Mapping Battlefields: Survey and Inventory
Destruction of historic and cultural resources occurs through ignorance of location and significance. Identification, documentation, and mapping of a battlefield's resources are an important first step in the battlefield preservation effort. The mission of encouraging the community to protect important resources is supported and made easier by comprehensive survey and accurate mapping.
ABPP Battlefield Survey Philosophy: Battlefield are Multi-layered Historic Landscapes

Battlefields are not just discrete areas of combat, they are also the surrounding land areas. Taken together they form a landscape associated with an historic event, making an historic landscape.

The land may be associated with history, but it does not freeze in time. The landscape continues to build up in layers. It changes and grows, retaining clues to the past.

Steady Growth and Modern Overlay ~ Appearance of the Landscape Today
- Cumulative vs. Destructive Change
- Memory and its Reconstruction
- Integrity

Battle Layer ~ Traces of a Passing Event
- Earthworks, Other Engineered Structures
- Artifacts

Period of Significance ~ Cultural Features
- Settlement Pattern
- Transportation Network

Underlying Terrain Features
- Relief and Drainage Pattern
- Vegetation
ABPP Battlefield Survey Philosophy:
Establishing historically defensible “boundaries”

The first step toward battlefield preservation is defining exactly *where* the battlefield is and *what* remains to preserve. This requires establishing historically defensible boundaries around the battlefield on a map. The boundaries must encompass legitimate historic resources that are supported by historical evidence and source materials.

Historic resources – Gettysburg Battlefield
(National Park units in Blue)

Historically defensible boundaries – Gettysburg Battlefield
ABPP Battlefield Survey Philosophy: Identify and Survey

After trial, error, and field testing the ABPP has developed a two tiered approach to battlefield identification and survey. The surveyor must...

**Ask the Questions:**
Where is the battlefield?
What portions retain integrity/remain to preserve?

**Find the Answers:**
Identification – research, terrain analysis
Defining Features – inventory of sites, terrain features, cultural resources
Drawing Boundaries:
  *Study Area* - historic extent of the battle
  *Core Area* - main area of fighting
  *Areas of Integrity (AOI)* – portions of the battlefield that still remain and that retain integrity/can be preserved

**Reach the Goal:**
Inventory and Documentation
Priorities and Planning
Protect the Battlefield
When surveying a battlefield the surveyor starts with two primary questions – *Where is the battlefield* and *What remains to preserve?*

**Where is the battlefield?**
- What were the objectives of the combatants?
- What were the important terrain features?
- What were the important cultural resources?
- Where did the combatants start from (town, camp, port, etc.)?
- What were the avenues of approach/withdrawal?
- Where did the fighting begin?
- Where were the areas of heaviest combat?
- Where did the fighting end?

**What remains to preserve?**
- What features and resources remain?
- What portion of the battlefield retains integrity?
- Is the surviving battlefield threatened by destructive change?
Find the Answers: Identification, Military Terrain Analysis, Boundaries

In order to find the answers to the two questions (Where is the battlefield, What remains to preserve) the surveyor must identify the battle event through research and location of defining features, apply Military Terrain Analysis, and draw battlefield boundaries on a map.

Identification – research, defining features (terrain features, cultural resources)
Military Terrain Analysis - analyze the significance of battle terrain
Drawing Boundaries:
  Study Area - historic extent of the battle
  Core Area - main area of fighting
  PotNR (Potential National Register area) – portions of the battlefield that still remain and that retain integrity visually/can be preserve
Find The Answers: Identification through Research

Research the Battle Event

- Eyewitness accounts - official documents, reports, maps, muster rolls, tactical manuals
- Personal accounts - letters, diaries, oral histories
- Contemporary newspaper accounts
- Contemporary battle maps and sketches
- Contemporary photos/drawings
- Battle maps, accounts in secondary works

- Early county maps
- Early USGS Series c. 1890
- Aerial photographs (pre-WWII)
- Post-WWII planning & development records
- CRM and archeological reports
Define the Battle Features (Defining Features)

*Defining features* are sites, natural features, and place names found in battle descriptions or on historic maps that can be used to locate significant actions and events in the field.

These features define the battlefield on the landscape and serve to pin battle events to identifiable locations.

