draft

ENVIRONMENTAL ASSESSMENT

CABIN BRANCH PYRITE TRAIL RESTORATION PROJECT

Prince William Forest Park

1998

Approved:

_____ _____

Superintendent, Prince William Forest Park Date

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I. EXECUTIVE SUMMARY

This Environmental Assessment has been prepared to outline the various alternatives considered to restore the Pyrite Mine Trail that was removed to implement the Cabin Branch Pyrite Mine Reclamation Project in July, 1995. Several alternatives were considered, with the Preferred Alternative being Alternative E.

Alternative E includes restoring the hiking trail across Tailings Pile B in the form of a boardwalk, complete with a viewing platform and wayside exhibit. The new trail would consist of a spur trail, allowing visitors to visit the reclaimed mine site, but would not provide a link to the remaining trail system.

The reclamation project restored a vegetative layer to the mine site, consisting primarily of both native and nonnative grasses. This vegetative cover is extremely fragile and even minimal direct hiking use of the site could trigger the severe erosion that existed on the site prior to its reclamation.

Details of the reclamation project can be found in the "Environmental Assessment, Cabin Branch Pyrite Mine Reclamation Project," dated March 1, 1995.

II. PURPOSE AND NEED FOR PROPOSAL

The Cabin Branch Pyrite Mine site is the most accessible and most popular of the historic resources in Prince William Forest Park. The reclaimed abandoned mine site contains approximately 5 acres of fragile grassland in place since September, 1995.

This Environmental Assessment will examine the range of alternatives and their associated impacts for restoring Pyrite Mine Trail. The restoration project will focus on creating a minimal impact trail that will allow the fragile vegetation an opportunity to develop a more stabile, permanent plant community. The long-term goal as stated in the reclamation project Environmental Assessment (EA) was to "reestablish hardwood forest throughout the project area."

III. DESCRIPTION OF THE ENVIRONMENT

A. Cabin Branch Pyrite Mine Site

The Cabin Branch Pyrite Mine lies within the Quantico Creek watershed, which encompasses over 17 square miles of park land. The north branch drainage basin is essentially undeveloped and provides critical habitat for a number of native aquatic species. The South Fork drainage basin, which is significantly influenced by anthropogenic activities, is also mostly forested and provides necessary wildlife habitat. The water quality in both branches of Quantico Creek is generally good and supports numerous fish species and benthic organisms.

Table 1. lists Threatened or Endangered species of wildlife for Prince William Forest Park. None of the species identified in Table 1 have been found at the Cabin Branch Pyrite Mine site, the area of impact from the considered alternatives.

Table 1. THREATENED, ENDANGERED AND RARELY SEEN PLANT AND WILDLIFE SPECIES, PRINCE WILLIAM FOREST PARK

THREATENED (USFWS)	**ENDANGERED (USFWS)**	**RARELY SEEN**
Small whorled pogonia (*Isotria medeoloides*)	none	Timber rattlesnake (*Crotalus horridus*)
RARE SPECIES (VA)	**CATEGORY 3C SPECIES (USFWS)**	
Star-nosed mole Diana butterfly Tiger beetle	*Lithophane lemmeri*	

The Cabin Branch Pyrite Mine site is the most accessible and popular historical resource in Prince William Forest Park. Despite its popularity among visitors, the park possesses little documentation on the pyrite mine or its history. Interpretation of the site is based on a few newspaper clippings and a long tradition based upon oral history. The Weems-Botts Museum in Dumfries, VA, has a small display on the mine. No formal research of the mine has ever been undertaken and, therefore, the park lacks detailed cultural and historical resources data. An Historic Resources Study (HRS) has

been identified as an unfunded need in the most recent Resource Management Plan (RMP) for Prince William Forest Park (1995). Park staff have performed preliminary data collection for the on-site ruins, consisting primarily of photographs, site mapping and measurement of features, as appropriate. The site has been submitted for inclusion in the National Historic Register. Cultural resource compliance (Section 106) has been initiated for the site.

