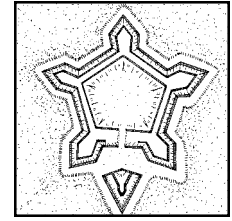


GLOSSARY OF EARTHWORKS TERMINOLOGY



Technical Support Topic One

INTRODUCTION

This glossary is intended to provide a basic overview of the terms and parts of a field fortification. The definitions have been simplified to provide the user of this manual an idea of what they should be identifying in the field fortifications they are working on. Also, a short sentence or two have been included to show what might remain today and the significance or rarity of the feature. Terms that are typically used in relation to field fortification and describe features that are likely to be found today have been included. Definitions of several features that probably will not be found extant today have been added due to their widespread use and to provide a general knowledge of the entire entity of a fortification as a historic structure with historic features.

While using this glossary, remember that all terms are not always consistent. The people of the time used the same principles and doctrines for fortification that has been practiced for centuries in Europe. However, not everyone studied these principles in detail, and many added their own ideas to the design. Sometimes the remaining earthwork appears to be right out of Mahan and all the definitions fit perfectly. Other earthworks look like they were not based on any design, just constructed. Many times the soldiers of the time interchange the nomenclature of a structure mis-identifying features and entire structures. This practice has confused many and led to several mis-identifications. Such mis-identification is part of the historical record and should be recorded and maintained; even after correcting the mistake.

TERMS

Abatis - Felled trees, with small branches and leaves removed, placed as a defensive obstacle. Usually placed to the front of the fortification, often in an upright position against the counterscarp, or at the foot of the glacis. The remaining limbs would have been sharpened to produce knife-like edges. The abatis would have been placed so as not to obstruct rifle or artillery fire or line-of-sight. Little or no chance of finding historic examples of abatis in the field.

Advanced Covered Way - An advanced covered way allowed for movement into positions in advance of the main line. The covered way was an earthen terre plein with a back ditch and covered by some form of parapet. Advanced covered ways are not often found today due to their relative

smaller size and location. However, it is possible that some still exist. They appear as small level areas, between a ditch and parapet, well in advance of the main lines. Often the existing ditch and parapet have eroded tremendously due to their relative small size and weaker construct.

Advanced Ditch - An excavation beyond the glacis of the main fortification. Often associated with a covered way. The ditch is unique in the fact that the slope closest to the main fortification is cut down in order to prevent the enemy from using it as protection. Potential of finding it today is similar to the advanced covered way.

Advanced Works - Fortifications in advance of the main ditch, but still within firing range of the main works.

Angle - Point where two faces of a fortification meet.

Angle of Defense - The angle formed by one face and its opposite.

Apex - The foremost angle of a fortification.

Approaches - The trenches of a besieger used to move in toward the work under attack..

Banquette - An earthen step parapet which allows the defenders to fire over the crest of the parapet. The banquet is part of the parapet construction located at the base of the interior slope of the parapet. Today, the banquet is often found as a small mound of earth at the base of the interior slope of the parapet. It is also quite common for a banquet to be built as part of the glacis. It is not uncommon to find some element of the banquet today.

Barbette - A term meaning that the artillery in the fortification fired over the parapet wall, not through embrasures. When looking at a fortification today that apparently has no embrasures; the guns may have been en barbette. This was accomplished by raising the guns by means of a large carriage or building an earthen structure to raise the level of the guns. The earthen structure may be in the form of a gun platform or it may be an enhanced terre plein.

Bastion - Large fortifications with two faces and two flanks. A curtain (or curtain wall) connects two or more bastions. The two faces of the bastion provide fire covering the face of the curtain.

