

FINAL **Environmental Assessment** **For the Siting of a National Cemetery** **Shelby County, Alabama**



August 2006

Prepared For
Department of Veterans Affairs
National Cemetery Administration
811 Vermont Avenue NW
Washington, DC 20005

Prepared By

 **MACTEC**

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NCA Contract No. V786P-557

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List of Acronyms and Abbreviations

ADCNR	Alabama Department of Conservation and Natural Resources
ADEM	Alabama Department of Environmental Management
ADT	Average Daily Traffic
AHPA	Archeological and Historic Data Preservation Act
AIRFA	American Indian Religious Freedom Act
ALDOT	Alabama Department of Transportation
amsl	above mean sea level
APCA	Alabama Partners for Clean Air
APE	Area of Potential Effect
ARPA	Archeological Resources Protection Act
BMPs	Best Management Practices
CERT	Citizens Emergency Response Team
CWA	Clean Water Act
CZMA	Federal Coastal Zone Management Act
EA	Environmental Assessment
EMA	Emergency Management Agency
EPA	Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy
GIS	Geographic Information System
GPS	Global Positioning System
IPM	Integrated Pest Management Plan
MACTEC	MACTEC Engineering and Consulting, Inc.
NAGPRA	Native American Graves and Repatriation Act
NCA	National Cemetery Administration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
ppt	parts per thousand
SCS	USDA Soil Conservation Service
SHPO	State Historic Preservation Officer
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VA	US Department of Veterans Affairs

Executive Summary

On November 11, 2003, the President of the United States signed Public Law 108-109, authorizing the creation of several new National Cemeteries, including one to serve Central Alabama. The National Cemetery Administration (NCA) is evaluating the development potential of six separate parcels of land for a new National Cemetery in Central Alabama, an area with a great need for additional national cemetery facilities. The five parcels under consideration are located in southwest Shelby County. As required by law, the NCA has completed an Environmental Assessment (EA) of the alternatives in order to comply with the National Environmental Policy Act (NEPA). The evaluation is described in detail in the attached report.

The NCA coordinated with a number of local groups, county committees and congressional offices in an effort to identify suitable sites for a new cemetery. Nearly 10 parcels of land in the Birmingham area were initially considered. This EA contains a detailed analysis of four alternative sites including the No Action alternative.

Although cemetery design and site planning has not been completed for any of the alternative sites, it is assumed that some of the on-site wetlands and the regulatory floodplain may be filled for cemetery construction. Shoal Creek and its associated wetlands are considered sensitive aquatic resources by the resource agencies. Activities in and around Shoal Creek, its direct tributaries and wetlands, and a reasonable buffer off of Shoal Creek should be limited. If impacts to on-site wetlands, streams, or floodplains are anticipated, mitigative measures such as bridging and compensatory mitigation for impacts is recommended in addition to permitting.

Historic and archaeological resources have been subject to a preliminary investigation. Based on the input of the Alabama State Historic Preservation Officer (SHPO), the NCA recognizes the potential need for a comprehensive Phase I cultural resources survey. Significant archeological sites will need to be avoided and/or minimized. All impacts to significant cultural resources will have to be coordinated with the Alabama SHPO.

Other environmental issues identified by this assessment may require the NCA to address additional studies and/or mitigative measures to keep impacts at a moderate or minimal level. This report especially identifies geology and soils, surface and ground water, vegetation and wildlife, and protected species as categories which would potentially require mitigative measures depending on the alternative site selected.

Since cemetery development will be conducted in accordance with the US Department of Veterans Affairs (VA) design standards, in accordance with federal law, and with appropriate site-specific mitigation measures (as discussed in this EA), the impacts should be minimal at any of the three alternatives. The analysis is consistent with a finding of no significant impact for each of the alternative sites.

1.0 Project Purpose and Description of Need

The National Cemetery Administration (NCA) is the entity within the U.S. Department of Veterans Affairs (VA) that is responsible for establishing, constructing, and maintaining national cemeteries in order to provide reasonable access to burial benefits for veterans pursuant to the provisions of the National Cemeteries Act of 1973 and other statutes. NCA considers reasonable access to burial benefits to mean that a first interment option is available within 75 miles of the veterans' residence. Once the need is identified, NCA follows a multi-step process for building new national cemeteries:

- Site selection process including Environmental Assessment (EA);
- Land acquisition;
- Master planning and design development;
- Construction documents preparation; and
- Construction award/completion.

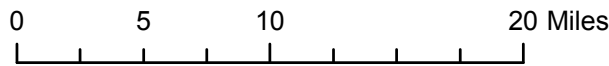
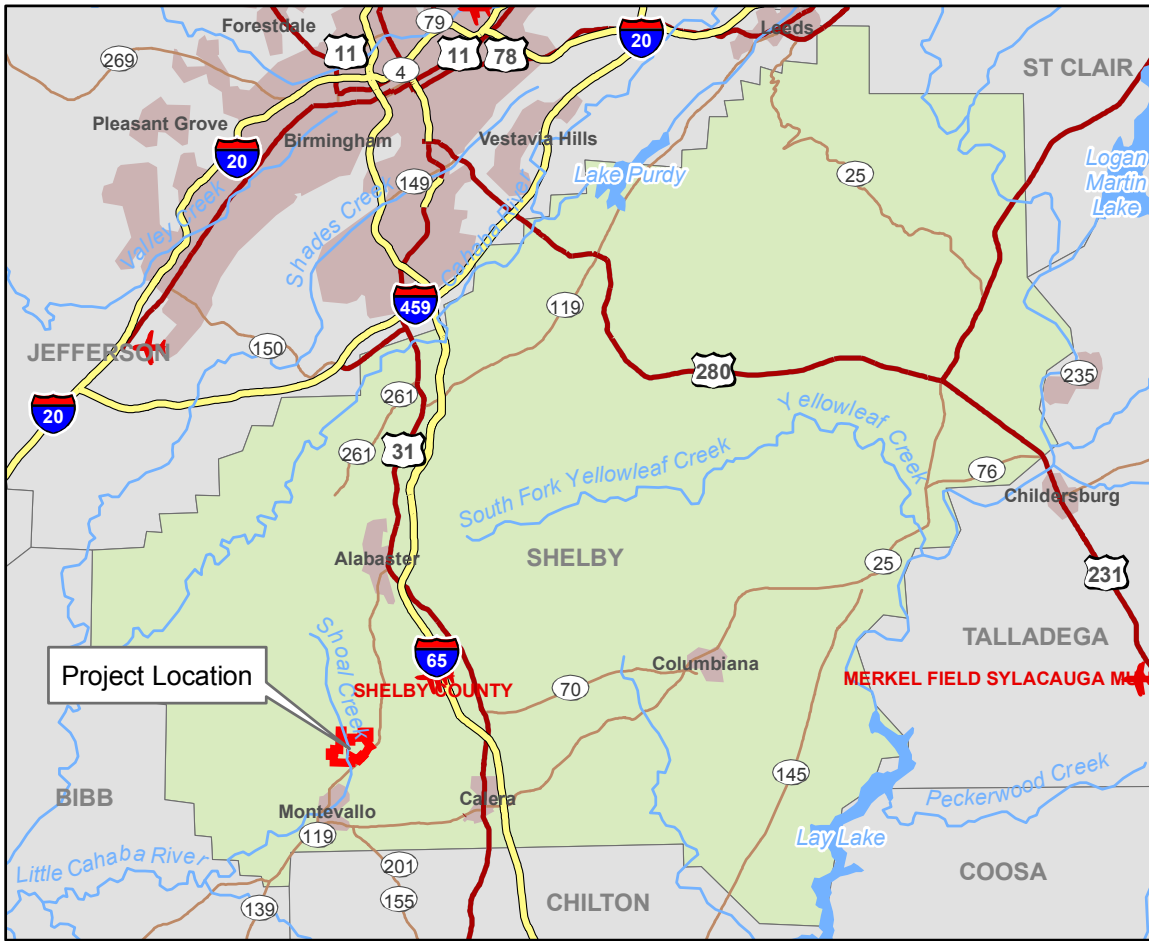
The purpose of the proposed action is to fulfill a need for a national veteran's cemetery in the central Alabama area. This report is the EA, part of the site selection process for siting a new cemetery in central Alabama.

1.1 Veteran Population

The NCA has recognized for some time that there was a need for additional cemetery facilities in the central Alabama area. The death rate of veterans has been increasing each year as World War II and Korean War veterans advance in age. The annual rate of veteran deaths is expected to increase annually through this time period. Central Alabama was identified as an area of great need for a national cemetery in a demographic study of the nation's veteran population. The NCA estimates indicated there is a veteran population of 212,300 within a 75-mile radius of the City of Birmingham, an area with limited national cemetery services. The project is needed to provide cemetery facilities for the thousands of veterans within a 75-mile radius of Birmingham (Figure 1-1).

1.2 Legal Requirements

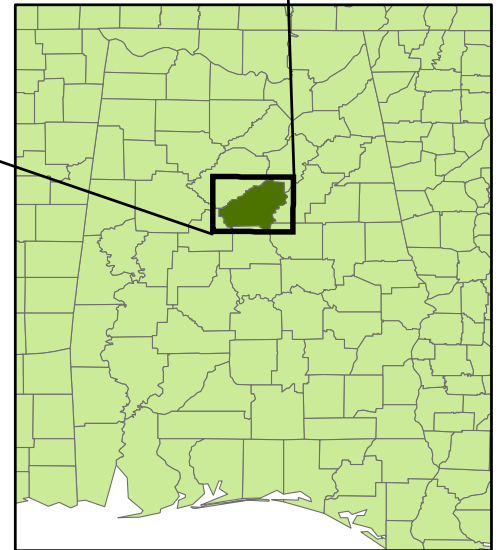
Public Law 99-576, the Veteran's Benefits Improvement and Health Care Authorization Act of 1986, required the NCA to identify the geographic areas in the United States (U.S.) with the most urgent need for veteran burials. A 1987 report indicated ten locations where new national cemeteries would be required. In 1999 Public Law 106-117, the Veterans Millennium Health Care and Benefits Act, required the NCA to again identify the geographic areas of the country most in need of a new national cemetery. On November 11, 2003, the President of the United



Source: ESRI, 2001-2005

Legend

-  Airports
-  Site Location
-  Water
-  Urban Areas
- Major Highways**
-  Interstate
-  US Highway
-  State Road



PROJECT VICINITY MAP

DRAWN	DATE
FJB	04/17/2006
CHECKED	DATE
GH	04/20/2006

MACTEC
 Birmingham, Alabama
 6671-05-0316

**NATIONAL CEMETERY
 MONTEVALLO, ALABAMA**
**DEPARTMENT OF VETERANS AFFAIRS
 NATIONAL CEMETERY ADMINISTRATION**

FIGURE:

1-1



States signed Public Law 108-109, authorizing the creation of several new National Cemeteries, including one to serve Central Alabama with an opening date of 2009.

1.3 Location

The NCA has found that 75 miles is an optimum distance for planning purposes. The NCA has also shown through experience that few people will elect burial at a national cemetery that is farther than 100 miles from their place of residence, and that there is a reluctance for burial to take place across a state line from the place of residence. The three closest national cemetery sites to the focal point of Birmingham, Alabama are Fort Mitchell National Cemetery located approximately 175 miles southeast of Birmingham, Chattanooga National Cemetery located in Tennessee approximately 150 miles northeast of Birmingham, and Corinth National Cemetery located in Mississippi approximately 180 miles northwest of Birmingham. Considering the distances to other national cemeteries and the number of veterans in central Alabama, the NCA has identified the need to construct a new national cemetery to serve the central Alabama area.

1.4 Environmental Assessment

This report summarizes the findings of the EA completed as required by the National Environmental Policy Act (NEPA). The procedure used to complete this EA is consistent with the guidance detailed in the VA's "Environmental Compliance Manual" (VA, Office of Facilities Management, Landscape Architect Professional Group, 1998). It is important to note that the project will only move forward if a "Finding of No Significant Impact" (FONSI) determination is made.

This EA was prepared in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [C §1 1500- 1508), and VA Regulations, Title 8 of the CFR, Section 26.4 (a). The VA policy includes provisions to protect, restore, and enhance the quality of the human environment; and to minimize adverse environmental consequences, consistent with other national policy considerations.

2.0 Description of Project Alternatives

2.1 Steps for Establishing a New National Cemetery

2.1.1 General Process and Management

The sequence of steps for siting and constructing a new National Cemetery are outlined in Table 2-1.

Table 2-1. Steps for Establishing a New National Cemetery

<ol style="list-style-type: none">1. Identify veteran population to be served2. Calculate acreage requirement3. Define area of consideration (counties) to search for potential sites4. Site selection process<ul style="list-style-type: none">- Review and assess competing sites- Environmental compliance- Identify preferred site- Site survey/appraisal- Land acquisition5. Architectural and Engineering Firm Selection<ul style="list-style-type: none">- Master planning and design- Construction documents6. Construction<ul style="list-style-type: none">- Solicitation of bids, award, oversight7. Open Fast-Track-early burial area development (6 months after construction starts)8. Completion of Construction – Dedication9. Minimum Timeframe = 5.5 years

Source: NCA, 2005.

Site selection occurs prior to master planning and design, so detailed plans for the cemetery footprint are not yet available. However, the NCA has guidelines for the design and operation of national cemeteries.

The following summary (VA NCA 2004 and 2005), describes the NCA’s general approach to siting, design, construction and management of national cemeteries, and is presented here to facilitate evaluation of potential impacts based upon design and management considerations for a national cemetery.

Each national cemetery is managed by National Cemetery Administration (NCA) personnel in conformance with national and memorial service network office policies, priorities, goals and objectives. Most cemeteries are supervised by a cemetery director and a staff of administrative and maintenance personnel. National cemeteries are commonly open from 8 a.m. to 5 p.m. daily and on Memorial Day from 8 a.m. to 7 p.m.

Generally, funeral corteges are received from 9 a.m. to 3 p.m., Monday through Friday. Burials at national cemeteries do not normally occur on weekends or federal holidays.

The users of cemetery facilities are typically:

- *Funeral attendees, including family members, funeral directors, etc.*
- *Public visitors*
- *Cemetery staff, including administrative, maintenance and other visiting VA staff*
- *Volunteers, who provide honors at interment services and assist cemetery staff in administration and maintenance activities*
- *Contractors (maintenance and construction), sales representatives and vendors*

Structures expected to be built include:

- *Public Information Center*
- *Administration / Maintenance Complex*
- *Committal Service Shelter*

A Public Information Center with Cortege Assembly Area may be situated near the main cemetery entrance to provide a central point for vehicles in a funeral procession to wait while the entire cortege assembles and representatives receive final instructions before proceeding to the Committal Service Shelter. The Public Information Center would normally be occupied by cemetery personnel. In the absence of staff, visitors can contact administrative personnel by telephone provided there. Cemetery visitors would obtain gravesite locator information there and Public Rest Rooms would be located there.

The sequence beginning at the cemetery entrance should place the entrance to the Public Information Center and restrooms adjacent to the Cortege Assembly Area, and at a distance from the Committal Service Shelters and Administration/Maintenance Complex, which should be centrally located on the site.

Retain the site in as natural a state as possible. Keep grading to a minimum, while meeting the functional requirements of the cemetery. To the extent feasible, balance on-site cut and fill. Leave undisturbed such features as natural drainage ways, valuable trees or tree groups, shrubs, ground covers, rock out-croppings and streams. The design should use construction practices that minimize adverse effects on the natural habitat.

The planting design should articulate and strengthen the site layout. In general, the development should use regionally native plants and employ landscaping practices and technologies that conserve water and prevent pollution.

Prepare interment areas for seeding, sprigging and/or sodding with topsoil and proper nutrients. In non-burial areas, consider alternatives to standard turf that are suitable to drought conditions. The amount of annual rainfall as well as the type of irrigation system, if any, will determine the plant material selected. Irrigation is usually necessary to keep the landscape at an aesthetically pleasing level. Although sufficient rainfall may be received to sustain indigenous plants, situations involving introduced species or plants in stressful conditions may require irrigation. Evaluate the landscape environment, including turf grasses, and determine whether an irrigation system should be installed in the cemetery.

Interment areas are those portions of the cemetery acreage that are developed for burials of either full casket or cremated remains. Interment areas may be subdivided into burial sections of varying sizes and shapes. Burial sections are visually separate areas, broken by vegetated areas (woods), roads, walks and topography. Burial sections for full casket gravesites shall be no larger than three acres. Burial sections for cremated remains shall have no more than 999 sites (approximately .2 acres). In-ground interment areas for casketed or cremated remains shall generally conform to existing terrain.

The National Cemetery Administration is committed to providing burial benefits to as many veterans as possible and to achieving the maximum development of gravesites within national cemeteries. The standard gravesite size will be the smallest size practical to accommodate the type of marker being used, to ensure appropriate gravesite appearance and to provide for safety consideration of employees. Each gravesite is marked with one marker, consistent with the requirements of applicable law.