IV. ALTERNATIVES CONSIDERED

Alternative A. No Action

The Pyrite Mine Trail section that would lead through the reclamation site is currently closed to visitation (Figure 1). Since the pyrite mine is the most visited destination in the park, visitor inquiries as to the reason for the closure have been numerous. The site is also a key cultural feature that was once the economic mainstay of the area. Educational programs have ceased because of the site closure and the opportunity to interpret this important feature to school groups and the public has been absent since July of 1995. This situation will continue under the no action alternative.

Alternative B. Restore Hiking Trail Pile B Area With Wooden Bridge

Alternative B would primarily consist of restoring the hiking trail on the tailings pile B side of Quantico Creek. The trail, a raised boardwalk, would lead to a bridge over Quantico Creek that would tie it in with the existing trail (Figure 2). A viewing platform with a wayside exhibit would provide an unobstructed view of the remaining building foundations and mine closures across the creek. Some clearing/trimming of trees would be needed to enhance the viewshed from the viewing platform. The bridge construction would consist of a wooden bridge constructed on-site. A wooden bridge would be constructed with materials carried in or trailered on a small all-terrain cycle, and would only require the removal of trees directly adjacent to the abutments. The construction of cement stantions that might necessitate truck access to the bridge abutment area, requiring additional tree removal and some road/trail improvement for heavy vehicular traffic. Prior to the construction of stantions in the floodplain, US Army Corps permit requirements must be met.

Alternative C. Restore Hiking Trail Pile B Area With Steel Bridge

Alternative C consists of restoring the trail as mentioned in Alternative B, substituting a steel structure bridge in place of the wooden bridge previously described (Figure 2). To minimize impacts of installation, the bridge would need to be air-lifted on-site by helicopter. Factors such as the dimensions of the bridge and type of available aircraft would determine the number of trees to be cleared to accomplish this task. It is estimated that a fairly large, i.e., 100 foot radius, forested area would need to be cleared to ensure safety of the aircraft/personnel during this operation. Additional trees will need to be removed and a temporary road constructed to facilitate equipment and materials access to the bridge site, as mentioned in Alternative B. Prior to the construction of stantions in the floodplain, US Army Corps permit requirements must be met. The number of trees to be removed and the anticipated impact from temporary road construction make this Alternative less desirable. In addition, this Alternative is the high cost alternative, with the estimated price of a steel bridge exceeding $50,000.

Alternative D. Restore Hiking Trail Pile A Area (No Bridge)

This alternative would entail restoring the trail to the tailings pile A area (Figure 3). The boardwalked trail would traverse pile A (directly in front of the hillslope) and tie into the existing trail at both ends. All materials would be carried or trailered on a small all-terrain cycle. This Alternative is not recommended for several reasons. First, the open area known as Pile A was completely recontoured in 1995. The vegetative cover and soil material is extremely fragile. Even with the construction of a boardwalk, the openness of the area will encourage visitors to leave the designated trail. The uncontrolled trampling could easily restart the process of erosion, which was severe prior to the reclamation project. Secondly, this alternative does not provide the optimum viewing area to best interpret the site. The headframe foundation and mine shaft markers are not easily visible and a wayside at this location would not be as effective as one placed across the creek at Pile B. Although this Alternative is the low-cost alternative, the benefits of enhancing a trail traverses the most-visited destination in the park, in combination with the improved interpretive value, greatly exceed the minimal cost of Alternative B (approximately $30,000).

Alternative E. Restore Trail/Boardwalk and Viewing Platform Only (Spur Trail)

This Alternative would entail restoring a trail, in the form of a boardwalk, to the tailings pile B area, where it would end at the viewing platform (Figure 4). This trail would serve as a spur trail only, and would not tie into the existing trail system. It would represent the lowest cost alternative (other than the No Action Alternative A) and still provide visitors the opportunity to view the Cabin Branch Pyrite Mine Site and gain an understanding of the site through the viewing platform and wayside exhibit. As a spur trail, it would not allow visitors to hike through the area to the other trails in the system, rather, visitors would hike to the viewing platform and then retrace their steps back to Pyrite Mine Road.