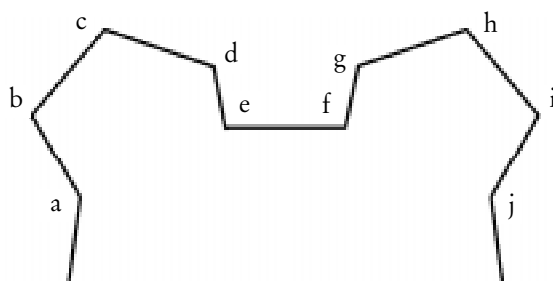


Figure 7.1.1.
Bastioned Fort

abcde - Lunette Salient
fghij - Lunette Salient
ef - Curtain

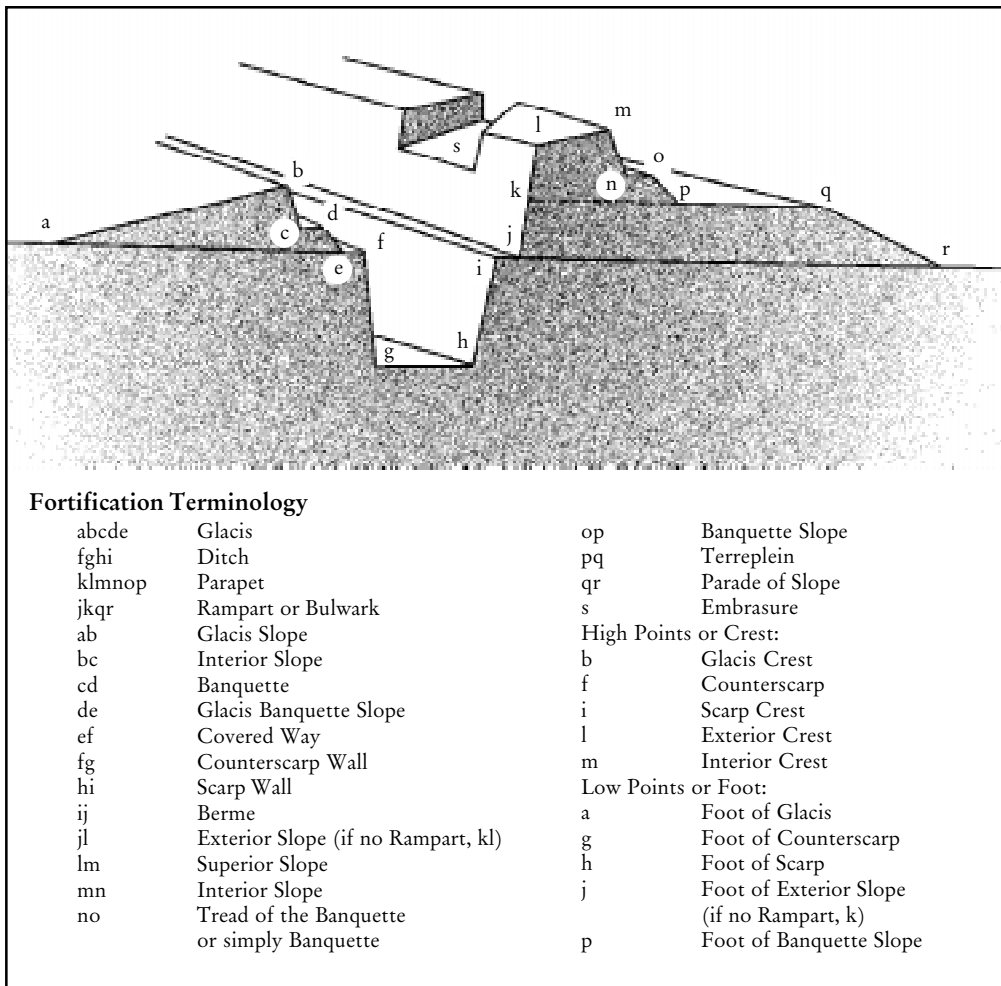


Figure 7.1.2. Terminology and Illustration for Fortifications Represented in West Tennessee (adapted from Scott, 1864)

Battery - an artillery unit or the fortification constructed to defend such a unit

Berme - Narrow path around fortifications, between the parapet and the ditch, to prevent the earth from falling in. Today occasionally seen at the base of the exterior slope of the parapet. More times than not, earth has sloughed off the earthwork and obscured the berme. However, a cut through by an archeologist should reveal the different soil layers and identifies the berme.