The standard gravesite sizes will be used when conditions warrant:

- *The 4 feet x 8 feet (1200 millimeters x 2400 millimeters) gravesite will be used where double-depth interments in a 7 feet (2100 millimeters) excavation are possible.*
- *The 6 feet x 8 feet (1800 millimeters x 2400 millimeters) gravesite will be used for single depth side-by-side interments where excavation below 5 feet (1500 millimeters) is impractical due to soil conditions.*
- *The 4 feet x 8 feet (1200 millimeters x 2400 millimeters) gravesite may be used in those sections of national cemeteries which by law use flat markers.*
- *The 3 feet x 8 feet (900 millimeters x 2400 millimeters) gravesite may be used in those sections of national cemeteries which use lawn crypts. Lawn crypts are pre-placed concrete containers with removable concrete lids which are installed at the time of land development. Crypts are installed by excavating the burial area and preparing it to provide adequate drainage. Pre-cast crypts are then placed adjacent to one another and abutting one another.*

As with full casket gravesites, NCA is committed to achieving the maximum development of cremain sites within national cemeteries. NCA will strive to provide cremain sites in all cemeteries including those closed to the interment of casketed remains. The standard cremain site size will be the smallest size practical to accommodate the type of marker being used, to ensure that the cremain site appearance is appropriate and consistent with any adjacent gravesite section. Each gravesite will be marked with one marker, consistent with the requirements of applicable law and NCA policy.

The standard cremain site sizes will be used when conditions warrant:

- *Designated Cremains Sections -- A burial site for the interment of cremated remains in a separate cremains section is 4 feet x 4 feet x + 2 feet (1200 millimeters x 1200 millimeters x + 600 millimeters) deep, and is marked with a 12 inches x 18 inches (300 millimeters x 450 millimeters) flat marker of granite or bronze.*
- *Garden Niche or Terrace -- A burial site for the interment of cremated remains in a distinct space using a system of paths, walls and/or terraces that creates a tranquil garden setting, is 4 feet x 4 feet x + 2 feet (1200 millimeters x 1200 millimeters x +*

600 millimeters) deep, and is marked with a 12 inches x 18 inches (300 millimeters x 450 millimeters) VA standard flat marker of granite or bronze, or a wall-mounted bronze plaque, 5-1/2 inches x 8-1/2 inches (140 millimeters x 215 millimeters).

- *Columbarium -- A niche in an above-grade structure designed for the interment of cremated remains is 10-1/2 inches x 15 inches x 20 inches (265 millimeters x 375 millimeters x 500 millimeters) deep, measured at the face. Each niche is designed to accept an individual VA standard niche cover. Some columbaria developed earlier in national cemeteries utilized multiple-niche covers and various sizes of niches. Expansion of existing columbaria will follow the original design concept for that cemetery. The columbarium design must include the capability of expansion in future phases of cemetery development but must appear complete with the initial phase of development.*
- *Cremains [Scattering] Garden -- A designated garden-type area where cremated remains are scattered in the landscape. A site used for the scattering of cremated remains is not individually marked, but the deceased is acknowledged on a communal bronze plaque in the garden area or by an individual bronze plaque mounted on a wall designated for that purpose. An individual whose ashes are scattered in the national cemetery may not have a memorial marker placed in the memorial section of the cemetery.*

The planning and design phase of the project will not commence until after land has been acquired. The land acquisition phase will follow this EA. Therefore, details about how any of the sites under consideration might be developed into a cemetery are not available. However, according to the NCA (VA NCA, 2004), cemetery development will likely occur in phases with the first phase likely to include construction of the first active burial section in addition to the infrastructure necessary to operate the cemetery. Subsequent phases would probably be limited to new burial sections and the infrastructure required for the section.

2.2 Alternatives Considered and Dismissed from Detailed Analysis

2.2.1 Site Selection Process

2.2.1.1 Location

The site should be located as close as possible to the densest veteran population in the area under consideration. The focal point identification was presented in Section 1.3. In addition, the sites are evaluated according to size, shape, accessibility, utilities and water, surrounding land use, and environmental concerns.

Sufficient acreage must be available to provide sufficient gravesites for several decades. Interment rates are projected based upon veteran population within a 75-mile radius of a proposed site. The number and mix of required full-casket gravesites, cremain sites, and columbarium niches are used to determine acreage requirements. Irregularly shaped sites are generally more difficult to access and less efficient to layout and develop. The NCA has determined that an ideal site would consist of approximately 200 acres.

The selected site should be readily accessible via highways and major public roadways. Close proximity to highway interchanges and public transportation is optimal. If public utilities (electricity, water, sewer) are immediately available to the site, that is ideal. However, on-site septic systems and on-site water wells may be acceptable. An adequate water supply, whatever the source, is also very important. Sites adjacent to visually objectionable, loud noise, high traffic, or other nuisance elements are avoided to maintain the desired decorum for the ceremonies. The site needs to be free of public easements and rights-of-way.

2.2.1.2 Site Characteristics

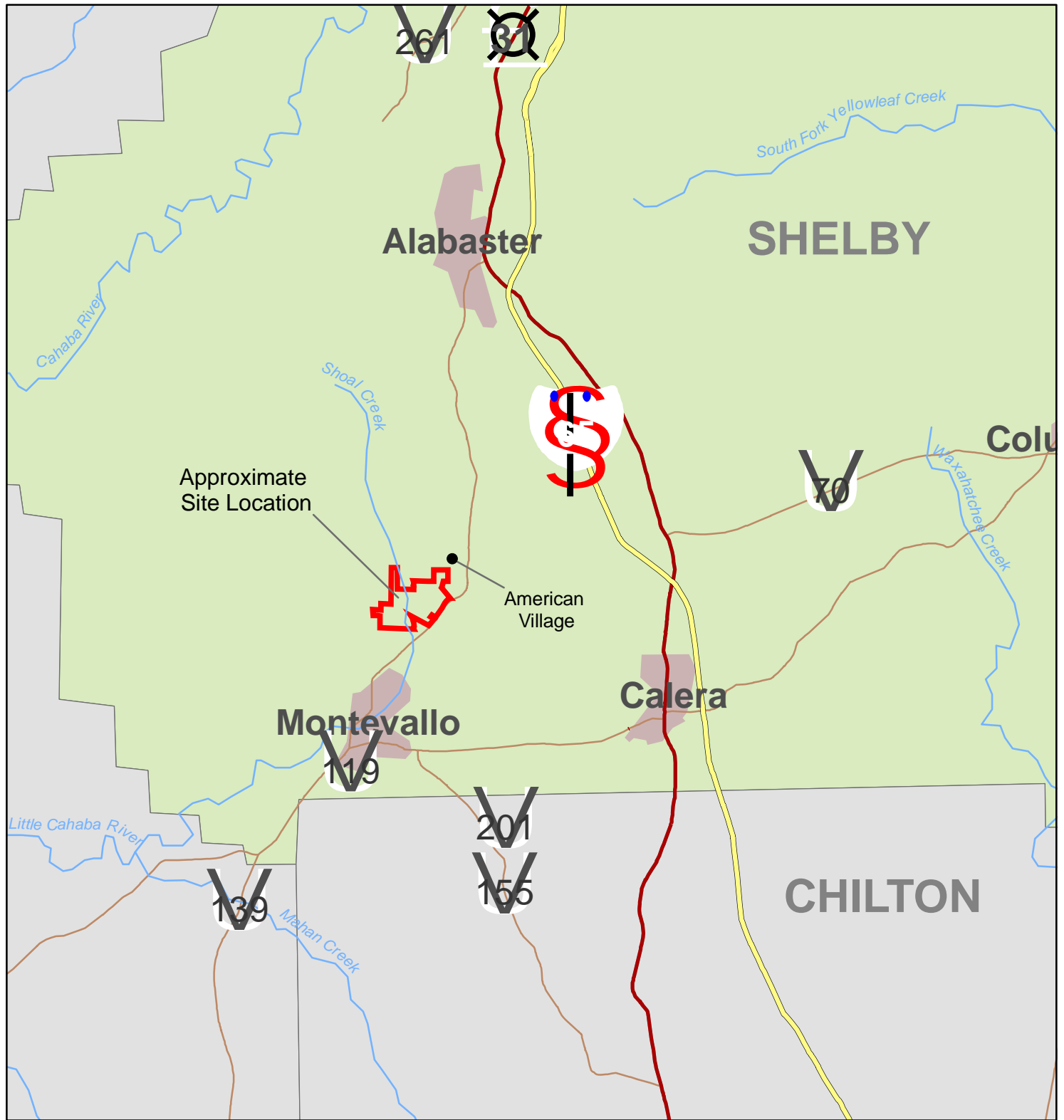
The inherent qualities of the site, including soils, topography, and aesthetics, should be such that it is conducive to cemetery development. Soils should be of a quality which will provide adequate topsoil for growing turf as well as adequate stability for constructing roads and buildings. Shallow depth to groundwater may require additional site preparation. An ideal site would be free of subsurface obstructions and hazardous waste.

Comparatively level to rolling terrain is desirable for areas to be developed. The grade of burial areas should be in the 2 to 15 percent range. There should be sufficient slope to enable proper drainage of the site. Ravines, wetlands, and sinkholes are avoided wherever feasible. Existing site amenities such as pleasant views and quality vegetative cover are sought after. The presence of man-made elements such as cultural/historic/archaeological elements, utility easements, rights-of-way, or mineral rights can hamper or legally prevent development.

During 2003-2005, NCA staff completed preliminary site visits at several potential candidate sites in central Alabama for a national cemetery. The purpose of the site visits was to identify appropriate candidate sites suitable for further consideration as a national cemetery. The sites that were included in the NCA's preliminary site visits included the following:

- The Jackson Tract – located south of Birmingham in Shelby County, Alabama
- The Tharp Tract – located south of Birmingham in Shelby County, Alabama
- The Carter Tract – located south of Birmingham in Shelby County, Alabama
- The Fowler Tract – located south of Birmingham in Shelby County, Alabama
- The Sphinx Tract – located south of Birmingham in Shelby County, Alabama
- A portion of the American Village Tract – located south of Birmingham in Shelby County, Alabama
- A site located east of Birmingham, Alabama.

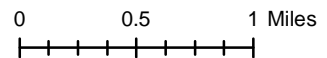
The site located east of Birmingham, Alabama was removed from consideration prior to initiation of this EA due in part to limited accessibility, topographic constraints, availability, and size constraints. The Sphinx Tract was eliminated from further review because of extensive floodplain, wetlands, streams and potential cultural resource constraints. Of the sites listed above, the Jackson, Tharp, Carter, Fowler and American Village tracts (Figure 2-1), were



Source: ESRI DATA (Streetmap)

Legend

- Approximate Site Location
- ~ Rivers and Streams
- Interstate
- US Highway
- State Road



1

PROJECT LOCATION MAP

DRAWN	DATE
FJB	04/17/2006
CHECKED	DATE
GH	04/17/2006

MACTEC
 Birmingham, Alabama
 6671-05-0316

NATIONAL CEMETERY
 MONTEVALLO, ALABAMA
 DEPARTMENT OF VETERANS AFFAIRS
 NATIONAL CEMETERY ADMINISTRATION

FIGURE:

2-1

identified for further consideration. These five tracts, grouped together into three alternative sites, are the focus of this EA.

American Village was founded by the Citizenship Trust as a public educational institution with a nationally pioneering mission “to strengthen and renew the foundations of American liberty and self-government through citizenship education” (The American Village, 2006). The American Village offers educational tours and demonstrations of the historic colonial replications, such as Monticello and Mount Vernon.

2.3 Alternatives Retained for Detailed Analysis

2.3.1 Alternative A -- Combination of Jackson Tract, Tharp Tract, Carter Tract, and American Village Tract

Under this alternative, the NCA would acquire and develop a 237-acre site in Shelby County, Alabama (Figure 2-2). This Alternative is currently composed of four separate tracts; Mr. William Jackson (91 acres), Mrs. Barbara Tharp (70 acres), Mr. Kenneth Carter (41 acres), and the American Village (35 acres).

The Jackson parcel consists of a large rolling hill and open pasture as it drops down in forest to Shoal Creek and another unnamed tributary stream to Shoal Creek, located along the western property boundary. This parcel is extensively used for agricultural livestock production. One residence is located on the property, as well as multiple sheds and barns. Access to this site is provided by Killough Mill Road, a dirt road that provides access from State Highway 119.

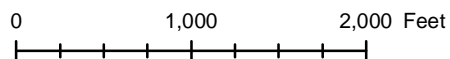
The Tharp parcel is located adjacent to the Jackson parcel along the eastern property boundary. This parcel has a relatively flat, open landscape with forested rolling hills on the east and west property boundaries. The open landscape portion of the property is currently used as pasture for livestock and hay production. Two small stock ponds are located in the open pasture, in the central portion of the property, for livestock. Two residences are also located on the property in the southwestern corner, just off Killough Mill Road. Killough Mill Road is a dirt road that provides access from State Highway 119.

The Carter parcel is located along the northern property boundary of the Tharp parcel. This site consists of relatively flat topography with a minimal roll to the landscape. This site has mostly open pasture and large hardwoods with a grazed/open understory located in the central portion of the parcel. This parcel is located within the city limits of Montevallo, Alabama.

The American Village site is located along the eastern property boundary of the Tharp parcel. This site consists entirely of open pasture that is used as a horse pasture. The topography of this site is relatively flat. A drainage swale, which ultimately becomes a ditch flowing to the



Source: G-Square, 2005 (Aerial)



Legend

- Approximate Site Boundary
- Tracts

1

AERIAL PHOTOGRAPH, ALTERNATIVE A

DRAWN	DATE
ALF	04/19/2006
CHECKED	DATE
GH	04/20/2006

MACTEC
 Birmingham, Alabama
 6671-05-0316

NATIONAL CEMETERY
 MONTEVALLO, ALABAMA

DEPARTMENT OF VETERANS AFFAIRS
 NATIONAL CEMETERY ADMINISTRATION

FIGURE:

2-2

southeast, runs along the northeastern boundary of this site. Approximately 1,500 feet of this site runs along State Highway 119 on the southeastern property boundary. This parcel is located within the city limits of Montevallo, Alabama.

Alternative A is bounded to the east by State Highway 119, American Village, and agricultural fields, to the north by agricultural fields and residences, to the west by wooded areas with residences further west, and to the south by wooded areas and agricultural fields.

2.3.2 Alternative B – Combination of a Portion of Fowler Tract, Tharp Tract, American Village Tract, and Carter Tract

Under this alternative, the NCA would acquire and develop an approximately 246-acre site in Shelby County, Alabama (Figure 2-3). The site is currently composed of four separate tracts, a portion of the Fowler tract (122 acres), Tharp tract (70 acres), Carter tract (41 acres), and American Village tract (35 acres).

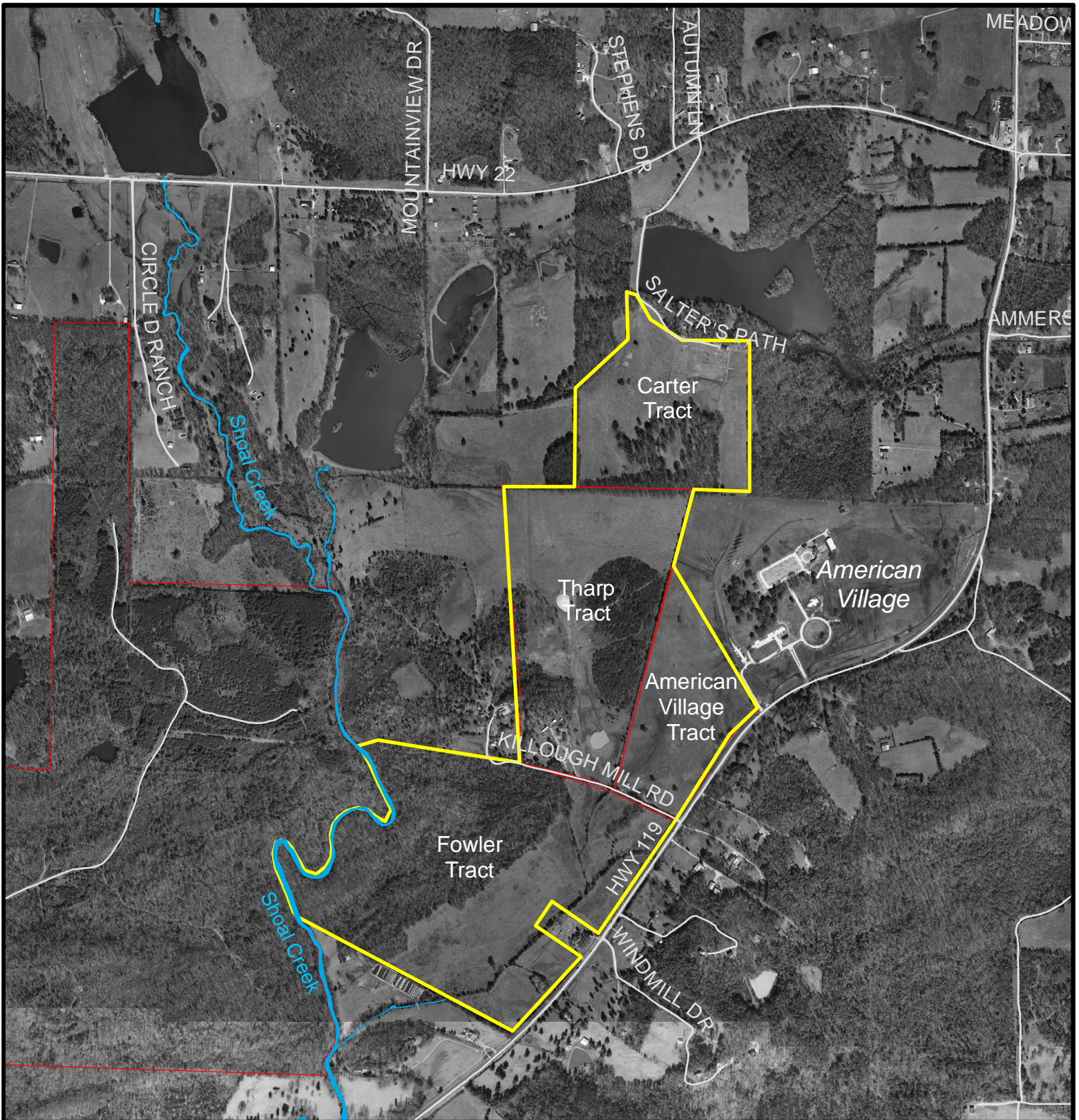
Alternative B consists of the same sites as Alternative A, with the exclusion of the Jackson tract and the addition of a portion of the Fowler tract. The portion of the Fowler tract under consideration in Alternative B is located along State Highway 119, on the eastern boundary, and consists of approximately equal areas of open pasture and young mixed forest. The open pasture portion of the site is relatively flat. The young mixed forested portion of the site consists of a large rolling hill that rises up from the pasture on the eastern side and steeply falls to Shoal Creek on the western side. Shoal Creek is the western boundary of this portion of the Fowler parcel. A single residence is located on an out-parcel within a portion of the Fowler tract, along State Highway 119. This out-parcel residence is not being considered for purchase by the VA.