Finding and mapping features mentioned in the accounts helps to ensure that the battlefield surveyor is in the right location and can draw defensible boundaries.

*Examples*: fords, gaps, hills, roads, towns, churches, camps, rivers, streams, farms, bridges, mills, swamps, and valleys.
Nashville, Tenn., December 2, 1864 [excerpt refers to the Battle of Columbia, Nov. 24-29, 1864]

Pursuant to orders from Major-General Stanely, commanding the corps, the division marched from Pulaski at 8 a.m. on the 22nd day of November, 1864, and reached the village of Lynville, about thirteen miles distant, early in the afternoon. The division remained at Lynville till 2 a.m. of the 24th, when orders were received directing the command to march, with all possible haste, to Columbia, as the enemy was reported to be marching upon that place. The division was on the road by 3 o'clock and arrived at Columbia by 10 a.m., having marched eighteen miles. When we reached the town we found the enemy had already attacked and driven in our cavalry outposts on the Mount Pleasant road and was already seriously threatening the garrison. Our infantry advance, General Cox’s division, of the Twenty-third Army Corps, coming up in the nick of time, the advance of the enemy was effectually checked. The division was at once put in position on a range of hills southwest of the town and every precaution taken to put the place in a defensible condition. Friday, November 25, was spent in constructing an interior line of defenses, and after night-fall the troops were withdrawn from the outer line and took position on the new line, the right of the division resting on Duck River, about three-quarters of a mile below the railroad bridge. This line was at once put in a good state of defense. On the 26th we received orders from General Stanely to get ready for crossing Duck River that night, but owing to a break in the pontoon bridge the movement was postponed. [...] by 1 o'clock on the morning of the 28th this division was safely over the river and in camp on the railroad about half a mile from the railroad bridge. In the afternoon of the 28th I received orders from General Stanely to move up the river about two miles and go into position on the north side of Duck River opposite to Columbia. The command remained here over night, constant skirmishing being kept up on the lines.
Find The Answers: Identification through Defining Features

Identify Defining Features
Historic Maps
Clockwise from upper right: Civil War Atlas battle map, 1850’s Tennessee map, 1860’s Maury County map
## Defining Features

Defining Features: sites, natural features, and place names found in battle descriptions or shown on historic maps that can be used to locate significant actions and events in the field.

### Battle: Columbia, TN

#### Battlefield Defining Features

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Feature</th>
<th>Location</th>
<th>Relevance to Battle</th>
<th>Source Name</th>
<th>Field Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pulaski</td>
<td>Tennessee</td>
<td>Starting point of troop movements</td>
<td>OR</td>
<td>Still exists</td>
</tr>
<tr>
<td>2</td>
<td>Lynnville</td>
<td>Tennessee</td>
<td>Troops left Lynnville for Columbia</td>
<td>OR</td>
<td>Still exists – also referred to as Lynn</td>
</tr>
<tr>
<td>3</td>
<td>Columbia</td>
<td>Tennessee</td>
<td>Battle takes place in/around Columbia</td>
<td>OR</td>
<td>Still exists</td>
</tr>
<tr>
<td>4</td>
<td>Mount Pleasant Road</td>
<td>Between Mount Pleasant and Columbia</td>
<td>Avenue of Approach</td>
<td>OR</td>
<td>Original road intact. Is called Rte 40/Mount Pleasant Road</td>
</tr>
<tr>
<td>5</td>
<td>Road</td>
<td>Between Lynnville and Columbia</td>
<td>Avenue of Approach</td>
<td>OR</td>
<td>Portions of original remain. Was straightened in the 1930's and overlaid with Interstate 70</td>
</tr>
<tr>
<td>6</td>
<td>Range of hills</td>
<td>SW of town (Columbia)</td>
<td>Troop position</td>
<td>OR</td>
<td>Hills exist, have housing development on them</td>
</tr>
<tr>
<td>7</td>
<td>Duck River</td>
<td>North, NE, and NW of Columbia</td>
<td>Both armies had to cross river to reach Nashville. Reason battle was fought.</td>
<td>OR</td>
<td>Still exists. River is original/unengineered</td>
</tr>
<tr>
<td>8</td>
<td>Railroad Bridge</td>
<td>NW of Columbia on the Duck River</td>
<td>Geographic location</td>
<td>OR</td>
<td>Bridge no longer exists, abutments still visible</td>
</tr>
<tr>
<td>9</td>
<td>Camp</td>
<td>½ mile from RR bridge/Duck River</td>
<td>Camp after the battle</td>
<td>OR</td>
<td>Located on family-owned farm</td>
</tr>
</tbody>
</table>
Locate Defining Features