V. ENVIRONMENTAL IMPACTS

A number of ecological, aesthetic, cultural, visitor-use, and safety concerns have been considered in assessing the potential environmental impacts of the alternatives. There are no anticipated impacts to populations of federal or state listed threatened, endangered, or sensitive plant or animal species. All of the alternatives considered include areas adjacent to or within floodplains, however, no impact is anticipated as a result of Alternatives B, C, or E. Only limited archeological surveys have been conducted at the project site, however, most of the impacted area for Alternatives B, C, D and E consist of recently disturbed land. Under Alternative B or C there would be an extension of the trail through previously undisturbed ground that should be surveyed to determine if significant archeological resources exist.

Alternatives B and C will require varying levels of disturbance to the proposed project area. The most extensive resource damage would occur with the implementation of Alternative C, since the installation of a large steel bridge would require repeated heavy equipment visits and large scale tree clearing. A hardened road surface would be needed on both sides of Quantico Creek across the recently revegetated reclamation area. The construction of these access roads would not only increase erosion and sedimentation during construction, but their removal and subsequent revegetation of the area could impact the prior reclamation work. Compacting soil in this fragile area may redirect surface and groundwater and may disturb the "sealed" tailings which are

immediately below 1 foot of topsoil throughout the reclamation site. Any alternative selected would need to completely avoid disturbance of this topsoil/tailings barrier to prevent reintroduction of acid producing materials to the surface.

At least 4 temporary structures would be required for larger vehicles to cross the stormwater conveyances remaining on-site. For Alternative B, most of the disturbance to the site could be mitigated by utilizing all terrain cycles with trailers to haul supplies and materials because of the smaller scale needed to construct a wooden bridge. This would eliminate at least 1 access road installation and reduce the amount of work needed to gain access on the eastern side of the creek.

Alternative E would have limited ground disturbance through the installation of the boardwalk and viewing platform. Virtually all supplies and equipment could be hand carried onto the site, eliminating the need for vehicular traffic over the reclaimed/emergent vegetation.

The cost of the alternatives varies, with Alternatives A, D, and E being least expensive, Alternative B in the mid-range, and Alternative C most expensive to implement. Alternatives A and D are not considered reasonable choices as Alternative A maintains a permanent closure of a valuable recreational and cultural resource site, and Alternative D is a minimal cost alternative that does not consider the resources damage that could result from restoring the trail where it previously failed. Alternative B represents a reasonable cost and addresses many of the concerns not addressed in Alternatives A and D. A wooden bridge would resolve the current trail reconstruction dilemma, but it would need to be replaced on a more frequent basis than the steel bridge. Alternative E is a low-cost alternative that allows for the site to be opened to visitors, while eliminating serious environmental impacts. However, it does not fully restore the previous trail in that it would not tie into the existing trail system. Visitors would be able to visit the reclamation site, but would be forced to retrace their steps in order to rejoin the park trail system at the Pyrite Mine Road.

The steel bridge in Alternative C is a high cost alternative that initially would cause some serious resource impacts that are not easily mitigated (e.g., large scale tree removal, access road construction and removal), but would be a more long-term solution to trail access to this site. However, the potential effect on the reclaimed portion of the project from implementation of Alternative C could also have far reaching impacts on the stabilization of the site. This Alternative, even if carefully planned and executed is one whose outcome may be questionable.

For the reasons stated above, it is recommended that Alternative E be selected as the preferred Alternative for the proposed project. It represents a low-cost alternative that allows for the site to be reopened and accessible to visitors.

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Figure 1. Alternative A. No Action