2.3.3 Alternative C – Fowler Tract

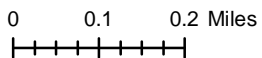
Under this alternative, the NCA would acquire and develop portions of a 472-acre site in Shelby County, Alabama (Figure 2-4). This Alternative is composed of a single parcel. The Fowler Tract is composed of mostly mixed young forest except the open pasture located along State Highway 119. The topography on this site consists of rolling hills in the southern portion of the property, and flat topography in the northern portion of the property. Shoal Creek and various creeks and ditches run throughout the site, and a small man-made pond is located in the central western portion of the site. Two residences are located on site, including an abandoned home site in the northeastern portion of the site and an unoccupied house along the west bank of Shoal Creek.

2.3.4 Alternative D – No Action

Under this alternative, the NCA would not develop a new national cemetery in central Alabama. The estimated 212,300 veterans in the vicinity would have to use one of the other national cemeteries or private cemeteries for burial services. The Fort Mitchell National Cemetery, located in Seale, Alabama, approximately 180 miles from Birmingham is close enough to meet



Source: G-Square, 2005 (Aerial)



Legend

- Approximate Site Boundary
- Tracts

1

AERIAL PHOTOGRAPH, ALTERNATIVE B

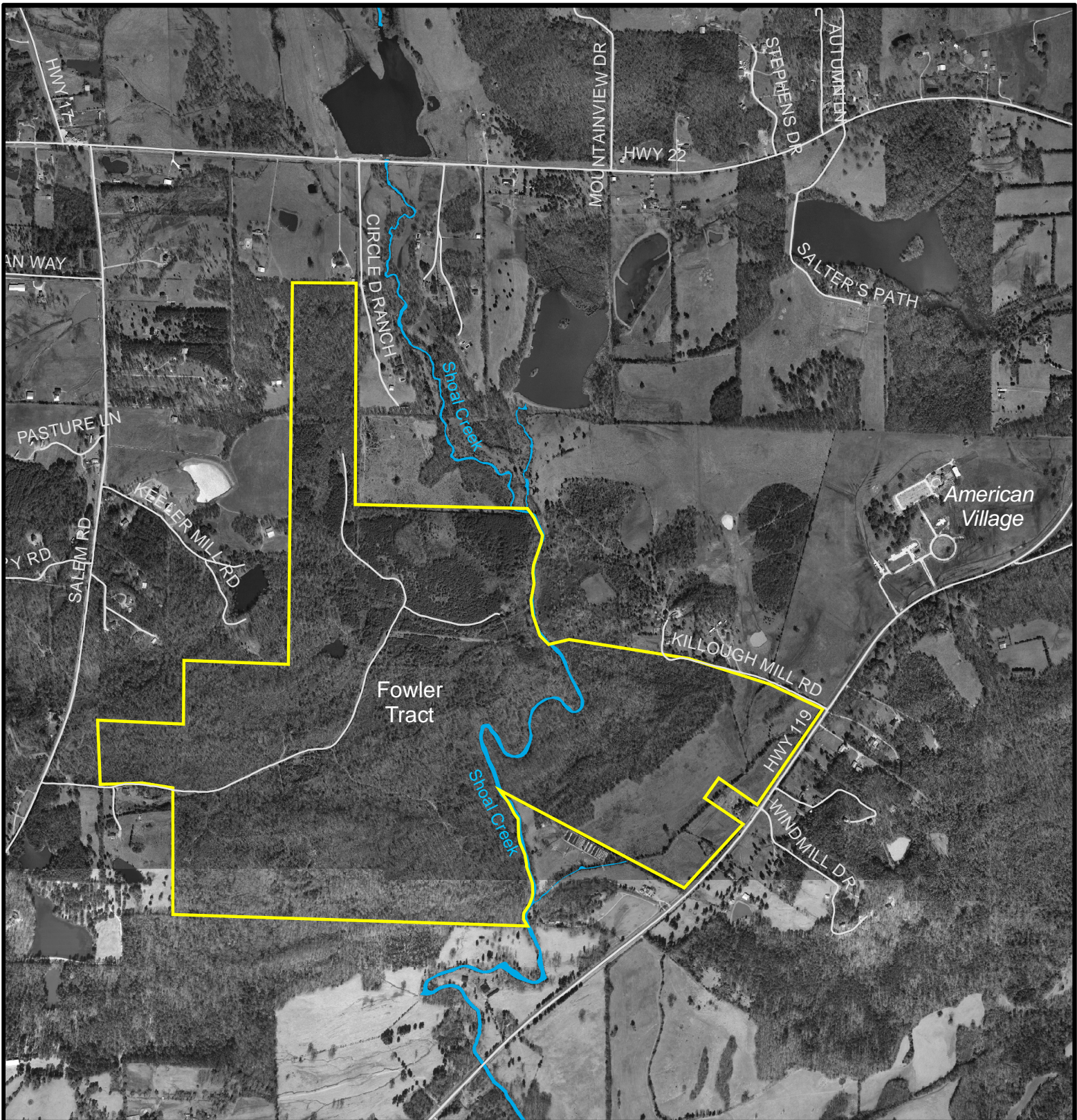
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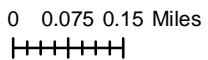
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FIGURE:

2-3



Source: G-Square, 2005 (Aerial)



Legend

Approximate Site Boundary

1

AERIAL PHOTOGRAPH, ALTERNATIVE C

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FIGURE:

2-4

the proximity needs of some of the veterans that may request burial services. However, the Fort Mitchell National Cemetery does not have the capacity to meet the projected needs for this area.

3.0 Affected Environments

The following sections describe the findings of a series of inquiries made to obtain background information on each of the three alternative sites under consideration as a new National Cemetery. The work was conducted in accordance with the guidelines of the Department of Veterans Affairs' Environmental Compliance Manual (VA, 1998). Included below are results from: records searches (Appendix A) which meet the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00; owner/site manager interviews; site visits / investigations; and consultations with regulatory and resource agency personnel. Site photos taken in April and September, 2005 are available as a separate section in this report (see Section 9.0 Photolog).

3.1 Aesthetics and Noise

3.1.1 Alternative A

3.1.1.1 Aesthetics

Alternative A consists of open pastures and forested rolling hills in the central portion of the site. Shoal Creek and an unnamed tributary to Shoal Creek make up the western boundary of the site. There are two stock ponds located on the Tharp tract. Three residences are located on Alternative A; two residences on the Tharp tract and one residence on the Jackson tract.

3.1.1.2 Noise

The site is bounded by State Highway 119, American Village, and wooded areas to the east; residential and agricultural land to the north; woodland parcels to the west; and forested, agricultural, and rural residential land to the south. Vehicle traffic on State Highway 119 influences noise levels on the site. During a site visit in September 2005, traffic was observed at an approximate rate of six vehicles per minute. The posted speed limit for this portion of road is 45 miles per hour.

Visitors to American Village, which partially bounds the site to the east, are shown demonstrations of Revolutionary War era arms, including occasional cannon and musket fire, throughout the day. Noise levels on the eastern portion of this site are affected by these live-fire demonstrations.

The existing habitat is composed primarily of open pasture and young mixed forest, which does not act as an effective buffer to noise in the surrounding area. However, existing noise levels at Alternative A are low, appropriate to the rural/suburban nature of this site.

3.1.2 Alternative B

3.1.2.1 Aesthetics

Alternative B consists of open pastures and forested rolling hills in the western portion of the site. Shoal Creek comprises the southwestern boundary of the site and an unnamed tributary to Shoal Creek runs through the southeastern portion of the site. Two stock ponds are located on the Tharp tract. Two residences are located on Alternative B on the Tharp tract.

3.1.2.2 Noise

Approximately 2,250 feet of this site runs along State Highway 119 on the eastern property boundary. American Village and wooded land make up the northeastern boundary of this site. The site is bounded by residential and agricultural land to the north; woodland parcels to the west; and forested and rural residential land to the south. Revolutionary War era arms demonstrations at American Village currently affect noise levels on the northern portion of this site. Vehicle traffic from State Highway 119 also influences the noise level of this site. During a site visit in September 2005, traffic was observed at an approximate rate of six vehicles per minute. The posted speed limit for this portion of road is 45 miles per hour.

3.1.3 Alternative C

3.1.3.1 Aesthetics

Alternative C consists of mixed young forest with an open pasture on the eastern portion of the site. Shoal Creek runs through the center of the site with two unnamed tributaries (and associated creeks) on the western portion of the site. One unnamed tributary to Shoal Creek runs through the pasture on the eastern portion of the site. Two ponds are located in the northwestern portion of the site. Two residences are located on site, including an abandoned home site in the northeastern portion of the site and an unoccupied house along the west bank of Shoal Creek.

3.1.3.2 Noise

The site is bounded by State Highway 119 to the east; agricultural and rural residential properties to the north; wooded, agricultural, and rural residential land to the west; and forested and rural residential property to the south. Vehicle traffic on State Highway 119, where an approximate rate of six vehicles per minute was observed, influences noise levels on the eastern portion of this site.

3.2 Air Quality

Daily forecast and real-time air quality data is projected by the Alabama Partners for Clean Air (APCA) for the area including all alternative sites. APCA is an affiliation of public, private and nonprofit organizations working to implement voluntary strategies that improve air quality in Jefferson and Shelby counties. APCA's goals are to achieve and maintain compliance with national air quality standards, to protect and improve public health, to minimize the economic impacts on existing businesses, and to maximize the potential for economic growth. APCA's air

quality is based on particulate matter and ozone conditions. They monitor during ozone periods of the year, May 1st through September 30th every year. Based on monitored air quality readings from 2003-2005, Jefferson and Shelby counties have achieved compliance with the new, eight-hour ozone standard (APCA, 2006).

No unusual odors were detected at any of the sites during site visits in September 2005. The odors that are normally associated with livestock were present at the three alternative sites, given their common uses of livestock production.

3.3 Community Services

The Jackson, Tharp, and Fowler Tracts lie within unincorporated Shelby County and are therefore served by the County's programs. The local government is comprised of elected County Commissioners. The Carter and American Village Tracts lie within the City of Montevallo and are served by City programs. The local government consists of a Mayor and City Council elected for four-year terms.

Emergency Management in Shelby County is implemented through the Shelby County Emergency Management Agency (EMA) for natural and man-made disasters. In lieu of this, the EMA has begun a new program called the Citizens Corps. The Citizens Emergency Response Team (CERT) Program falls under the Citizens Corps (Shelby County Government, October, 2005). The Montevallo Fire Department is located three miles from the alternative sites and run by volunteers, with more than 50 members (Montevallo, 2006).

Hospital care is available at Shelby Baptist Medical Center located in Alabaster, Alabama, approximately 12 miles from the sites. Specialized care is available at larger hospitals in Birmingham, Alabama, approximately 35 miles from the sites.

Law enforcement services are available through the Montevallo Police Department, which has a staff of 12 full-time officers, one part-time officer, five reserve officers, five full-time dispatchers, and the Police Chief (Montevallo, 2006). The Shelby County Sheriff's Office is located in Columbiana, Alabama, approximately three miles from the alternative sites.

The schools that would be affected by any decrease in property tax revenues should the cemetery be built are (Shelby County Schools, 2006):

- Montevallo Elementary School
- Montevallo Middle School
- Montevallo High School

3.4 Cultural and Historical Resources

Cultural resources are defined as prehistoric and historic sites, structures, districts, or any other physical evidence of human activity considered important to a culture, subculture, or a community for scientific, traditional, and/or religious reasons (36CFR Part 64). For the purpose of this report, based on statutory requirements, the term cultural resource is defined to include the following:

1. Historic properties, as defined in the National Historic Preservation Act (NHPA) of 1966, as amended;
2. Cultural items, as defined in the Native American Graves and Repatriation Act (NAGPRA);
3. Archaeological resources, as defined in the Archeological Resources Protection Act (ARPA);
4. Historic and paleontological resources, as defined by the Antiquities Act of 1906, as amended;
5. Sites that are scientifically significant, as defined by the Archeological and Historic Data Preservation Act (AHPA);
6. Sacred site, as defined in EO 13007, to which access and use is permitted under the American Indian Religious Freedom Act (AIRFA); and
7. Collections, as defined in 36 CFR Part 79, Curation of Federally-Owned and Administered Collections.

The proposed action constitutes a federal undertaking as defined under 36 CFR 800.16(y) and therefore project implementation must comply with Section 106 of the NHPA {16 USC 470s} in addition to various environmental regulations. The administrative law that governs federal agencies with respect to the NHPA is published in the Federal Register under 36 CFR Part 800 *Protection of Historic Properties; Final Rule*. Within 36 CFR 800.8, provision is made for compliance with the NHPA through documentation generated in response to the NEPA, provided that the standards for developing environmental documents comply with Section 106 of the NHPA. Environmental documents prepared by federal agencies for their undertakings often require additional effort to satisfy the NHPA, which has both a lower threshold triggering compliance and a more rigorous compliance process than the NEPA.

Additionally, VA Cultural Resource Management procedures outlined in *VA Handbook 7545* require project implementation to meet the professional standards promulgated by the State Historic Preservation Office (SHPO) with jurisdiction over the project area. Therefore, identification of historic properties within the Area of Potential Effect (APE) of the proposed undertaking must be conducted as specified in 36 CFR Part 800 *Protection of Historic Properties, Final Rule* as well as *Alabama Guidelines: Preparing Reports for Historic Architectural Resources Under Section 106 of the NHPA*, and the *Alabama Historical Commission Policy for*

Archaeological Survey and Testing in Alabama, before compliance with the NHPA can be achieved. Compliance with the requirements set forth under 36 CFR Part 800 *Protection of Historic Properties; Final Rule* will be addressed on the selected alternative site of the three properties under consideration.

According to 36 CFR 800, the APE for a proposed project is the geographic area or areas in which project implementation may directly or indirectly cause alterations in the character or use of historic properties. Under 36 CFR 800.4(a), the APE for the proposed undertaking is to be established in consultation with the SHPO. For the purposes of this report, the APEs for the three alternative sites under consideration are considered to be the sites and their immediately adjacent areas.

As part of this EA, a Preliminary Cultural Resources Assessment was performed to document previously identified cultural resources that may be located within the APE of the various alternatives and to conduct a preliminary field reconnaissance to assess the potential for previously unidentified National Register-eligible properties within the APE.