Block-house - Building constructed of heavy logs in the shape of a square, rectangle, or cross. Used as a strong place in support of field works, or alone protecting a railroad or other transportation route. Mahan indicates the blockhouse was well suited as the keep in a fortification. Sometimes fieldworks were built nearby. Earth was often piled against the base. A ditch surrounded the blockhouse. Today very little is left of blockhouses. The ditch may still be present, or the earth that had been piled against the base may still be visible. Often the first floor of the blockhouse was

dug below ground and this excavation is visible. Archaeologists may find remains of the wooden logs, or where they were imbedded into the ground. Sometimes brick or stone floor or fireplaces were built and these are still evident. Blockhouses have been employed as a fortification since colonial days.

Bombproof - A bombproof is a structure built similar to a magazine but for protecting and housing troops not ammunition. Similar to magazines bombproof were set up more for habitation than storage. An archeologist would find evidence of occupation, such as fireplaces, extra ventilation, and debris of habitation. *See magazine.*

Breastwork - A hastily constructed fieldwork. The parapet is not high enough to require a banquet. Breastworks were constructed of earth, rock, and wood, basically any material quickly found that could be used for defense. They may, or may not, have ditches. Today remaining breastworks are much smaller than other field fortifications. Rarely seen as more than a line of earth a couple of feet high and a few feet wide at best.

Bulwark - Originally, the bulwark is a circular work found well in front of the fortification to prevent siege guns from being placed within range of the walls. It was usually constructed of earth and timber, even when associated with a masonry fort. By the middle of the Civil War the bulwark had become a structure erected in front of the work to protect the openings, such as a sally-port.

Capital - A line bisecting the salient angle of a work.

Caponiere - A redan that protrudes from the front of a curtain wall to enable infantry or artillery to provide enfilade fire into the ditch

Cavalier - A portion of the fortification built higher than the surrounding works. Sometimes the cavalier is surrounded by parapet walls, and sometimes only has one or two walls facing potential enemy positions. It is sometimes placed on the terre plein of the bastion, but not limited to this location. Today the cavalier is often seen as a more massive structure than the surrounding fortifications.

Cheval-de-frise or **Chevaux-de-frise** (plural) - A piece of timber or an iron barrel from which iron or wooded spikes project five to six feet, used to impede cavalry or infantry. Also, sharply pointed nails or spikes set into the top of a barrier.

Cheek - The sides of an embrasure.

Counterscarp - The outer wall of the ditch. Cut slightly at an angle to help deter erosion and sloughing, the counterscarp is visible, in some form, in all ditches found today.

Covered Way - The space between the counterscarp of a backditch and the foot of the banquet which troops can move without being seen or fired upon. Most often used between the glacis and the main ditch or in advanced fortifications. Today a covered way is difficult to determine due to sloughing of earth from adjacent earthworks. Archeology may determine soil patterns that indicate the existence of one.

Cremaillere -An indented or zigzag line of fortifications.



Figure 7.1.3.

Cremaillere or Indented Line

a - Salient

b - Re Enterings

Cunette - A small narrow ditch within and sometimes leading from a larger ditch intended to keep the larger ditch dry. The cunette provided another obstacle to attacking forces, especially when full of water. Rarely seen today, but possible.

Curtain (or curtain wall) - A line of fortifications connecting two bastions

Curtain Wall - parapet connecting lunettes or redans, constructed by throwing earth from front to rear, thus creating a protective moat.

Demilune - A fortification constructed to protect the shoulders of the bastions and the curtain connecting the bastions. It normally has two faces, an open back, a ditch surrounding it, and two demi-gorges formed by the counterscarps. Sometimes referred to as a ravellin.

Detached Bastion - A bastion that is separated from the main line of fortifications by a ditch.

Detached Works - Fortifications constructed in front of the main line, generally out of the range of musketry. Intended to be self-sufficient during an attack.

Ditch - Ditches were in front of (front ditch), behind (back ditch), or both in front and behind the fortification. When the fortification was complete a ditch in front provided a defensive obstacle, and when in back additional protection for the defenders. In addition, the excavation of the ditch allowed for the builders to acquire the dirt needed to construct

the earthworks. Today ditches are usually, but not always, visible with surviving earthworks. Erosion of the earthworks may have caused the ditch to fill with dirt. Archaeologists can identify the existence of a ditch by observing soil patterns.