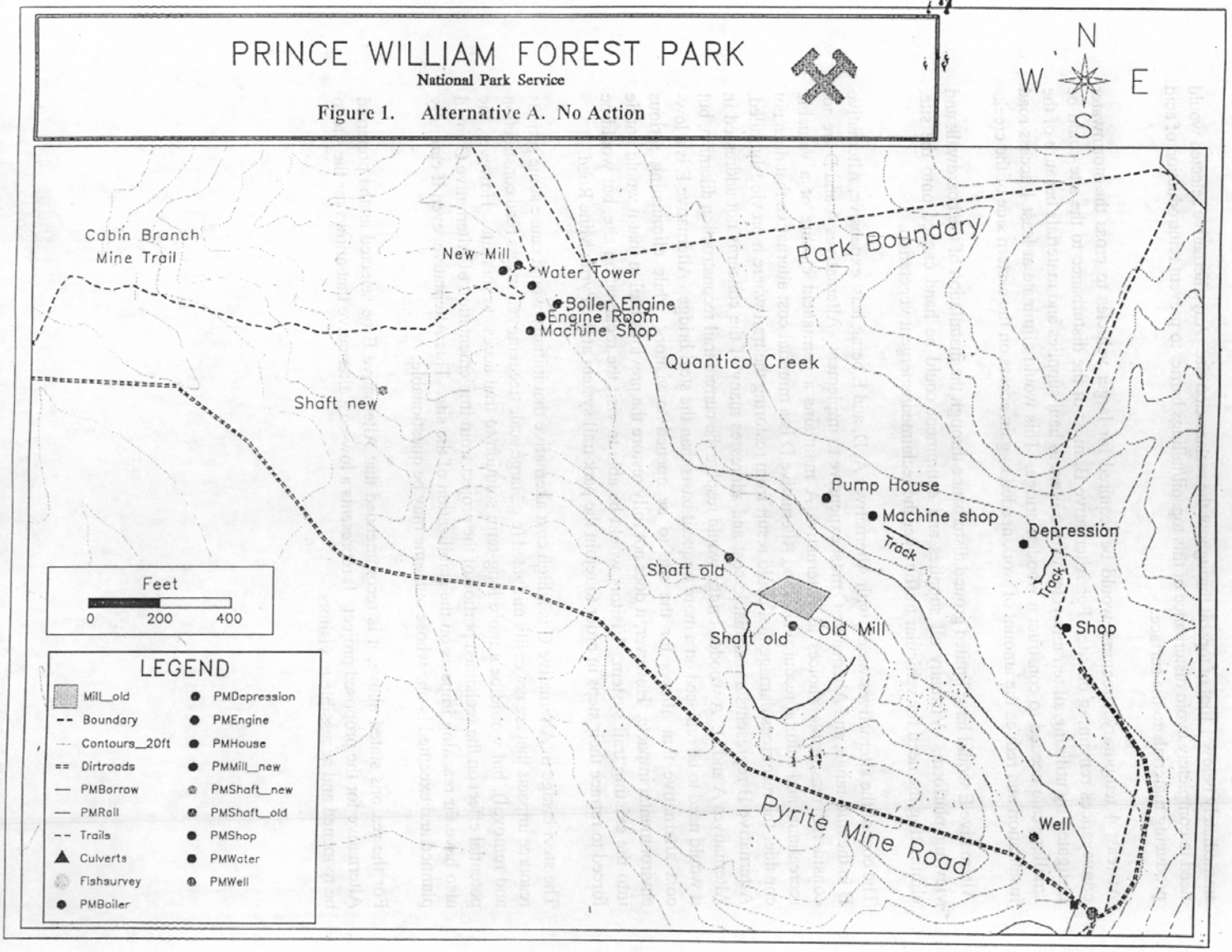

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