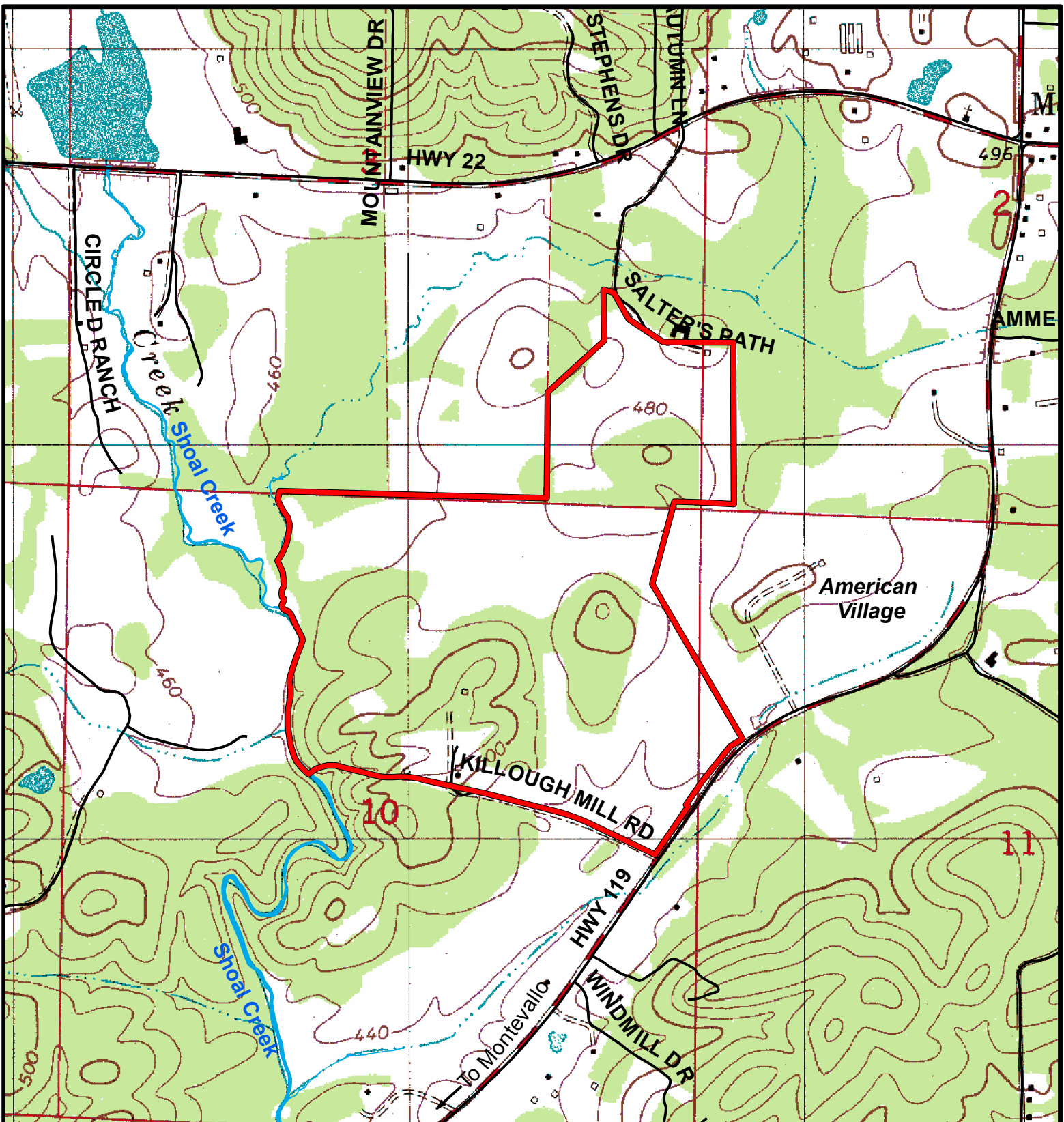
Pursuant to federal law, information concerning the nature and location of any archaeological resource may be withheld from the public irrespective of Subchapter II of Chapter 5 of Title 5 of the United States Code unless certain provisions are met, including that such a disclosure would not create a risk of harm to such resources or the site at which such resources are located. Subsequently, specific location information pertaining to archaeological resources is not provided in this document.

A summary of the cultural history for the region encompassing the project area is included in Appendix B.

3.4.1 Existing Conditions

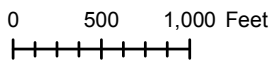
3.4.1.1 Alternative A

A Preliminary Cultural Resources Assessment was performed on Alternative A in 2005 (Figures 3-1 and 3-2). The preliminary assessment indicated that Alternative A has not been the subject of an intensive archaeological survey. No previously-identified NRHP-eligible properties are located within the APE of Alternative A. Much of the land area of Alternative A consists of uplands that have been impacted in the past by intensive agricultural activity. However, Shoal Creek forms the western boundary for the site. During the field reconnaissance, one previously unidentified archaeological site was identified. Site 1Sh521 consists of an intact 19th century house foundation and associated well. Based on the preliminary assessment, areas within approximately 650 feet (200 meters) of intermittent and perennial streams on Alternative A exhibit a high potential for the occurrence of additional cultural resources, particularly low intensity archaeological sites.



Source: Alabaster 7.5 Minute Quadrangle, 1980
 Montevello 7.5 Minute Quadrangle, 1980

Scale: 1: 24,000



Legend

Approximate Site Boundary



USGS TOPOGRAPHIC MAP, ALTERNATIVE A

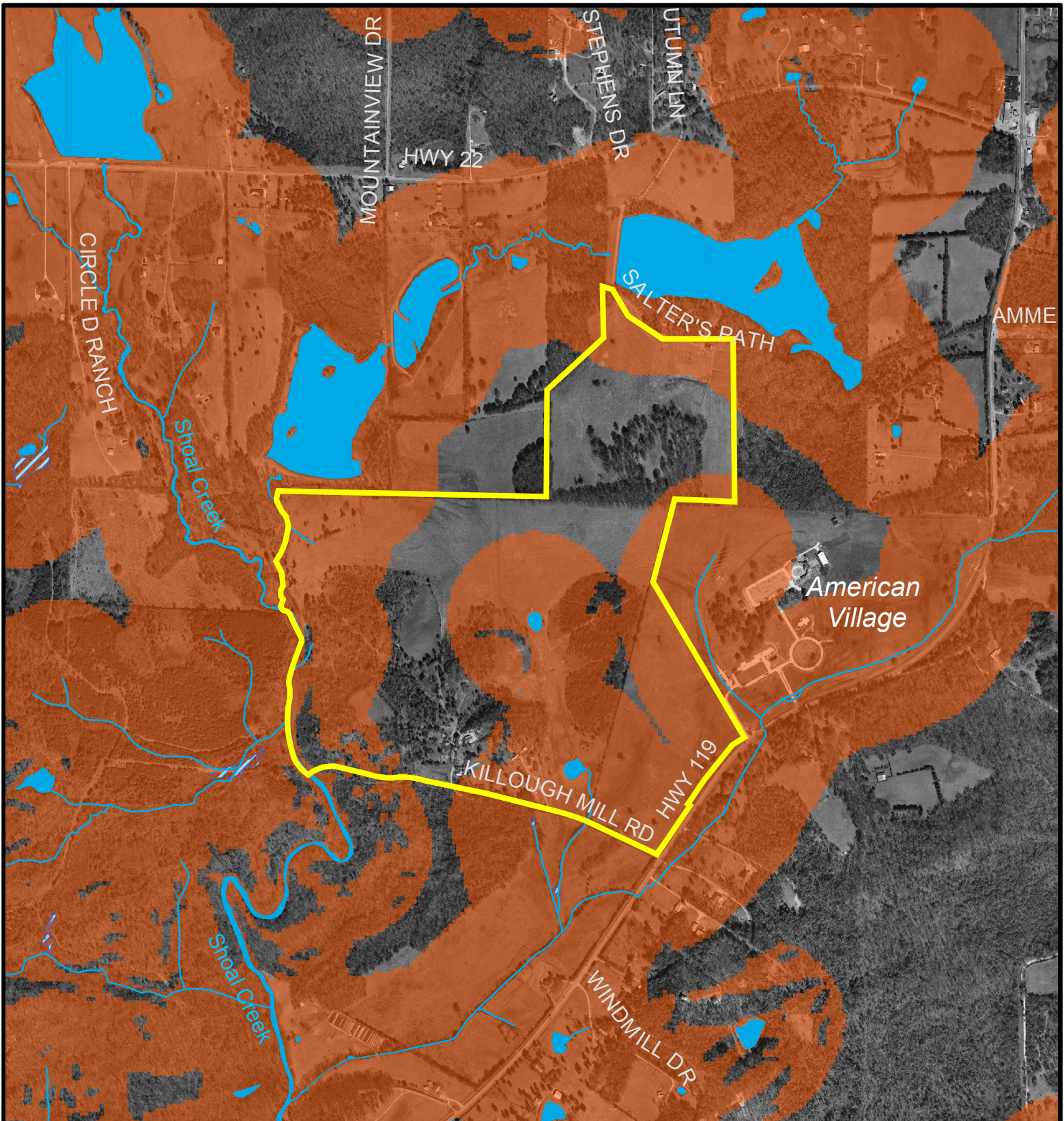
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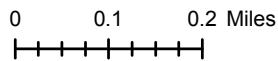
FIGURE:

3-1



Source: G-Square, 2005 (Aerial);
 MACTEC, 2005 (Cultural Resource Areas)

Note: High Probability Areas are
 determined based on proximity
 to water sources and slope of terrain.



Legend

- High Probability Area for Cultural Resources
- Approximate Boundary



CULTURAL RESOURCES, ALTERNATIVE A

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FIGURE:

3-2

3.4.1.2 Alternative B

A Preliminary Cultural Resources Assessment was performed on Alternative B in 2005 (Figures 3-3 and 3-4). The preliminary assessment indicated that Alternative B has not been the subject of an intensive archaeological survey. No previously-identified NRHP-eligible properties are located within the APE of Alternative B. Much of the land area of Alternative B consists of uplands that have been impacted in the past by intensive agricultural activity. However, Shoal Creek forms the western boundary for the site and an intermittent stream is located near the eastern boundary of the alternative site. During the field reconnaissance, three previously unidentified archaeological sites were identified. Site 1Sh506 consists of a 19th century mill with above-ground structural remains on both sides of Shoal Creek. Site 1Sh511 consists of a sparse lithic scatter of unknown cultural affiliation. Site 1Sh521 consists of an intact 19th century house foundation and associated well.

Based on the preliminary assessment, areas within approximately 650 feet (200 meters) of intermittent and perennial streams on Alternative B exhibit a high potential for the occurrence of additional cultural resources, particularly low intensity archaeological sites.

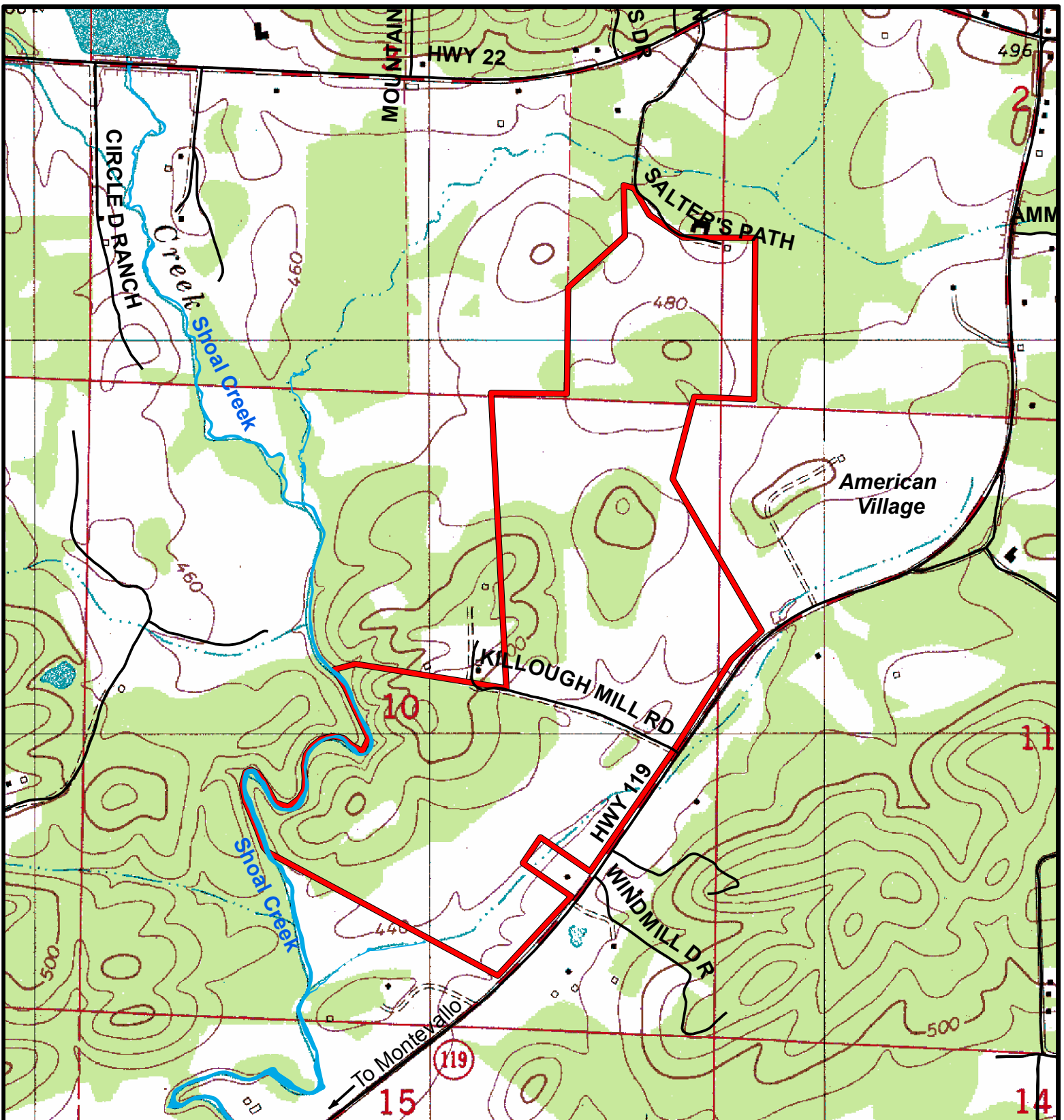
3.4.1.3 Alternative C

A Preliminary Cultural Resources Assessment was performed on Alternative C in 2005 (Figures 3-5 and 3-6). The preliminary assessment indicated that Alternative C has not been the subject of an intensive archaeological survey. No previously-identified NRHP-eligible properties are located within the APE of Alternative C. Much of the land area of Alternative C consists of uplands that have been impacted in the past by intensive agricultural activity. However, Shoal Creek bisects the site and an intermittent stream is located near the eastern boundary of the alternative site. During the field reconnaissance, eight previously unidentified archaeological sites were identified. Site 1Sh506 consists of a 19th century mill with above-ground structural remains on both sides of Shoal Creek. Site 1Sh507 consists of a dense lithic scatter of unknown cultural affiliation. Sites 1Sh508, 1Sh509, 1Sh510, 1Sh511 and 1Sh512 consist of sparse lithic scatters of unknown cultural affiliation. Site 1Sh513 consists of two historic standing ruins that appear to date to the 19th century.

Based on the preliminary assessment, areas within approximately 650 feet (200 meters) of intermittent and perennial streams on Alternative C exhibit a high potential for the occurrence of additional cultural resources, particularly low intensity archaeological sites.