Embrasure - An embrasure is an opening cut in the parapet to allow artillery to fire upon the enemy. The embrasure was supported using either logs, wood planks, fascines, or gabion. Today embrasures are often visible. They appear as slight indentations in the otherwise uniform line of earthworks. A good place for erosion to start an embrasure position may be the location of a major erosion blow out. Often a gun platform is evident just below and adjacent to the location of an embrasure. It is possible that several embrasures could be serviced by one platform. Or each embrasure was serviced by its own platform.

En Barbette - artillery positioned to fire over a parapet rather than through an embrasure in the parapet

Entanglement - Another name for abatis.

Entrenchment - A loose term for any form of earthen fortification

Epaulement - A semi-circular parapet protecting a single cannon, typically ditched in front

Esplanade - A large empty space for exercising, or reviewing, troops in the vicinity of a fortified place. In field fortifications this area would rarely be improved, and thus hard to see today. However, identification of the esplanade would be important to understanding the overall design of the fortification.

Exterior Slope - Outside face of the parapet. Sloped back 45 degrees from the berm. Today when earthen fortifications are found, the facing of the fortification can be determined by looking at the slope. The exterior slope, the one closest to the enemy, is sloped back 45 degrees. The interior slope, on the inside, is more perpendicular (straight up and down) to the ground. All extant earthworks will have some evidence of their exterior and interior slopes. Only heavily eroded works will not display this evidence.

Fascines - A long cylindrical bunch of saplings tied together to form a log like structure used for revetment.

Fort - any enclosed fortification, see also redoubt

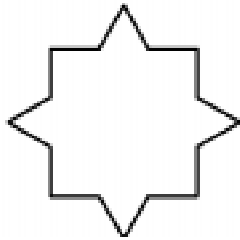


Figure 7.1.4.
Star Fort

(one of several forms)

Front - toward the enemy

Gabion - A basket formed by weaving saplings or sticks together and filled with dirt. Gabions were used in revetment, and to protect embrasures. Gabions are not found today.

Glacis - Earth placed in front of the ditch, sloped in such a way to cause artillery shot to ricochet over the main works. Although some manuals indicate that glacis was not used in field fortification, there are many instances during the Revolution and Civil War where it was used. Today there is a good possibility that remains of the glacis are still extant.

Gorge - The opening of a fortification on the side of a work facing friendly forces. The gorge was often covered by some temporary or easily moved obstruction. Often wooded palisades were used. If the fortification was to fall into enemy hands the temporary obstructions could be removed as the defenders fell back to secondary positions. The attacking force would then be exposed to the defenders fire without the benefit of the captured work providing cover. It has also been defined as; the inside space between the flanks of a bastion or an unbastioned polygonal fort.

Gun Pit - A parapet that protect a cannon, often enclosed by traverses

Gun Platform - Earthen floor behind the parapet in which an artillery piece would sit. Usually covered by a wooden floor. Often seen today in battery positions. On occasion the drainage for the platform can still be seen.

Keep - A redoubt behind a main line which can be used for a last-resort defense, sometimes called a citadel or cavalier

Lunette - A redan with flanks parallel to its capital and open at the back.

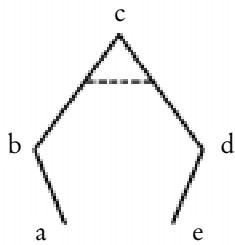


Figure 7.1.5.

Lunette

bc, cd - Faces

ab, de - Flanks

ae - Gorge

(dotted line denotes angle
of Pan Coupe)

Magazine - A structure built for storage of ammunition. Magazines were dug into the ground and covered by a series of heavy logs, facines, tarps, sandbags, and loose earth. Usually there would be two magazines per battery in field fortifications. Each magazine would be located at opposite ends of the work. In hasty entrenchments and other fieldworks only one magazine is usually evident. In more permanent fortifications one magazine serviced an entire battery, and sometimes the entire garrison. Today magazines are seen as mounds of earth near other fortifications. Determination of the existence of a magazine can be made by examining the location of the pile of earth in relation to the battery and archeological excavation. A magazine will possibly show evidence of the heavy timbers used as a ceiling. In addition, magazines rarely had fireplaces or evidence of human living quarters. The remains of magazines are usually found today as a pile of earth one to four feet high, in a circular pattern 12 - 25 feet in circumference or a rectangle 12 - 25 feet long and five to ten feet wide. Sometimes the pile of earth exhibits an indentation on one side or the other. This is the entrance to the magazine. Identification of this indentation helps to determine if the pile of earth is really a magazine and illustrate the facing of the magazine in relation to the battery.