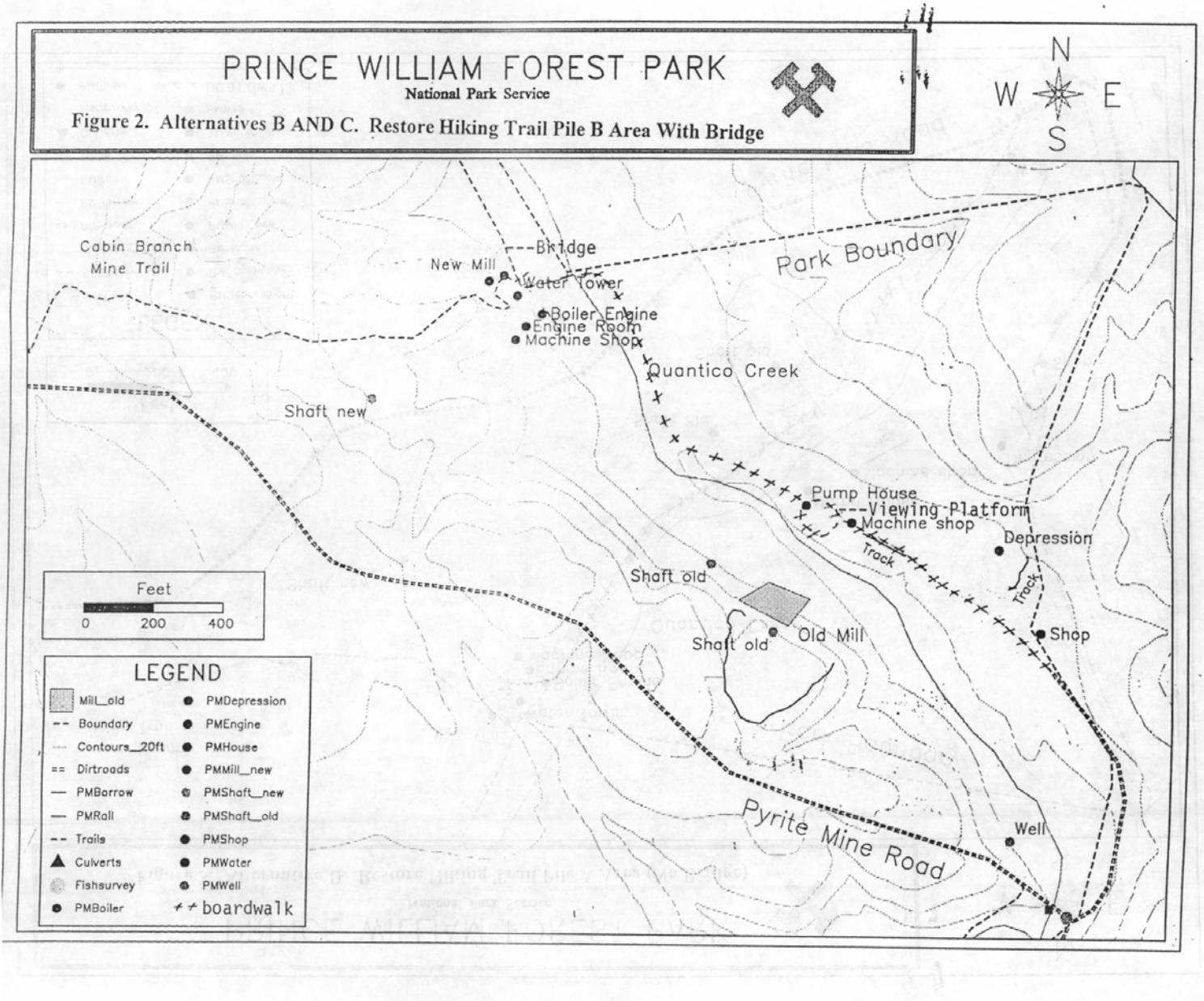
Figure 2. Alternatives B AND C. Restore Hiking Trail Pile B Area With Bridge