Defining Features are located on a modern map (USGS Quadrangle) to aid in field surveying of the battle. The numbers refer to specific features on the Defining Features form.
Analyse the Military (Battle) Terrain

The US military has developed a process for analyzing the significance of terrain. By studying the military significance of the terrain, a surveyor can identify the battlefield terrain “hidden” in the modern landscape and view it through the soldiers’ eyes. KOCOA uses five aspects:

- Key Terrain/Decisive Terrain
- Observation and Fields of Fire
- Concealment and Cover
- Obstacles
- Avenues of Approach/Withdrawal

“The terrain has a direct impact on selecting objectives; location, movement, and control of forces; effectiveness of weapons and other systems; and protective measures.”

US Army Field Manual No. 6-0
Key Terrain and Decisive Terrain

Key Terrain ~ Any ground which, when controlled, gives a marked advantage to either combatant. Two factors can make terrain key: how a commander wants to use it, and whether his enemy can use it to defeat the commander’s forces.

*Key terrain typically offers control of a local objective or an important transportation route.* Examples: high ground with good observation and fields of fire; transportation choke-point such as a water crossing, mountain gap, or road junction.

Decisive Terrain (Critical Terrain) ~ Ground that *must* be controlled in order to successfully accomplish the mission. It is relatively rare and is not present in every situation. Terrain is identified as decisive when it is recognized that the mission depends upon its seizure or retention.
Key Terrain (Battle of Monmouth, NJ)

To an understanding of the extraordinarily confused and confusing battle now imminent, a clear comprehension of its terrain is essential. The road from Englishtown to Monmouth Court House came first to Freehold Meeting House. Thence it continued in a southeasterly direction to the Court House, where it stopped at a right angle against a road which ran northeast to Middletown and Sandy Hook and was the route of the British retreat. Another road from the Court House ran north to Amboy. The principal points otherwise to be noted are three “ravines.” The first of these, the west “ravine,” a morass through which ran a branch of Wemrock Brook, was crossed by a bridge on the Freehold-Monmouth road about two and a half miles from the Meeting House. A mile to the southeast on that road was the middle ravine, another morass through which ran the main stream of Wemrock Brook. A causeway crossed it. These morasses, it must be noted, were on the road by which the American troops advanced to Monmouth. The third morass, the east “ravine,” was parallel to the road from Monmouth to Middletown and Sandy Hook and some distance west of that road. No road crossed it, but it played a part early in the battle.

The camp of the British army stretched in a line along the road from Allentown, which continued past Monmouth through Middletown to Sandy
Key Terrain (Battle of Monmouth, NJ)
Decisive Terrain: Pointe du Hoc, Normandy, France

Point du Hoc, Normandy beach landings, June 6, 1944. Fortified gun emplacements on the cliffs enabled German artillery fire to be directed over Omaha and Utah beaches. The terrain *had* to be controlled in order for the landings to take place and the mission to be accomplished.
Observation and Fields of Fire

Observation ~ The ability to see friendly and enemy forces and key aspects of the terrain in order to judge strength, prevent surprise, and respond to threats.

Fields of fire ~ An area that weapons may cover/fire upon effectively from a given position. A unit’s field of fire is directly related to Observation.

Dead Space (ground) ~ Ground within range of weapons that cannot be observed or fired upon.
Find The Answers: Military Terrain Analysis – Five Aspects

Examples of Observation and Field of Fire

Fort Putnam overlooking the Hudson River (Observation, Field of Fire)

Mt. Suribachi overlooking the landing beaches at Iwo Jima (Observation)

The landing beaches at Iwo Jima (Mt. Suribachi’s Field of Fire)
Concealment and Cover

Concealment ~ Protection from enemy observation and surveillance. Examples: forests, ravines, dense vegetation, reverse slopes.