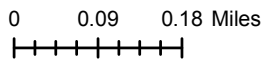
3.5 Economic Activity

Over the last decade Shelby County's population has increased by more than 4,000 people every year, making it Alabama's fastest growing county and among the fastest growing in the United States. With a population in 2000 of 143,293, Shelby County's population has increased 44.2% since 1990. Shelby County ranks among the top 8% of the fastest growing counties nationwide with a population of 100,000 or more (Shelby County Economic and Industrial Development



Source: Alabaster 7.5 Minute Quadrangle, 1980
 Montevello 7.5 Minute Quadrangle, 1980

Scale: 1: 24,000



Legend

Approximate Site Boundary

USGS TOPOGRAPHIC MAP, ALTERNATIVE B

DRAWN	DATE
FJB	04/17/2006
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GH	04/20/2006

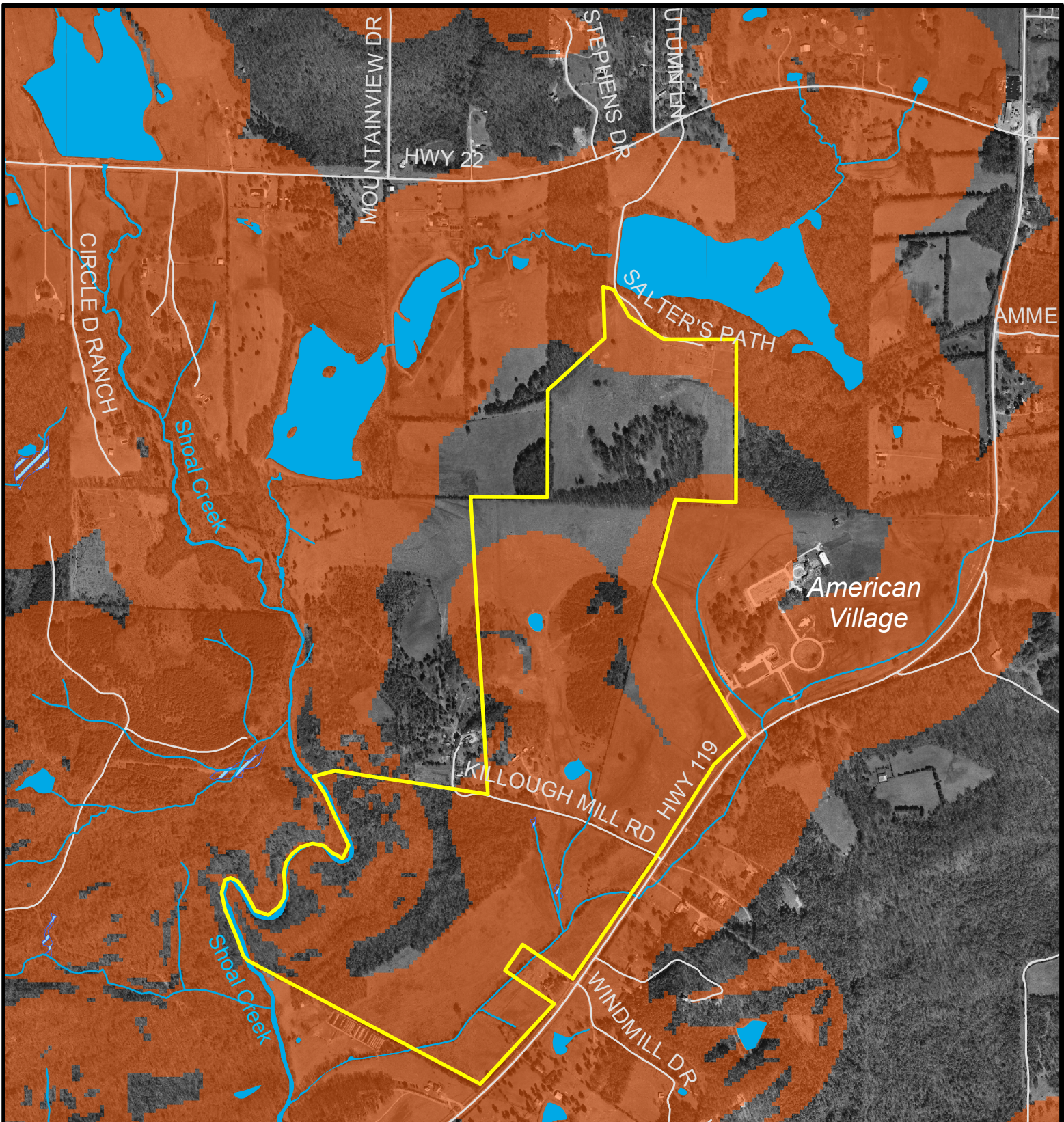
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FIGURE:

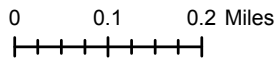
3-3





Source: G-Square, 2005 (Aerial);
 MACTEC, 2005 (Cultural Resource Areas)

Note: High Probability Areas are
 determined based on proximity
 to water sources and slope of terrain.



Legend

- High Probability Area for Cultural Resources
- Approximate Boundary

CULTURAL RESOURCES, ALTERNATIVE B

DRAWN	DATE
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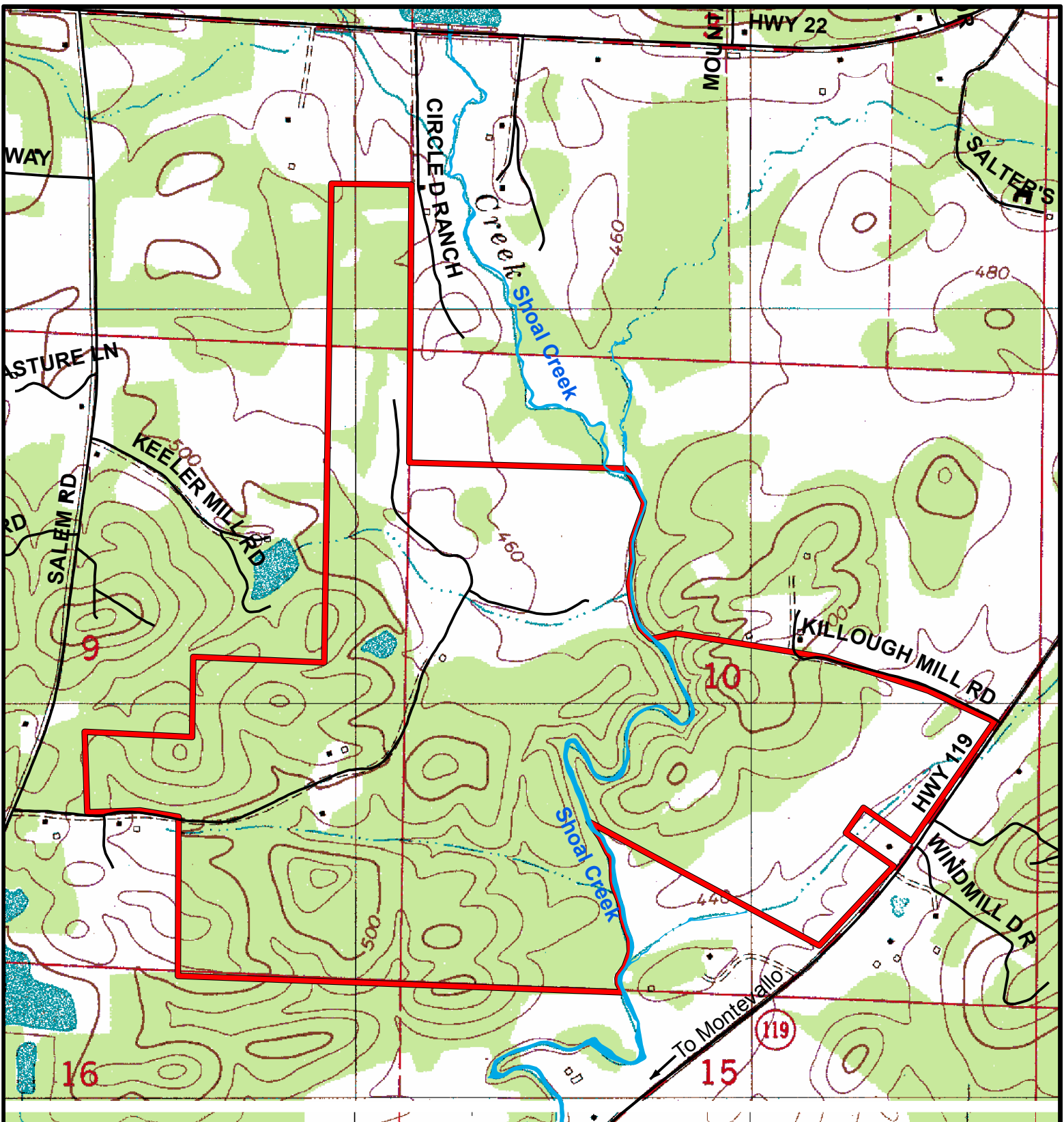
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FIGURE:

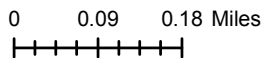
3-4





Source: Alabaster 7.5 Minute Quadrangle, 1980
 Montevello 7.5 Minute Quadrangle, 1980

Scale: 1: 24,000



Legend

Approximate Site Boundary

USGS TOPOGRAPHIC MAP, ALTERNATIVE C

DRAWN	DATE
FJB	04/17/2006
CHECKED	DATE
GH	04/20/2006

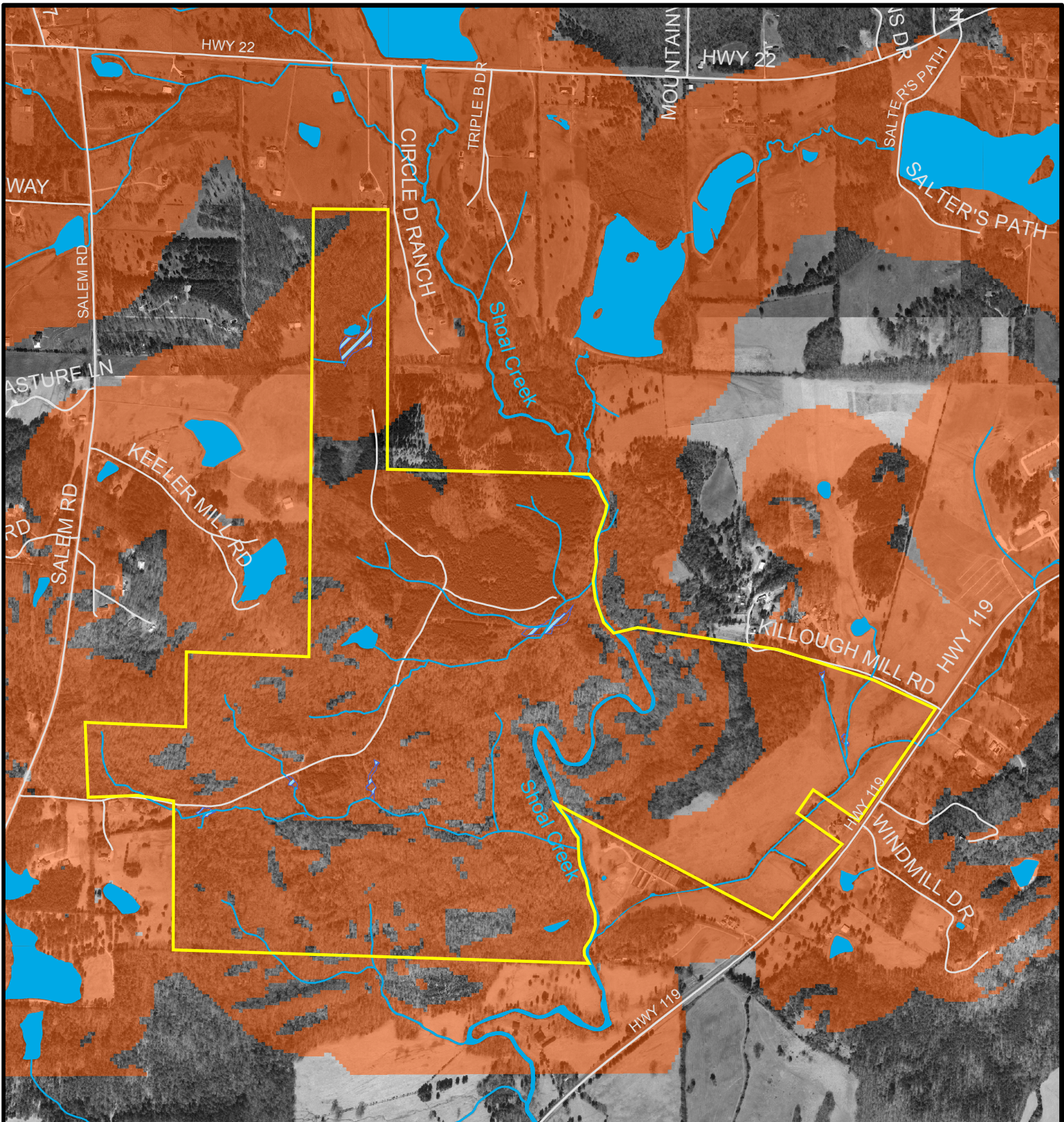
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FIGURE:

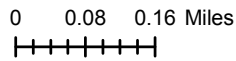
3-5





Source: G-Square, 2005 (Aerial);
 MACTEC, 2005 (Cultural Resource Areas)

Note: High Probability Areas are
 determined based on proximity
 to water sources and slope of terrain.



Legend

- High Probability Area for Cultural Resources
- Approximate Boundary



CULTURAL RESOURCES, ALTERNATIVE C

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FIGURE:

3-6

Authority, 2005). The population trends and projections for Shelby County indicate that there may be as many as 189,240 residents by the year 2009 (Birmingham Regional Chamber of Commerce, 2005).

Shelby County is consistently ranked as the best county in Alabama to raise children, according to Alabama Kids Count. The Shelby County school system is ranked as one of the state's best. Shelby County also offers a variety of quality private schools and is home to two higher educational institutions: Jefferson State Community College-Scrushy Campus and the University of Montevallo (Shelby County Economic and Industrial Development Authority, 2005).

Shelby County also offers a variety of tourist attractions from the largest state park in Alabama to a nationally pioneering civic education center (American Village) located adjacent to the sites being proposed as the new national cemetery for central Alabama.

Shelby County has a diverse economic base that is a reflection of the county's attractiveness for industrial and corporate development. The Highway 280 corridor in the north central portion of the county is Alabama's fastest growing corporate location. Shelby County's Interstate 65 corridor is a magnet for light industrial and wholesale distribution (Shelby County Economic and Industrial Development Authority, 2005). The Shelby County Economic and Industrial Development Authority has a current listing of the top 10 employers in Shelby County, among these entities are six service industries, two school/government organizations, one manufacturing company, and one hospital/health care center.

The primary economic activity at all of the proposed sites is agriculture. The Fowler parcel has some pasture, but is mostly mixed forested land and undeveloped; its primary economic use is silviculture. The Tharp parcel is mostly residential use with a limited amount of agriculture. The Carter parcel was originally used for a residence and pasture but recently was sold and no agricultural practices are currently taking place. The Jackson parcel is used extensively for agricultural purposes, with a single-family residence located on the site. This site currently consists of pasture, hay fields, goats, chickens, hogs, and cattle. The American Village parcel consists of pasture for grazing horses. Conversion of the agricultural uses at any of these five proposed parcels will decrease agricultural revenues.

For this EA it is assumed that livestock at each site would come out of production permanently. Thus, the annual revenues estimated for each site could become permanent losses under a worst-case scenario. Owner interviews indicated that loss of this agricultural land would not result in a workforce reduction. All of the sites with current agricultural production are generally accomplished by the land owner.

3.6 Floodplains, Wetlands, Coastal Zone

3.6.1 Floodplains

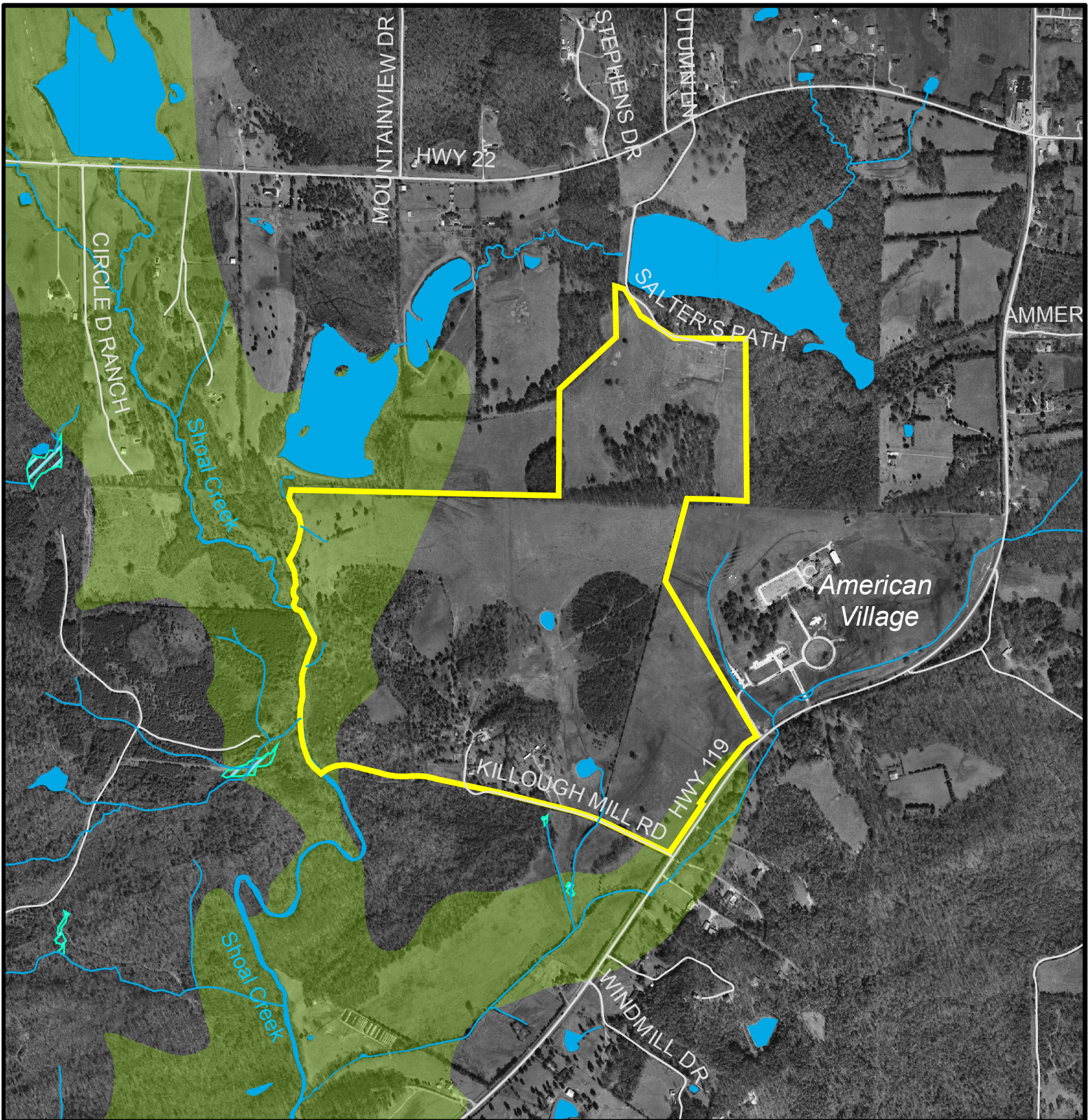
The extent of a floodplain is an important consideration due to the regulation of uses in these areas by Executive Order (EO) 11988, and the floodplain management criteria contained in 44 CFR Part 60, *Criteria for Land Management and Use*. The objective of this presidential order is to avoid, to the extent possible, the long- and short-term adverse impacts associated with occupancy and modification of floodplains. The order applies to all Federal agencies conducting activities and programs that may potentially affect floodplains. To comply with EO 11988, before taking any action, the NCA must evaluate the impacts of specific proposals in the floodplain. In accordance with the requirements of EO 11988, the NCA must demonstrate that there is no practicable alternative to carrying out the Proposed Action within the 100-year floodplain.