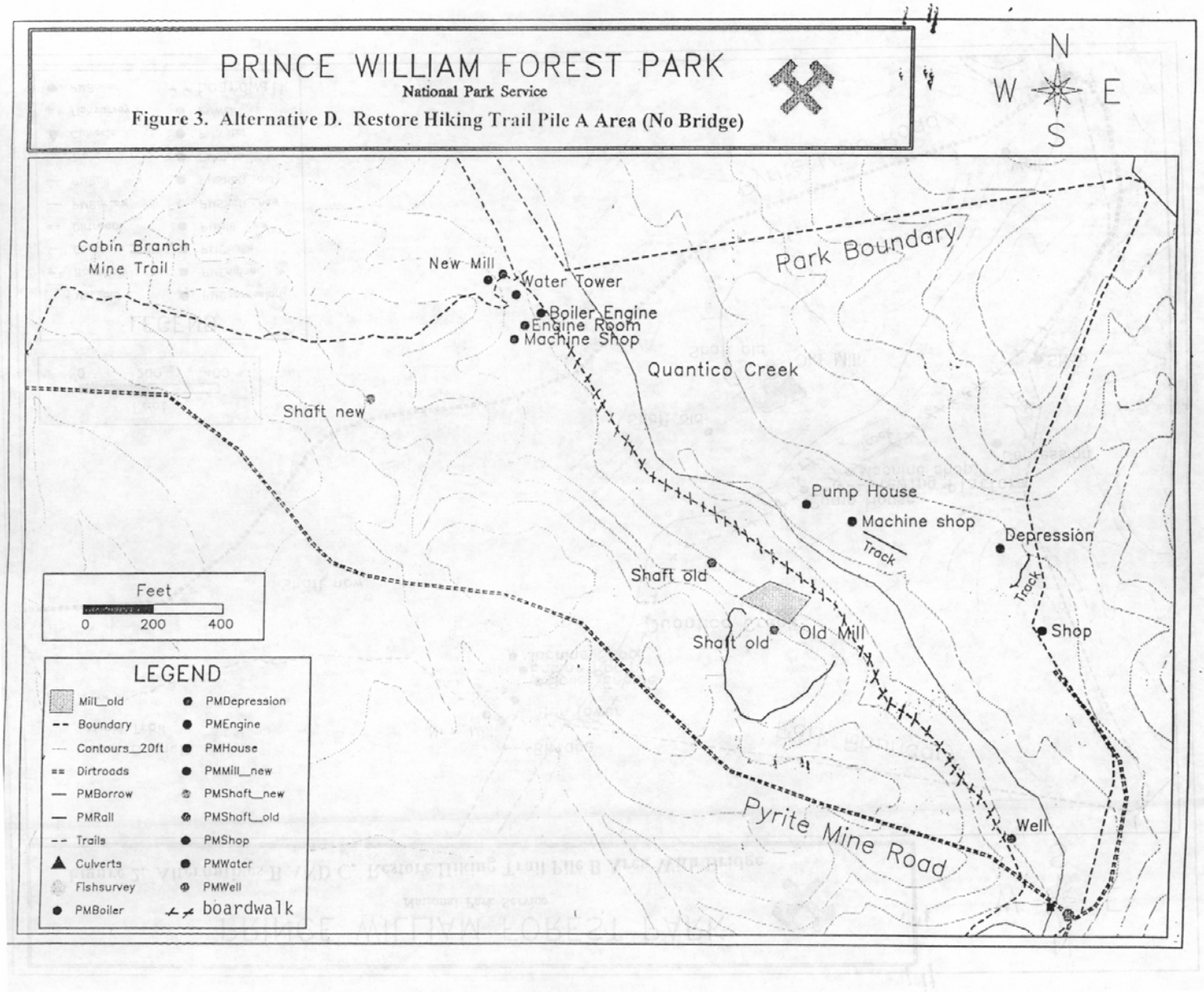

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Figure 3. Alternative D. Restore Hiking Trail Pile A Area (No Bridge)
N
W
E
S
Cabin Branch
Mine Trail
New Mill
Water Tower
Boiler
Engine Room
Machine Shop
Park Boundary
Quantico Creek
Shaft new
Pump House
Machine shop
Track
Depression
Track
Shaft old
Shaft old
Old Mill
Shop
Pyrite Mine Road
Well
Feet
0
200
400
LEGEND
Mill_old
Boundary
Contours_20ft
Dirtroads
PMBorrow
PMRail
Trails
Culverts
Fishsurvey
PMBoiler
PMDepression
PMEngine
PMHouse
PMMill_new
PMShaft_new
PMShaft_old
PMShop
PMWater
PMWell
boardwalk