Military Crest - The contour of slope from which the bottom of the valley or ravine can be seen.

Palisades - Logs placed in the ground as an obstacle to advancing infantry. The logs, usually 6" - 8" in width and as high as 7', were sharpened on one end. They were placed at the foot of slopes slanted toward the enemy and vertically in openings to block passage. Usually no remains of palisades exist above ground. Archaeologists may find remains of the wood or post holes below ground.

Pan Coupe - The short side on a fortification formed by cutting off the apex of a salient.

Parade - The area within a fortification for the assemblage of troops in a regular and prescribed manner. Usually this area was improved by leveling and draining. It is usually still evident in the larger works.

Parapet - Mound of earth, from three to fifteen feet tall, built upon the rampart of a fortification or directly upon the ground in more temporary fortifications. The thickness of the work was determined by the armament it was expected to withstand. Musketry required a parapet two to two and a half feet thick. To face field artillery, six to ten feet of earth was required. The interior slope of the parapet was usually reveted. The exterior slope was slanted at 45 degrees. A banquet step often was placed at the foot of the interior slope, except on parapets constructed four feet or less. Today, the most common remnant of field fortifications is the parapet wall.

Picket Trench, or hole - A rifle pit or fox hole.

Platform - A structure designed for artillery.

Postern (or Sally-Port) - A passage under the rampart to allow communication into the ditch. It is usually vaulted to support the parapet. Called a sally-port when the troops had free egress from the covered way into the country for a sortie. Rarely seen in surviving earthworks. When visible it is usually only a break or indentation in the parapet wall.

Priest Cap - Two adjacent redans, placed together to form a fortification shaped like the letter M.

Ramp - A road cut obliquely into the interior slope of the rampart. Visible today as a flat areas cut into the side of ramparts.

Rampart - A broad embankment of earth which supports the functioning elements of a fortification. The parapet and banquet are located on the exterior edge, while ramps are placed on the interior slope for movement of troops and equipment. Ramparts are sometimes evident today. Usually, however, the parapet and rampart have eroded together and are impossible to differentiate. Many times, in the use of hasty entrenchments, ramparts were left out of the design of the fortification.

Redan - Small fortifications with two faces built to cover camps, advanced posts, villages, bridges, etc. The rear of the work is usually open. However, a traverse could have been constructed to protect the rear opening. Seen today as a V shaped structure, usually with no back.

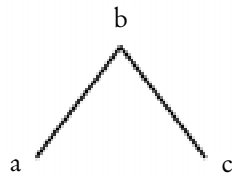


Figure 7.1.6.

Redan

- ab - Face
- bc - Face
- ac - Gorge

Redoubts - A fortification that is enclosed on all sides. Redoubts were constructed in the shape of a square, polygon, or circle. At times redoubts were constructed within other, larger, fortifications or along long lines of entrenchments as strong points. The important consideration for identifying a redoubt is not the shape, but the fact that it is entirely enclosed.

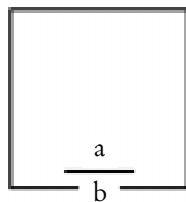


Figure 7.1.7.

Redoubt - Square

- (one of many forms)
- a - Traverse
- b - Outlet or Gorge

Reentrant Angle - Angle pointing to the rear of the line.

Revetments - Wall constructed to support the almost vertical interior slope of a parapet. Made of logs, wood planks, facine, or gabions the revetment provided additional protection from enemy fire, and, most importantly, kept the parapet wall from collapsing. Rarely seen today, there are several sites in the United States with a portion of a log revetment extant. Any existing remains of revetment would be greatly deteriorated and possibly found only by archeology. Revetment made of cypress logs in sandy soil have been found to last longer and be evident even on the surface of the work.