According to floodplain information provided by the Federal Emergency Management Agency (FEMA) (1996), 39.45 acres of Alternative A (16.5% of the total acreage) lies in the 100-year flood plain (Figure 3-7). 67.4 acres of Alternative B lies in the 100-year floodplain, or 23.7 percent of the entire site acreage of Alternative B (Figure 3-8). 147.35 acres or 31.2 percent of the entire acreage of Alternative C is present or within the 100-year floodplain in portions of the south central and easternmost section of Alternative C (Figure 3-9). The majority of the land at each site is outside of the 100-year floodplain, except the areas along Shoal Creek and along a creek on the eastern boundary of the Fowler Tract. (FEMA 1996). These depicted flood zones are designated as FEMA Flood Zone A. This designation means that flooding occurs but no detailed hydrologic/hydraulic analysis exists.

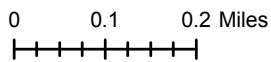
In response to this designation, the owners of the Fowler tract contacted a local engineer to perform a Preliminary Zone A Floodplain Determination on Shoal Creek and its tributaries, which comprise the current FEMA depicted flood zones within all the alternatives. The Preliminary Zone A Floodplain Determination was performed by Martin Engineering Company Inc. Their report depicts the 100-year floodplain on the Fowler property to be significantly smaller than that shown on the effective flood maps for Shoal Creek and its tributaries. This report is preliminary and would have to be submitted to FEMA for certification and modification of the designated floodplain (Appendix C). For purposes of this assessment, the currently-mapped 100-year floodplain will be used to determine impacts, until a revised flood map is issued.

3.6.2 Wetlands

Jurisdictional waters of the United States, including streams and wetlands, are defined by 33 CFR Part 328.3 and are protected by Section 404 of the Clean Water Act (33 USC 1344), which is administered and enforced by the U.S. Army Corps of Engineers (USACE). The 1987 USACE Wetlands Delineation Manual defines wetlands as “areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal



Source: G-Square, 2005 (Aerial),
 MACTEC, 2005 (Wetlands and
 Onsite Surface Water Features),
 Shelby County, AL, 2005 (All
 Other Water Features),
 FEMA, 1982 (Flood Zones)



Legend

- Water
- 100 Year Flood Zone
- Wetland
- Approximate Site Boundary



FEMA 100 YEAR FLOOD ZONE, ALTERNATIVE A

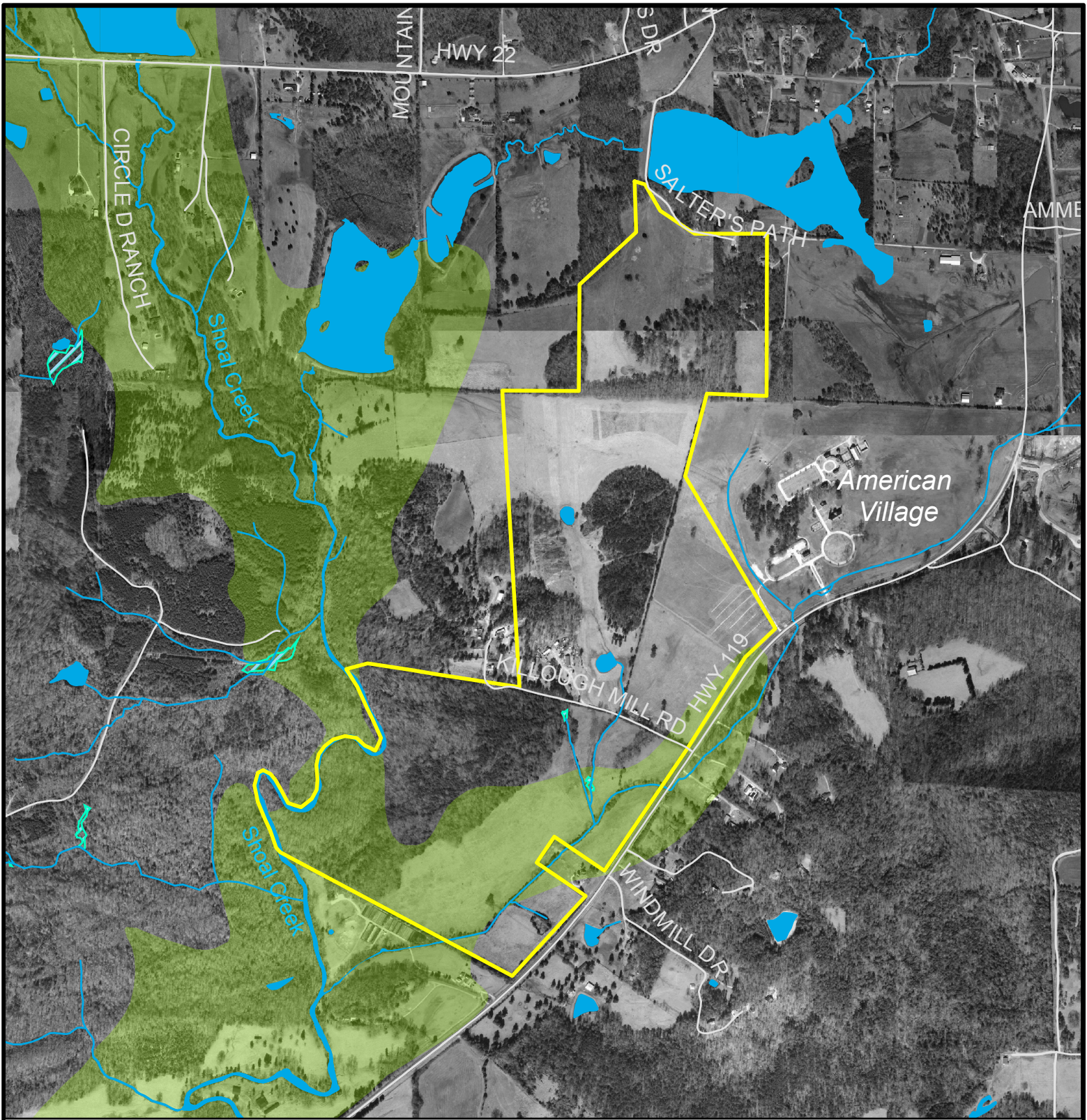
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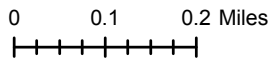
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FIGURE:

3-7



Source: G-Square, 2005 (Aerial),
 MACTEC, 2005 (Wetlands and
 Onsite Surface Water Features),
 Shelby County, AL, 2005 (All
 Other Water Features),
 FEMA, 1982 (Flood Zones)



Legend

- Water
- 100 Year Flood Zone
- Wetland
- Approximate Site Boundary



FEMA 100 YEAR FLOOD ZONE, ALTERNATIVE B

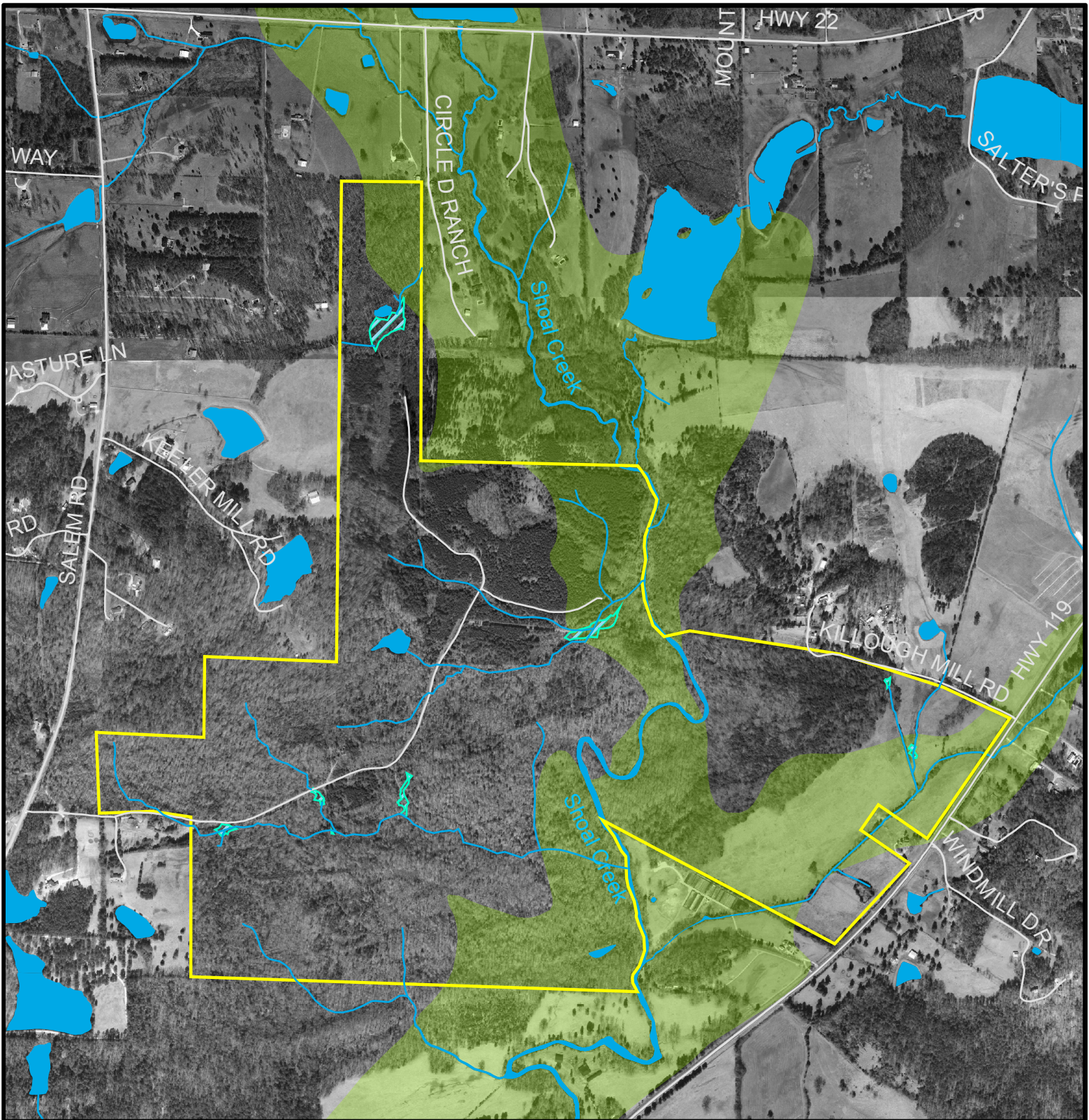
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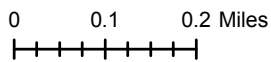
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FIGURE:

3-8



Source: G-Square, 2005 (Aerial),
 MACTEC, 2005 (Wetlands and
 Onsite Surface Water Features),
 Shelby County, AL, 2005 (All
 Other Water Features),
 FEMA, 1982 (Flood Zones)



Legend

- Water
- 100 Year Flood Zone
- Wetland
- Approximate Site Boundary

FEMA 100 YEAR FLOOD ZONE, ALTERNATIVE C

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FIGURE:

3-9



circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” This definition provides the three criteria that must be met for a determination of jurisdictional wetlands according to the USACE: (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils. All three criteria must be present for an area to be classified as a jurisdictional wetland.

Data from the National Wetlands Inventory (NWI) (USFWS, 2005), aerial photographs, soil surveys, and topographic maps were reviewed prior to the site visits to determine locations and types of wetlands that were present on each site.

During site visits in April 2005 and September 2005, a limited ecological survey, including reconnaissance of federal jurisdictional wetlands as defined in 33 CFR Part 328, was completed. The ecological survey included an inventory of upland and wetland communities, recording the presence of plants and wildlife observed, a limited survey for state and federal protected species and their habitats, and photographing conditions on each of the sites (see Section 9.0 Photolog).

According to the NWI, the wetlands present on all sites are palustrine. Palustrine wetlands, as defined by Cowardin *et al.* (1979), whose wetlands classification system the NWI adopted, include all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 parts per thousand (ppt). Wetlands lacking such vegetation are also included if they are less than 20 acres, do not have an active wave-formed or bedrock shoreline feature, have at low water a depth less than 6.6 feet in the deepest part of the basin, and have a salinity due to ocean-derived salts of less than 0.5 ppt (Cowardin *et al.*, 1979).

There were three different types of palustrine wetlands observed during the site visits: open water, permanently flooded, and diked/impounded (POWHh); forested, broad-leafed deciduous, seasonally flooded (PFO1C); and forested, broad-leafed deciduous, temporarily flooded (PFO1A). An open water wetland is characterized by a pond, lake, depression or other environmental feature that holds water at a depth that will not allow the growth of woody vegetation. Forested wetlands are characterized by woody vegetation that is 20 feet tall or taller, which may include either deciduous or evergreen vegetation. Forested wetlands normally possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer. According to NWI, forested wetlands can be temporarily flooded (surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface) to semi-permanently flooded (surface water persists throughout the growing season in most years, and when absent, the water table is at or very near the ground surface) (Cowardin *et al.*, 1979).

3.6.1.1 Alternative A

Two stock ponds, Shoal Creek, and a tributary to Shoal Creek in the central portion of the western property boundary were observed (Figure 3-10). Two NWI wetlands were mapped on this site.

Wetlands

On Alternative A, two wetland areas were observed. They both consisted of forested broad-leaved deciduous wetlands. They were present along the western boundary of the Jackson Tract, one associated with the unnamed tributary to Shoal Creek (Wetland 1-A) and the other was associated with Shoal Creek (Wetland 1-B). Wetland 1-A was designated as permanently flooded and Wetland 1-B as temporarily flooded on the NWI Map. (Figure 3-10). These two wetlands together total less than 0.1 acre.

Streams

Two streams were observed on Alternative A; one jurisdictional perennial stream is an unnamed tributary to Shoal Creek that confluences with Shoal Creek in the central portion of the western property boundary (Stream 1-A). This stream flows from the spillway of a pond located just upstream and on the adjacent property. The base flow stream channel is approximately ten feet wide and approximately six to eight inches deep. Shoal Creek (Stream 1-B), a jurisdictional perennial stream, makes up the remainder of the western property boundary from the confluence with Stream 1-A to the south. The base flow stream channel is approximately 25 feet wide and two to three feet deep. Shoal Creek appeared to be a stable stream with moderate areas of bank failure.