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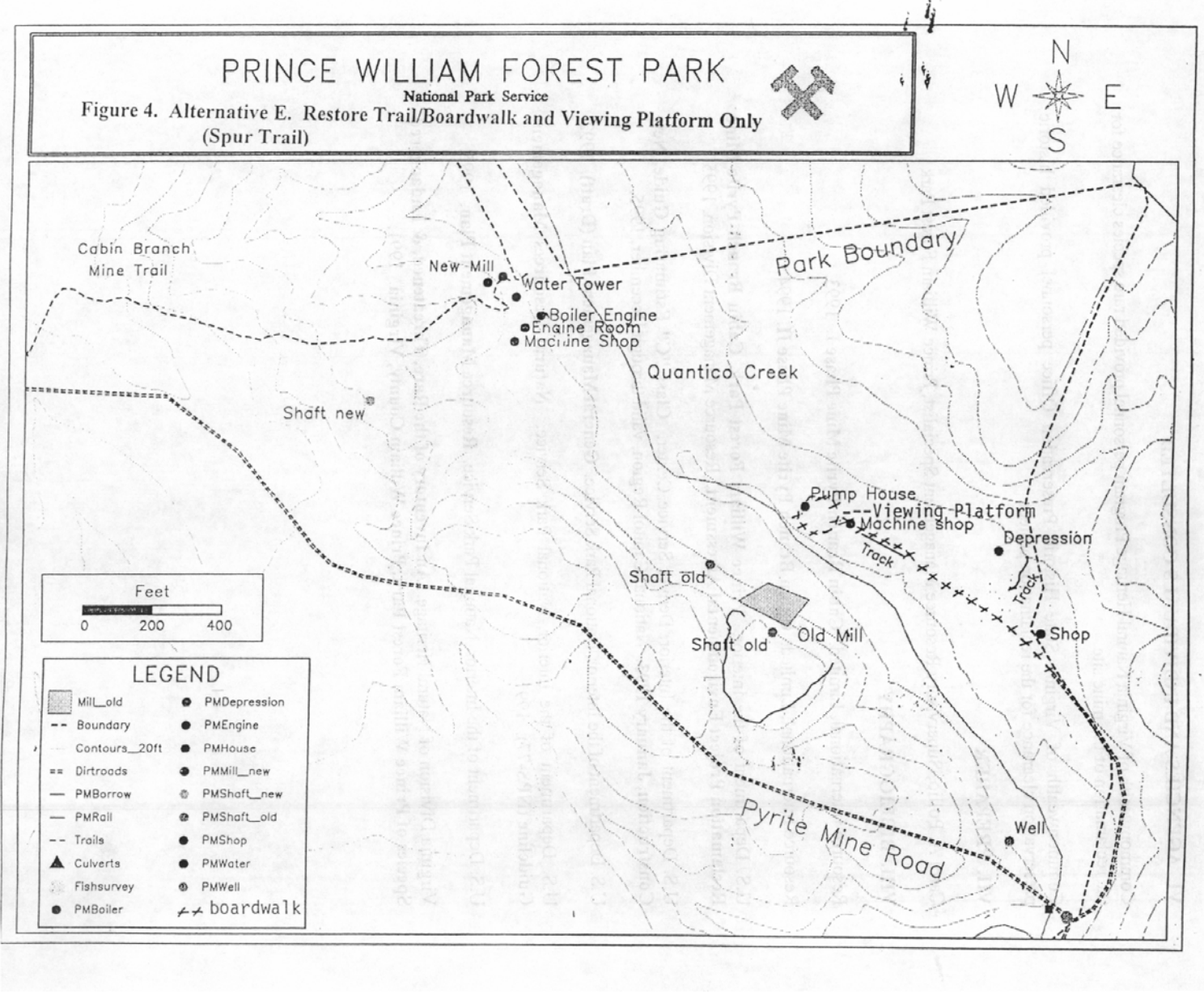
Figure 4. Alternative E. Restore Trail/Boardwalk and Viewing Platform Only (Spur Trail)



VI. AGENCIES AND INDIVIDUALS CONSULTED

Commonwealth of Virginia Natural Heritage Program personnel provided rare species clearance for the reclamation of the mine site.

Commonwealth of Virginia State Historic Preservation Office personnel provided historic preservation clearance for the reclamation project.

VII. PREPARER

Carol A. Pollio, Supervisory Resource Management Specialist, Prince William Forest Park

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