Rifle Pit - A hole or short trench providing cover for two men. Usually constructed as a hole four feet long and three feet deep with the dirt thrown out in front. Rifle pits were often constructed in advance of the main line or on flanks to provide cover for pickets. They are rare, and hard, to find. However, there are several locations with good examples extant.

Salient - A section of the line extending to the front, covering an important area. Sometimes found with the appearance of all other remnants in the area.

Salient Angle - The angle of the fortification projecting away from the main body (pointing to the front of the line), toward the enemy

Sally-ports - Openings in the parapet, or rampart, to allow troops access to the covered way and the area in front of the fortification. *See postern.*

Scarp - The scarp wall is a wall, usually of the ditch or parapet, that has been cut down (scarped) to make it inaccessible. The walls of the ditch are usually referred to as scarp (interior) and counterscarp (exterior) walls.

Slit Trench - A short trench, similar to a rifle pit, constructed for 4-5 men.

Stockade - A fortification where the wall is made of logs arranged vertically and tied together. Small loopholes were cut in the logs to allow for rifle fire. More popularly seen as defense from Indians, stockades were used as protection for the flanks and other points of fortifications where full earthworks were not deemed necessary. Also, stockades were built as defensive positions along roads, railroads, and river crossings. On occasion, a stockade would be employed as a strongpoint in a larger fort. Remains of a stockade are rare. It is possible that an archeologist may find evidence of the post hole or actual remains of the post in the ground. Often some use of an earthen structure was employed in addition to the stockade. A banquet or a parapet wall may be present or a ditch in front where the dirt was thrown against the logs.

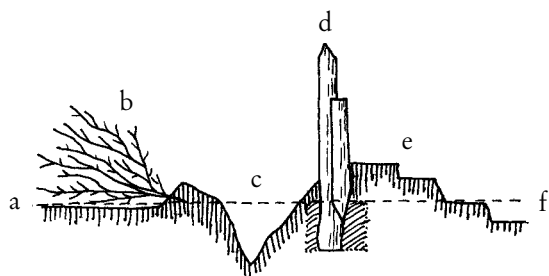


Figure 7.1.8.

Stockade

- af - preexisting grade
- b - abatis
- c - ditch
- d - stockade wall
- e - rampart

Terre-plein - A level space in the fortification. Usually identified as the area between the banquet and the interior slope of the rampart. Possibly visible in some fortifications.

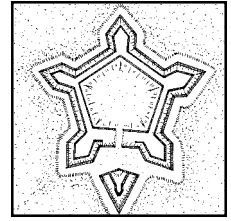
Traverses - Mounds of earth similar to a parapet that is constructed to cover entry points and areas vulnerable to enfilade fire. Often they were constructed within the fortification to provide cover if another portion of the fortification was overrun by the enemy. Usually these structures were as massive as the main work and are as well preserve as the surrounding works.

Trench - The trench is usually three feet deep and from six to ten feet wide. A trench is the communication line, approach, zig-zag, or parallel used by besiegers against fortifications. Often the word trench is used as slang to refer to the ditch of a fortification, or refer to the fortification itself. Rarely seen, it is still possible to see some trenches in well preserved areas.

Work - Loose term to refer to any component of the fortification or to the fortification as a whole

Zigzag - Defiled trenches used as parallels of attack while besieging fortifications. *See trench.*

FIELD FORMS FOR THE DOCUMENTATION OF EARTHWORKS



Technical Support Topic Two

(Instructions to be developed for inclusion in the completed document)

RESOURCE IDENTIFICATION: EARTHWORKS IN CONTEXT

Name of Site: _____ Location: _____

Recorder: _____ Date: _____

Resource Description

Size of Site in Acres _____

Boundary Description

Historical Context

Line features

quantity _____

total length _____

Point Features

quantity _____

Area Ground Cover

Acres/ Percent Cover

Current Management

forested

scrub/ regrowth

open field

developed

high med low

high med low

high med low

high med low

Comments:

RESOURCE IDENTIFICATION: POINT FEATURES

Name of Site: _____ Location: _____

Recorder: _____ Date: _____

Point Feature

Feature Name _____ Feature# _____

<p>Feature Type</p> <p><input type="checkbox"/> gun platform</p> <p><input type="checkbox"/> embrasure</p> <p><input type="checkbox"/> hole/ dugout</p> <p><input type="checkbox"/> hump/ traverse</p> <p><input type="checkbox"/> other _____</p>	<p>Break in Parapet</p> <p><input type="checkbox"/> engineered outlet</p> <p><input type="checkbox"/> stream/ gully</p> <p><input type="checkbox"/> intrusion _____</p> <p><input type="checkbox"/> erosion _____</p>
---	--

Measurements

height _____

width _____

area _____

Area Ground Cover	Acres/ Percent Cover	Current Management
<input type="checkbox"/> evergreen forest	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low
<input type="checkbox"/> mixed forest	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low
<input type="checkbox"/> deciduous forest	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low
<input type="checkbox"/> meadow/pasture/grassland	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low
<input type="checkbox"/> marsh/ wetland	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low
<input type="checkbox"/> scrub/ regrowth	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low
<input type="checkbox"/> maintained cover	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low
<input type="checkbox"/> other	_____	<input type="checkbox"/> high <input type="checkbox"/> med <input type="checkbox"/> low

<p>Major Impacts</p> <p><input type="checkbox"/> visitor use (erosion, trails)</p> <p><input type="checkbox"/> animal burrowing</p> <p><input type="checkbox"/> erosion (natural, exposed)</p> <p><input type="checkbox"/> mechanical damage</p>	<p>Comments</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
---	--

RESOURCE IDENTIFICATION: LINE FEATURES

Name of Site: _____ Location: _____

Recorder: _____ Date: _____

Line Feature

Feature Name _____ Feature# _____

Type of Construction

- ditch in front
- ditch in rear
- ditch on both sides
- other _____

Line Feature Type

- redan
- lunette
- redoubts
- parallels
- rifle trenches
- other _____

Measurements

- height _____
- width _____
- length _____
- area _____

Area Ground Cover

Acres/ Percent Cover

Current Management

- | | | | | |
|---|-------|-------------------------------|------------------------------|------------------------------|
| <input type="checkbox"/> evergreen forest | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |
| <input type="checkbox"/> mixed forest | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |
| <input type="checkbox"/> deciduous forest | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |
| <input type="checkbox"/> meadow/pasture/grassland | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |
| <input type="checkbox"/> marsh/ wetland | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |
| <input type="checkbox"/> scrub/ regrowth | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |
| <input type="checkbox"/> maintained cover | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |
| <input type="checkbox"/> other | _____ | <input type="checkbox"/> high | <input type="checkbox"/> med | <input type="checkbox"/> low |

Major Impacts

Comments

- visitor use (erosion, trails) _____
- animal burrowing _____
- erosion (natural, exposed) _____
- mechanical damage _____

MAINTENANCE DATA

Name of Site: _____ Location: _____

Recorder: _____ Date: _____

Description

Maintenance Activity/ Project _____

Desired Goals _____

Compliance Required

Section 106	<input type="checkbox"/> yes	<input type="checkbox"/> no	Date Completed	_____
NEPA	<input type="checkbox"/> yes	<input type="checkbox"/> no	Date Completed	_____
IPM Clearance	<input type="checkbox"/> yes	<input type="checkbox"/> no	Date Completed	_____

Project/ Activity Data

Date Begun _____ Date Completed _____

Labor _____ Labor Hours/ Cost _____

day labor contract
 park staff other _____

Materials used _____ Materials cost _____

Equipment used _____ Equipment Cost _____

Total project budget _____ Total project cost _____

Earthworks Condition Evaluation

Earthworks Condition

good fair poor

Goals Achievement

all some none

Additional work needed for good condition: _____

MANAGEMENT STRATEGY DEVELOPMENT

Name of Site: _____ Park: _____

Recorder: _____ Date: _____

Current Management

Site Description

Management Objectives

Management Program

Note: Checklists to be developed for inclusion in the completed document.