Cover ~ Protection from enemy fire. Examples: ditches, river banks, buildings, walls, entrenchments

Concealment and Cover limit both the ability for Observation and the Field of Fire.
Find The Answers: Military Terrain Analysis – Five Aspects

Examples of Cover

- Embankment
- Ditch
- Low ridge

Examples of Concealment

- Camouflaged Trench
- Dense Vegetation
Avenue(s) of Approach/Withdrawal

**Avenue of Approach** ~ Relatively unobstructed ground route that leads to an objective or to key terrain.

**Mobility Corridor** ~ Area where movement is channeled due to terrain constrictions. Example: a road over a causeway.

**Avenue of Withdrawal** ~ Relatively unobstructed ground route that leads away from an objective or key terrain.

The mobility of an attacking unit is affected by the breadth and difficulty of its Avenue of Approach.
Obstacles

Natural or manmade terrain features that prevent, restrict, divert, or delay military movement.

There are two categories of Obstacles: *existing* and *reinforcing*.

*Existing obstacles* are already present on the battlefield and not placed there through military effort. Natural examples: swamp, woods, river. Cultural examples: town, railroad, bridge, fenced field.

*Reinforcing obstacles* are placed on the battlefield through military effort to slow, stop, or control enemy movement. Examples: entrenchments, earthworks, abatis, and log cribs.
Obstacles

The presence and difficulty of obstacles determine whether terrain is:

**Unrestricted** - Fairly open and presents no hindrance to ground movement.

**Restricted** - Hinders ground movement. Little effort is needed to enhance mobility.

**Severely Restricted** - Unfavorable terrain. Much effort needed to improve mobility, if at all.
Find The Answers: 
Military Terrain Analysis – Five Aspects

Examples of Obstacles

- Mountain, Forest, Debris
- Fencing, Slope, Abatis, Dwelling
- Entrenchment
- River, Town, Railroad
At Corinth, Mississippi, armies were restricted to roads for movement. Deployments were limited by terrain and ground cover. Primary roads were used whenever possible as Avenues of Approach and Withdrawal.

Example of Avenues

Military Terrain Analysis – Five Aspects
Global Positioning System (GPS) is a space-based satellite navigation system developed and operated by the U.S. Department of Defense that uses the position of satellites to determine precise locations on earth.

GPS provides:
- Navigational aides
  - Locate a single point
  - Navigate between points
- A basis for mapping
  - Track changing location information
  - Collect coordinates of features
  - Collect information about features

GPS survey of archeological artifact locations. Using GPS equipment to map archeological artifacts helped the Park pinpoint the actual area of the battle.

Find The Answers:
Tools – Global Positioning System
A Geographic Information System (GIS) is a computer-based tool that merges cartography, statistical analysis, and database technology. GIS systems are designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

**Geographic** – spatial location(s)
**Information** – visualization of analysis of data
**System** – software, hardware, data

GPS survey data was added to a GIS to create a revised field-of-fire model and show the actual location of the battle.

Chalmette Unit – Jean Lafitte NHP

Revised Field of Fire Model Mar. 2001
Based on Latour’s “Plan of Attack and Defence” and Artifact Distribution
- Converging Fires
- Concentrated Targets
- Targets of Opportunity
- National Park Boundary
Find The Answers:
*Drawing Boundaries – Mapping the Defining Features*

Gather features to help define the battlefield boundaries.
Draw Core Area boundaries to define the primary areas of fighting.
Find The Answers:

Drawing Boundaries – Study Area

Draw the Study Area boundary to define the historic extent of the battle.
Draw the Area(s) of Integrity to define those portions of the historic battlefield landscape that retain integrity.
Reach for the Goal: Inventory and Documentation of Existing Resources

Site Intensive GPS/GIS Resource Inventory

Phased Archeological Investigations

National Register of Historic Places nomination
Reach for the Goal:  
Priorities and Planning

Preservation is a Political Decision

Deciding what landscapes and features to preserve and how best to preserve them are economic and political processes separate from the survey itself.

- Research and consensus -- build credibility
- Define the battlefield -- “stake a claim”
- Resource inventory -- broaden the constituency
- Priorities and Planning -- protect and manage the battlefield
Reach for the Goal: Protect the Battlefield