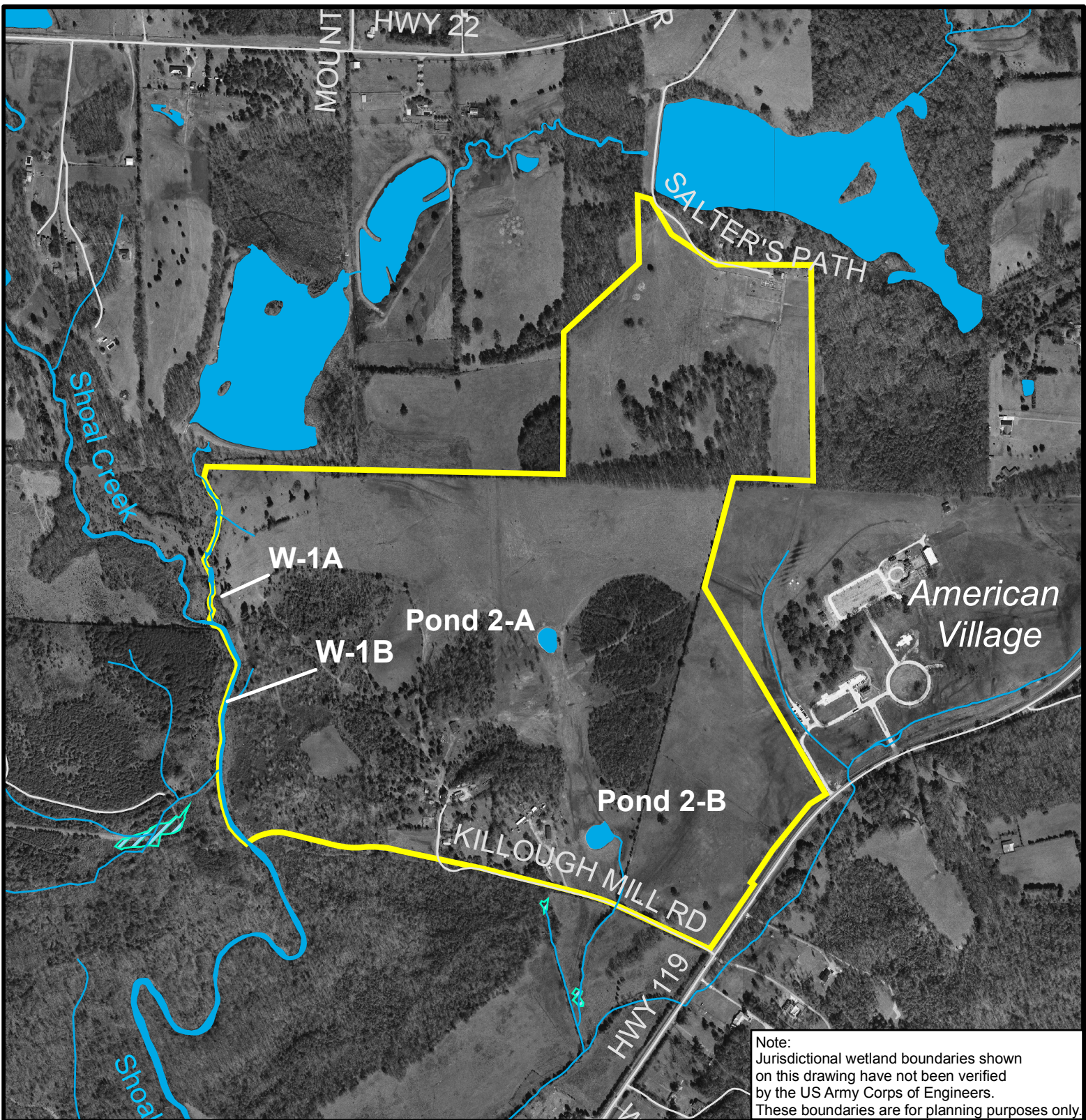
Ponds

Two stock ponds were observed on Alternative A; these ponds are located in the central portion of the site (Pond 1-A and Pond 1-B). According to MACTEC's preliminary observations, the northern-most stock pond (Pond 1-A) appears to be isolated and excavated within an upland making it non-jurisdictional. The southern pond (Pond 2-B) appeared to be overflowing its banks, draining under Killough Mill Road and into an unnamed tributary to Shoal Creek, making it jurisdictional. According to the landowners, these ponds were built to provide a watering area for livestock.

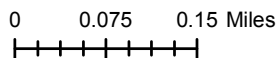
The riparian vegetation in Alternative A is further described in Section 3.17.

3.6.1.2 Alternative B




Although the NWI Map did not identify any wetlands on Alternative B, two wetland areas were observed. These wetlands were found on the portion of the Fowler Tract which is included in this alternative. A system of streams/ditches runs through this portion of the Fowler Tract. These areas of wetlands are in different stages of succession, forming scrub-shrub and emergent



Source: G-Square, 2005 (Aerial),
 MACTEC, 2005 (Wetlands and
 Onsite Surface Water Features),
 Shelby County, AL, 2005 (All
 Other Water Features)



Legend

-  Wetland
-  Water
-  Approximate Site Boundary

WETLANDS AND SURFACE WATER FEATURES, ALTERNATIVE A

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FIGURE:

3-10



palustrine wetlands (Figure 3-11). On Alternative B, two stock ponds, two wetland areas (totaling approximately 1.52 acres) and five jurisdictional stream features (totaling approximately 7287.36 lf) were observed (Figure 3-11).

Wetlands

A jurisdictional wetland area (Wetland 2-A) was observed in the northeastern portion of the Fowler Tract within Alternative B. Vegetation in this area is dominated by water oak (*Quercus nigra*), sweet gum (*Liquidambar styraciflua*), and supple jack (*Berchemia scandens*). Inundation, saturated soils, drainage patterns, oxidized root channels, water-stained leaves, sediment deposits, and low chroma soils were observed in this area.

A small jurisdictional wetland area (Wetland 2-B) was observed in the northern portion of the Fowler tract within Alternative B. Vegetation in this area is dominated by soft rush, and panic grass (*Panicum sp.*). Inundation, saturated soils, drainage patterns, oxidized root channels, and low chroma soils were observed in this area.

Streams

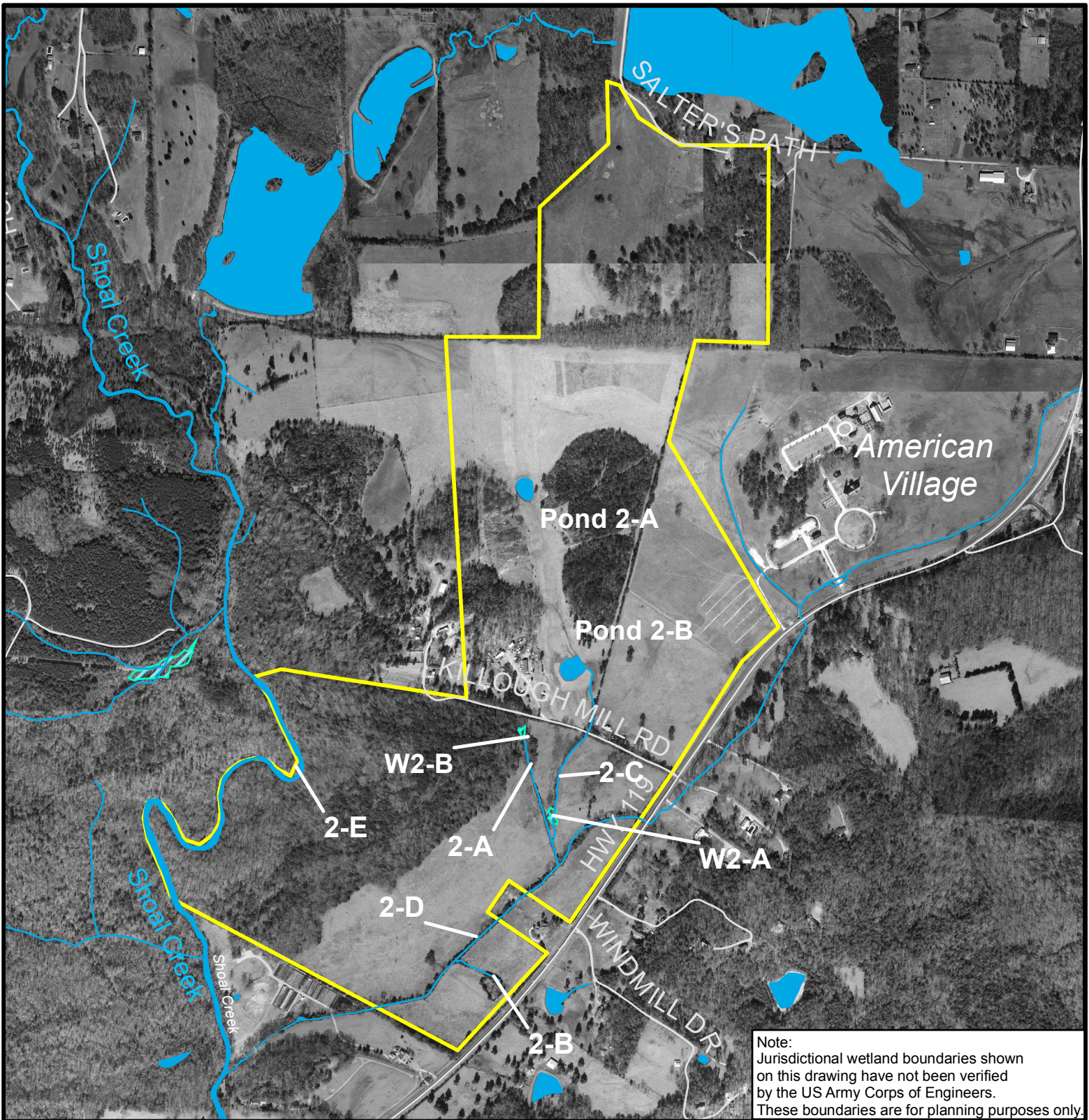
A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the north-central portion of the Fowler tract within Alternative B (Stream 2-A). The base flow stream channel is approximately three feet wide, one to three inches deep, and is braided within its banks.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the southeast portion of the Fowler tract within Alternative B (Stream 2-B). The base flow stream channel is approximately two to three feet wide and three to four inches deep.

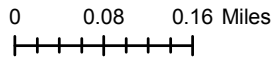
A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the central portion of the subject property along the northern property boundary of the Fowler Tract within Alternative B (Stream 2-C). The base flow stream channel is approximately two feet wide and one to three inches deep. This stream runs south from the southern most stock pond found within this Alternative.

A jurisdictional, perennial stream channel (unnamed tributary to Shoal Creek) was observed in the eastern portion of the Fowler tract within Alternative B (Stream 2-D). The base flow stream channel is approximately five feet wide and six to eight inches deep. Areas of bank failure were observed within this incised and channelized stream channel.




Shoal Creek, a jurisdictional perennial stream, comprises the western boundary of Alternative B (Stream 2-E). The base flow stream channel is approximately 25 feet wide and two to three feet deep. Shoal Creek appeared to be a stable stream with moderate areas of bank failure.



Source: G-Square, 2005 (Aerial),
 MACTEC, 2005 (Wetlands and
 Onsite Surface Water Features),
 Shelby County, AL, 2005 (All
 Other Water Features)



Legend

-  Wetland
-  Water
-  Approximate Site Boundary

WETLANDS AND SURFACE WATER FEATURES, ALTERNATIVE B

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FIGURE:

3-11



Ponds

As described in Alternative A, the same two stock ponds are also located on Alternative B (Pond 2-A and Pond 2-B).

At Alternative B, all wetlands observed contained a majority of native vegetation. However, invasive vegetation was also present. The vegetation is further described in Section 3.17. At the time of the site visits, the wetlands were being used by wildlife, specifically birds and mammals. Use by fish, and/or amphibians was not observed.

3.6.1.3 Alternative C

Alternative C was determined to contain significant streams and wetlands. Seven wetland areas, two jurisdictional ponds and eighteen jurisdictional streams/ditches were observed on this alternative. All of these wetlands are associated with the eighteen streams/ditches running throughout the site. Some of the streams/ditches are formed from the two jurisdictional ponds observed on-site. The low lying wetland areas along the streams/ditches were comprised of forested broad-leaved deciduous, shrub-scrub, and emergent vegetation (Figure 3-12).

On Alternative C, seven wetland areas (totaling approximately 28.4 acres) and eighteen jurisdictional stream features (totaling approximately 27,783.7 lf), were observed during site visits conducted in April and September, 2005.

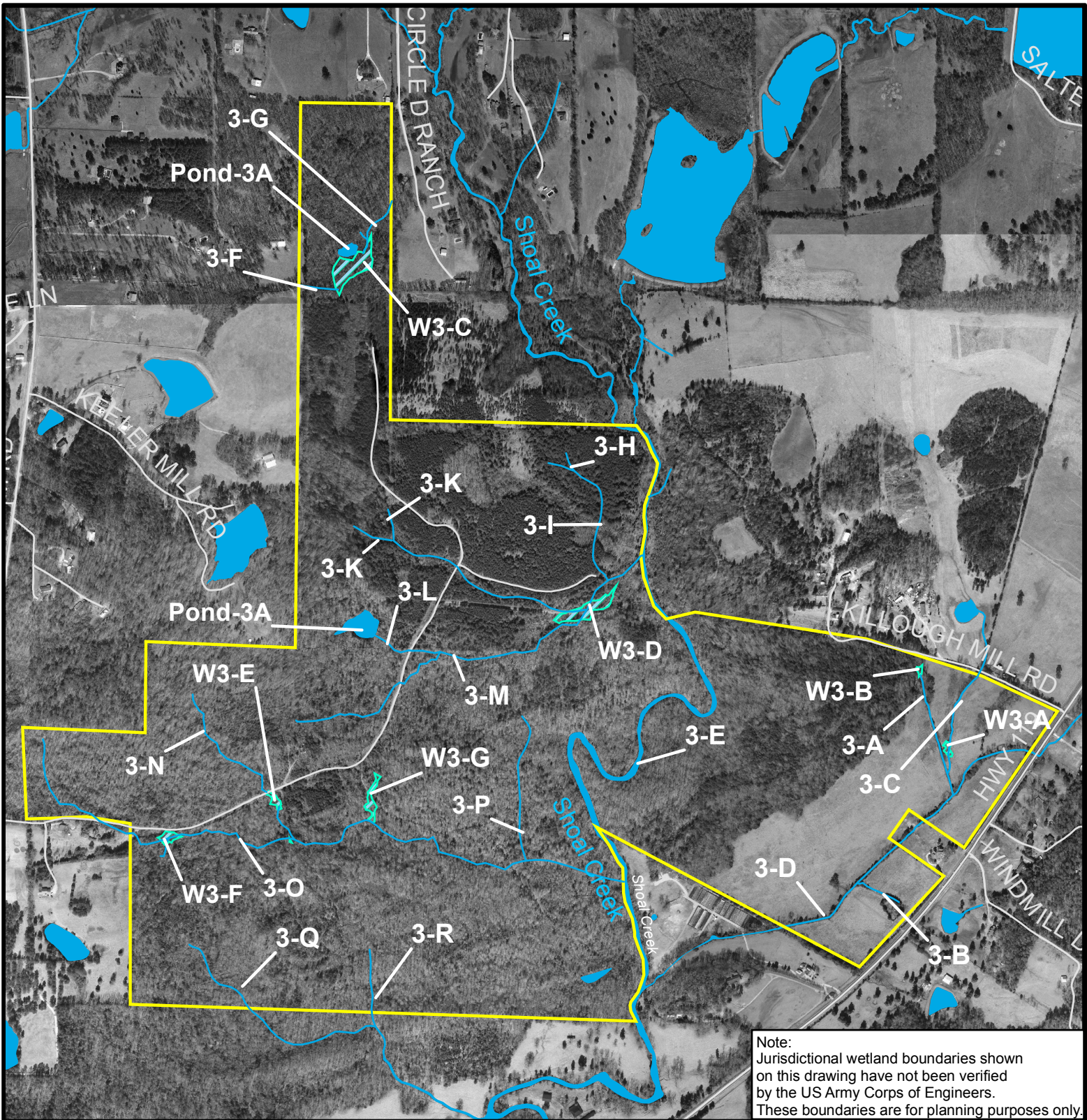
Wetlands

A small jurisdictional wetland area (Wetland 3-A) was observed in the eastern portion of Alternative C near the confluence of Streams 3-A and 3-C. Vegetation in this area is dominated by water oak, sweet gum, and supple jack. Soil saturation, drift lines, sediment deposits, oxidized root channels, water stained leaves, and low chroma soils were observed in this old field area.

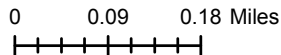
A jurisdictional wetland area (Wetland 3-B) was observed in the eastern portion of Alternative C in the headwaters of Stream 3-A. Vegetation in this area is dominated by soft rush, and panic grass. Inundation, saturated soils, drainage patterns, oxidized root channels, and low chroma soils were observed in this area.

A jurisdictional wetland area (Wetland 3-C) was observed in the northwestern portion of the subject property. Wetland 3-C is located south of jurisdictional pond 3-A. Vegetation in this area is dominated by soft rush, sweet gum, water oak, sedges (*Carex sp.*), and knotweed (*Polygonum sp.*). Soil saturation, drift lines, sediment deposits, oxidized root channels, water stained leaves, and low chroma soils were observed in this area.




A jurisdictional wetland area (Wetland 3-D) was observed in the north-central portion of the subject site. Wetland 3-D is located at the confluence of Streams 3-K and 3-M. Vegetation in



Source: G-Square, 2005 (Aerial),
 MACTEC, 2005 (Wetlands and
 Onsite Surface Water Features),
 Shelby County, AL, 2005 (All
 Other Water Features)



Legend

-  Wetland
-  Water
-  Approximate Site Boundary

WETLANDS AND SURFACE WATER FEATURES, ALTERNATIVE C

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FIGURE:

3-12



this area is dominated by soft rush, and panic grass. Inundation, saturated soils, drainage patterns, oxidized root channels, and low chroma soils were observed in this area.

A jurisdictional wetland area (Wetland 3-E) was observed in the western portion of Alternative C. Wetland 3-E is located immediately southeast of the access road in the western portion of the site. Vegetation in this area is dominated by soft rush, panic grass and cattails (*Typha latifolia*). Inundation, saturated soils, drainage patterns, oxidized root channels, water-stained leaves, sediment deposits, and low chroma soils were observed in this area.

