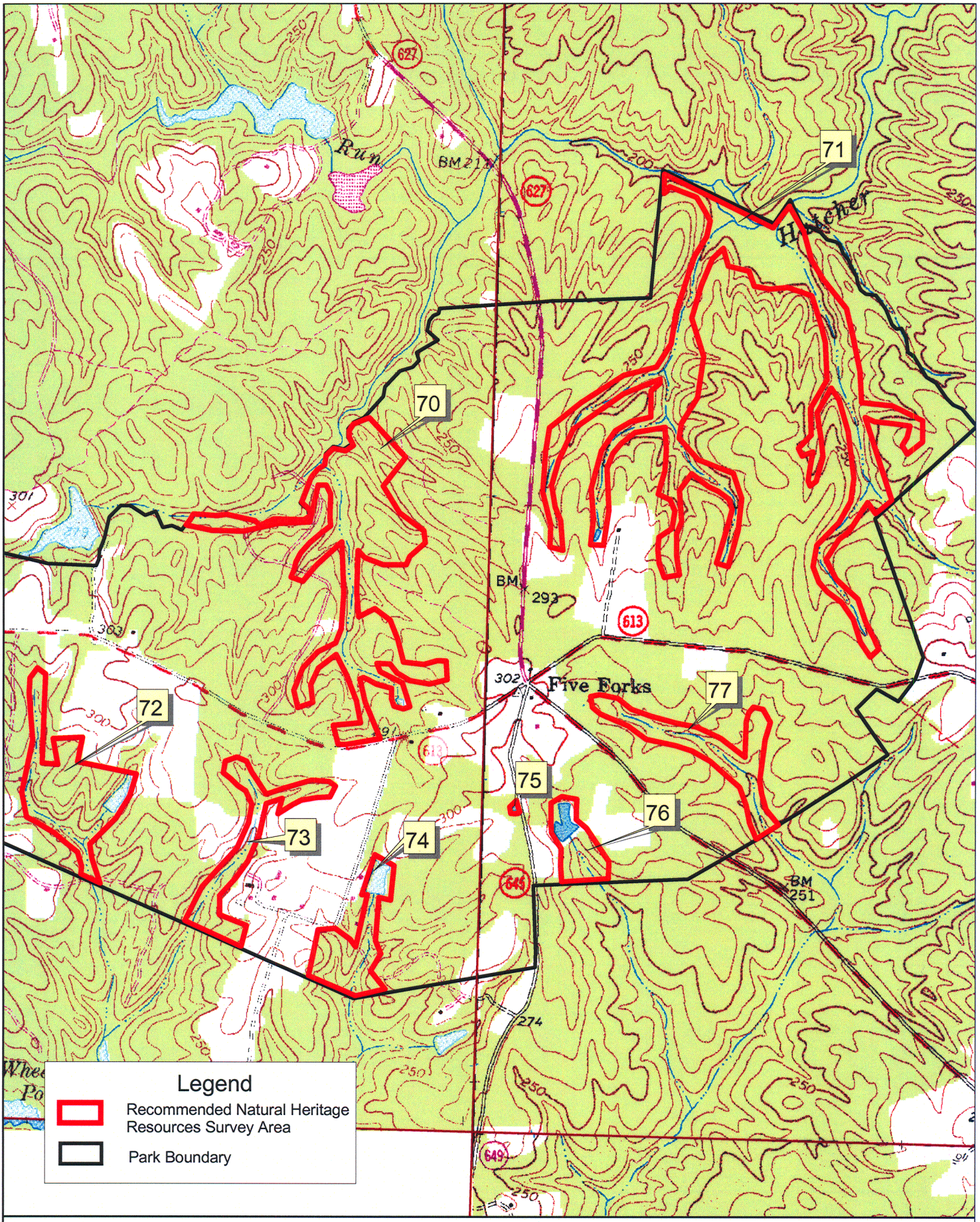


Figure 21. Five Forks Unit

Petersburg National Battlefield

Church Road and Sutherland USGS 7.5 Quadrangles
Numbers refer to Table 13

174 0 174 348 Meters

1:17404

Map printed 5/19/2004

N

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APPENDIX 1: DEFINITIONS OF ABBREVIATIONS USED ON NATURAL HERITAGE RESOURCE LISTS OF THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION

Definitions of Abbreviations Used on Natural Heritage Resource Lists of the Virginia Department of Conservation and Recreation

Natural Heritage Ranks

The following ranks are used by the Virginia Department of Conservation and Recreation to set protection priorities for natural heritage resources. Natural Heritage Resources, or "NHR's," are rare plant and animal species, rare and exemplary natural communities, and significant geologic features. The primary criterion for ranking NHR's is the number of populations or occurrences, i.e. the number of known distinct localities. Also of great importance is the number of individuals in existence at each locality or, if a highly mobile organism (e.g., sea turtles, many birds, and butterflies), the total number of individuals. Other considerations may include the quality of the occurrences, the number of protected occurrences, and threats. However, the emphasis remains on the number of populations or occurrences such that ranks will be an index of known biological rarity.

S1 Extremely rare; usually 5 or fewer populations or occurrences in the state and possibly only a few remaining individuals; often especially vulnerable to extirpation.

S2 Very rare; usually between 5 and 20 populations or occurrences or with many individuals in fewer occurrences; often susceptible to becoming extirpated.

S3 Rare to uncommon; usually between 20 and 100 populations or occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.

S4 Common; usually >100 populations or occurrences, but may be fewer with many large populations; may be restricted to only a portion of the state; usually not susceptible to immediate threats.

S5 Very common; demonstrably secure under present conditions.

SA Accidental in the state.

S#B Breeding status of an organism within the state.

SH Historically known from the state, but not verified for an extended period, usually > 15 years; this rank is used primarily when inventory has been attempted recently.

S#N Non-breeding status within the state. Usually applied to winter resident species.

SNR State rank not yet assessed; this rank is used when not enough information is available to rank a species or community.

SU Status uncertain, often because of low search effort or cryptic nature of the element.

SX Apparently extirpated from the state.

SZ Long distance migrant whose occurrences during migration are too irregular, transitory and/or dispersed to be reliably identified, mapped and protected.

Global ranks are similar, but refer to a species' rarity throughout its total range. Global ranks are denoted with a "G" followed by a character. Note that GA and GN are not used and GX means apparently extinct. A "Q" in a rank indicates that a taxonomic question concerning that species exists. Ranks for subspecies are denoted with a "T". The global and state ranks combined (e.g. G2/S1) give an instant grasp of a species' known rarity.

These ranks should not be interpreted as legal designations.

Federal Legal Status

The Division of Natural Heritage uses the standard abbreviations for Federal endangerment developed by the U.S. Fish and Wildlife Service, Division of Endangered Species and Habitat Conservation.

LE Listed Endangered - threatened with extinction throughout all or a significant portion of its range
LT Listed Threatened - likely to become endangered in the foreseeable future
PE Proposed Endangered
E(S/A) Treat as endangered because of similarity of appearance
PT Proposed Threatened
T(S/A) Treat as threatened because of similarity of appearance
C Candidate - enough information is available to propose for listing, but listing is precluded by other pending proposals of higher priority
SOC Species of Concern -- species that merit special concern (not a regulatory category)
NF No federal legal status

State Legal Status

The Division of Natural Heritage uses similar abbreviations for State endangerment.

LE	Listed Endangered	**PE**	Proposed Endangered
LT	Listed Threatened	**PT**	Proposed Threatened
C	Candidate		
SC	Special Concern -- animals that merit special concern according to VDGIF (not a regulatory category)		
NS	No state legal status		

Conservation Site Ranks

Brank is a rating of the significance of the conservation site based on presence and number of natural heritage resources; on a scale of 1-5, 1 being most significant:

B1 - Outstanding significance
B2 - Very high significance
B3 - High significance
B4 - Moderate significance
B5 - of General Biodiversity significance

Site names ending in Habitat Zone are B5 sites on private lands.

For information on the laws pertaining to threatened or endangered species, contact:

U.S. Fish and Wildlife Service for all FEDERALLY listed species
Department of Agriculture and Consumer Services Plant Protection Bureau for STATE listed plants and insects
Department of Game and Inland Fisheries for all other STATE listed animals