A jurisdictional wetland area (Wetland 3-F) was observed in the southwestern portion of the subject property. Wetland 3-F is located south of the access road along Stream 3-O. Vegetation in this area is dominated by soft rush, sweet gum, and water oak. Soil saturation, drift lines, sediment deposits, oxidized root channels, water stained leaves, and low chroma soils were observed in this area.

A jurisdictional wetland area (Wetland 3-G) was observed in the south central portion of the site. Wetland 3-G is located southeast of the access road and just north of Stream 3-O. Vegetation in this area is dominated by *Polygonum sp.*, sweet gum, and climbing hempweed (*Mikania scanden.*). Inundation, saturated soils, drainage patterns, oxidized root channels, water-stained leaves, sediment deposits, and low chroma soils were observed in this area.

Streams

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the eastern portion of the Fowler tract (Stream 3-A). Stream 3-A flows southeast into Stream 3-D. The base flow stream channel is approximately three feet wide, one to three inches deep, and is braided within its banks.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the southeast portion of Alternative C (Stream 3-B). Stream 3-B flows west into Stream 3-D. The base flow stream channel is approximately two to three feet wide and three to four inches deep.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the eastern portion of the subject property along the northern property boundary (Stream 3-C). Stream 3-C flows south into Stream 3-D. The base flow stream channel is approximately two feet wide and one to three inches deep. This stream runs south from the southern most stock pond found within Alternative B.

A jurisdictional, perennial stream channel (unnamed tributary to Shoal Creek) was observed in the eastern portion of site (Stream 3-D). The base flow stream channel is approximately five feet wide and six to eight inches deep. Areas of bank failure were observed within this incised and channelized stream channel.

A jurisdictional, perennial stream channel (Shoal Creek) was observed in the central portion of the subject property (Stream 3-E). The base flow stream channel is approximately 25 feet wide and two to three feet deep. Shoal Creek appeared to be a stable stream with moderate areas of bank failure.

A jurisdictional, intermittent stream channel was observed in the northern portion of the subject property (Stream 3-F). Stream 3-F begins in Wetland 3-C and flows offsite to the west. This stream has many different braided channels in its head waters near Wetland 3-E. The base flow stream channel is approximately two feet wide and three to six inches deep.

A jurisdictional, perennial stream channel was observed in the western portion of the subject property (Stream 3-G). Stream 3-G originates offsite to the northeast and flows southwest in the area of Wetland 3-C and Pond 3-A. The base flow stream channel is approximately three to four feet wide and three to six inches deep.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the north-central portion of the subject property near the northern property boundary (Stream 3-H). Stream 3-H is a tributary to Stream 3-I. The base flow stream channel is approximately two to three feet wide and four to six inches deep.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the north-central portion of the subject property (Stream 3-I). Stream 3-I is a tributary to Stream 3-M. The base flow stream channel is approximately four to five feet wide and six to eight inches deep.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the central-western portion of the subject property (Stream 3-J). Stream 3-J is a tributary to Stream 3-K, which then flows into Stream 3-M. The base flow stream channel is approximately three to four feet wide and six to eight inches deep.

A jurisdictional, perennial stream channel (unnamed tributary to Shoal Creek) was observed in the central portion of the subject property (Stream 3-K). Stream 3-K flows east into Stream 3-M. The base flow stream channel is approximately three to four feet wide and three to four inches deep.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the central portion of the subject property (Stream 3-L). Stream 3-L originates at Pond 3-B and flows east to the confluence with Stream 3-M. The base flow stream channel is approximately three feet wide and three to four inches deep.

A jurisdictional, perennial stream channel (unnamed tributary to Shoal Creek) was observed in the central portion of the subject property (Stream 3-M). This stream is a main tributary to Shoal Creek within this alternative. The base flow stream channel is approximately two to three feet wide and three to four inches deep in the upper portions of the stream and six to eight feet wide and one to two feet deep in the lower portions of the stream before entering Shoal Creek.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the western portion of the subject property (Stream 3-N). Stream 3-N flows southeast towards its confluence with Stream 3-O. The base flow stream channel is approximately three feet wide and four to six inches deep.

A jurisdictional, perennial stream channel (unnamed tributary to Shoal Creek) was observed in the southern portion of the subject property (Stream 3-O). This stream originates along the central western property boundary, flows south off the property, flows back onto the site, and flows east across the site before entering Shoal Creek. There are various small feeder streams located along this stream that will not be identified for this assessment. The base flow stream channel is approximately two to three feet wide and four to six inches deep in the upper portions and four to five feet wide and six to eight inches deep in the lower portions. Areas of bank failure were observed within this incised channel.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed in the south-central portion of the subject property (Stream 3-P). Stream 3-P flows south towards its confluence with Stream 3-O. The base flow stream channel is approximately three feet wide and four to six inches deep.

A jurisdictional, perennial stream channel (unnamed tributary to Shoal Creek) was observed along the southern property boundary of the subject property (Stream 3-Q). Stream 3-Q flows offsite to the southeast towards its confluence with Stream 3-R. The base flow stream channel is approximately three feet wide and six to eight inches deep.

A jurisdictional, intermittent stream channel (unnamed tributary to Shoal Creek) was observed along the southern property boundary of the subject property (Stream 3-R). Stream 3-R flows south offsite to its confluence with Stream 3-Q. The base flow stream channel is approximately two feet wide and two to three inches deep.

Ponds

Two jurisdictional ponds were observed on Alternative C; these jurisdictional ponds are located in the northwestern and west-central portions of the site (Pond 3-A and Pond 3-B).

- The pond located in the northwestern portion of Alternative C (Pond 3-A) appeared to be historically excavated in wetlands, most likely for a stock pond. One side of the pond

consists of an earthen dam. An intermittent braided stream enters and exits the pond from both sides.

- The pond located in the west-central portion of Alternative C (Pond 3-B) is located on a hill side with moderately steep topography located on three sides. The lower side of the pond has been historically dammed and a spillway installed. This pond appears to be spring fed. Water flowing through the spillway runs down an intermittent stream eventually emptying into Shoal Creek.

Jurisdictional waters of the U.S. were observed to be approximately 3472.5 lf for Alternative A, 1.52 acres and 7287.36 lf for Alternative B, and 28.4 acres and 27,783.7 lf for Alternative C. These acreages were obtained by visually determining the boundaries for each of the wetlands at each site based on vegetation, hydrology and soils, creating waypoints of the boundaries with a Global Positioning System (GPS), and calculating acreages using a Geographic Information System (GIS).

In addition to determining jurisdictional waters of the U.S. located on the different sites, a visual assessment of the quality of the wetlands at each site was completed in April, 2005 and September 2005. The quality of the wetlands was determined by observing the presence of native and exotic vegetation, wildlife utilization, and anthropogenic impact.

On Alternative A, all wetlands observed contained native vegetation. Approximately 30 percent of these wetlands had high vegetative species diversity. For this assessment, high diversity was defined as a site where greater than five native species of wetland plants were established. At the time of monitoring, about 70 percent of the wetlands were observed as being used by wildlife, specifically birds, mammals, fish, and amphibians. About 30 percent of the wetlands and the upper portion of the unnamed tributary stream were directly impacted by either cattle trampling or grazing.

On Alternative B, all wetlands observed contained native vegetation. About half of the wetlands observed had high vegetative species diversity. About ten percent of the wetlands were being utilized by wildlife at the time of monitoring, and 90 percent of the wetlands were impacted by either cattle trampling or grazing.

On Alternative C, all wetlands observed contained native vegetation. About 75 percent of the wetlands were being used by wildlife at the time of the site visit, and 25 percent of the wetlands had high species diversity. About 25 percent of the wetlands were impacted by either cattle trampling or grazing.

A summary of wetlands information obtained during the site visits is included as Table 3-1.

Table 3-1. Wetland Summary

Alternatives	Number of Wetlands Areas	Acres of Wetlands (according to NWD)	Acres of Wetlands (according to MACTEC's observations)	Wetland Types	Percent Wetlands with Exotic/ Invasive Plant Species	Percent Wetlands Utilized by Wildlife (at time of site visit)	Percent Wetlands Impacted by Cattle Trampling or Grazing
Alternative A	2	< 0.1	< 0.1	forested	0	70	30
Alternative B	2	0	1.52	scrub-shrub, forested, emergent	0	10	90
Alternative C	7	2.7	28.4	scrub-shrub, forested, emergent	0	75	25

Source: NWI, 1981-Present; MACTEC 2005.

Created by: ZKH Checked by: AWC

3.6.3 Coastal Zone

The Federal Coastal Zone Management Act (CZMA) requires Federal agencies carrying out activities subject to the Act to request a federal consistency, the authority to review federal activities to determine their compliance with the state. All of the proposed alternatives are located in Shelby County, which is not a regulated coastal county; therefore the Coastal Zone Management Act will not affect this project.

3.7 Geology

Geologically, the subject property is located within the foreland fold-thrust belt of the southern Appalachian orogen. The fold-thrust belt consists of Paleozoic sedimentary rocks deformed by faults and folds during the late Paleozoic. The subject property is located within the central part of the fold-thrust belt and is characterized by high-relief folds and thrust fault ramps. Multiple syncline, anticline, fault and thrust sheets exist in the immediate vicinity of the subject property.

The Paleozoic rocks underlying the study area are the Rome Formation, the Conasauga Formation, and the Briarfield Dolomite. The Rome Formation consists of mudstone, siltstone, sandstone, dolomite and limestone and is intermittently exposed within the subject property. The Conasauga Formation overlies the Rome Formation and underlies the Briarfield Dolomite. The formation consists of massive interbedded limestone and dolomite and interbedded olive-gray shale. The Conasauga Formation is exposed periodically within the subject property. The Briarfield Dolomite is dominantly fine to medium crystalline dolomite with thick to massive beds and abundant horizontal laminations. The presence of cavernous chert on weathered surfaces exists. The Briarfield Dolomite outcrops intermittently in the subject property.

Based on the results of a Limited Subsurface Exploration, the potential for encountering bedrock (or at least a significant number of boulders) within the upper 6 feet below the existing ground surface exists throughout the southeastern section of the American Village Tract (Appendix D).

3.8 Soils and Prime Farmland

3.8.1 General Area

All of the alternatives are located in the Alabama Valley and Ridge physiographic province in Shelby County, Alabama. The Valley and Ridge Region (also known as the “foothills of the Appalachians”) is located southeast of the Plateaus Region and extends from the northeast corner of the state southwest to the center of the state. The topography is composed of rugged mountains interspersed with hills and valleys. The two most notable valleys in this region are the Coosa and Cahaba Valley. Shelby County is a very geologically diverse area. The main geologic features in this region are the sandstone ridges and limestone valleys (Department of Geography, University of Alabama). This region is composed of low rolling hills and valleys with relief generally in the range of 420 to 520 feet above mean sea level (amsl). Localized isolated hills can have a relief of up to 680 feet amsl. Soils at these three alternative sites range from well drained to somewhat poorly drained silt loams and clay loams, with streams that have branching drainage patterns.

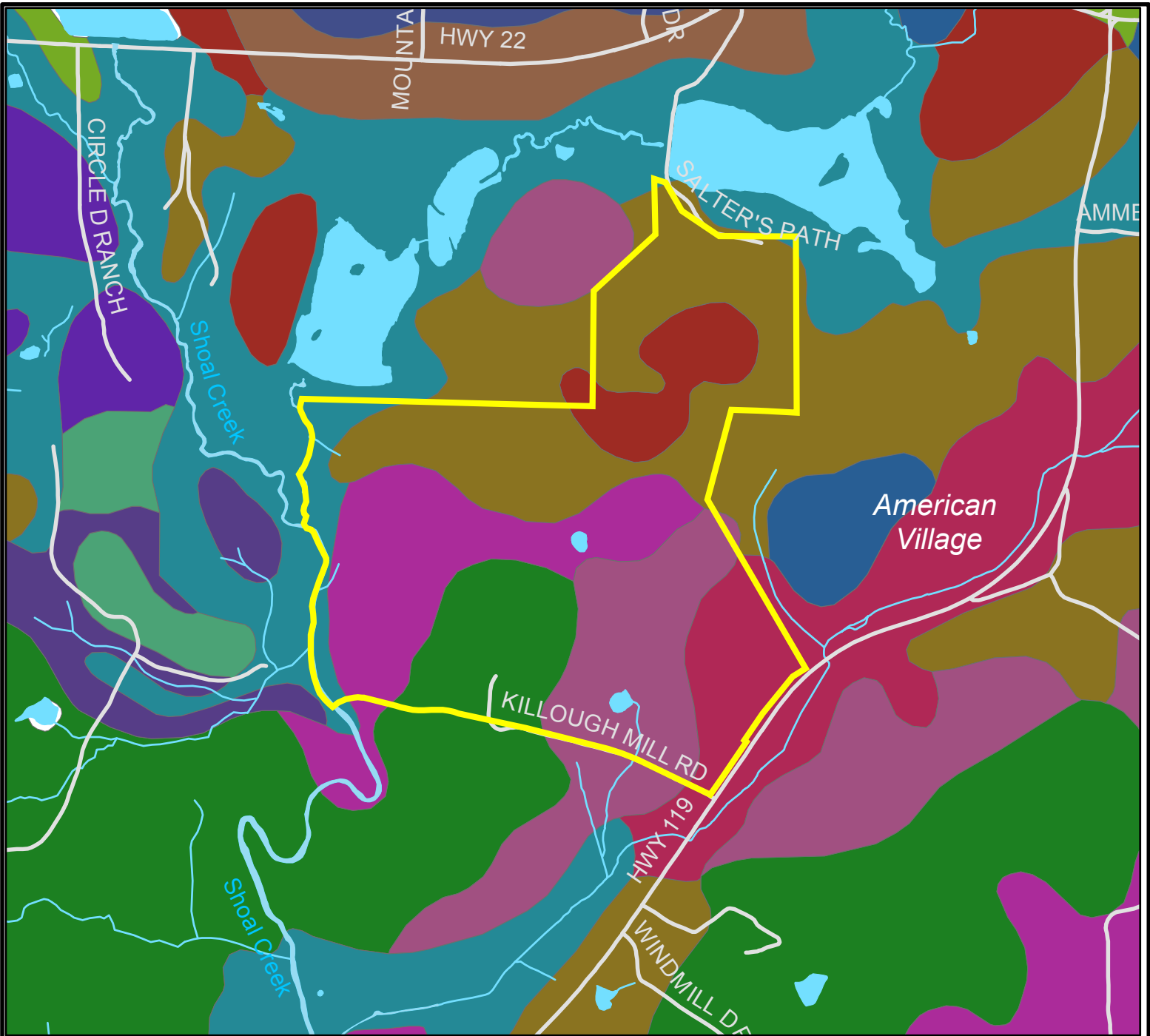
The majority of the soils on the three alternative sites have been altered from their natural state. The soils may have been tilled, filled or drained. There are 14 primary soil units identified on the three alternatives.

3.8.2 Alternative A

According to the Soil Conservation Service *Soil Survey of Shelby County, Alabama* (SCS, 1984), the majority of the soil types present at Alternative A are a mix of the Townley-Sunlight and the Dewey series (Figure 3-13). The Townley-Sunlight series consists of moderately deep and shallow, undulating to steep, well-drained soils that have a clayey or loamy subsoil; formed in residuum of shale and siltstone. The Dewey series consist of two to ten percent slopes, well drained soils that have a clay loam texture and are underlain by limestone. Alternative A is mainly comprised of smooth rolling hills, except a steep wooded hill found in the central part of the alternative and an area of steep gully-washed land along the unnamed tributary to Shoal Creek along the southwest boundary of the alternative.

Two soil types present on Alternative A are considered prime farmland by the Natural Resources Conservation Service (NRCS): approximately 70.9 acres of Dewey clay loam, two to six percent slopes, eroded (DeB2); and approximately 19.0 acres of Decatur silt loam, two to six percent slopes (DuB).

Alternative A soils experience a seasonal high water table greater than six feet below the surface, except for a small portion of the site located along State Highway 119 which may experience a seasonal high water table located one to two feet below the surface. Bedrock within this alternative is reported to be in varying depths of greater than 60 inches below the surface to within ten inches of the surface. Bedrock was observed on the surface in the northeastern low-lying field along the unnamed tributary to Shoal Creek during site visits.



Legend

Approximate Site Boundary

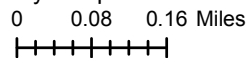
Roads

Water

Soil Classification (NRCS):

- Allen loam, 2 to 6 percent slopes
- Allen loam, 6 to 10 percent slopes
- Bodine-Minvale complex, 25 to 45 percent slopes
- Decatur silt loam, 2 to 6 percent slopes
- Decatur silt loam, 6 to 10 percent slopes

- Dewey clay loam, 2 to 6 percent slopes, eroded
- Dewey clay loam, 6 to 10 percent slopes, eroded
- Etowah silt loam, 2 to 6 percent slopes
- Etowah silt loam, 6 to 10 percent slopes
- Townley silt loam, 12 to 18 percent slopes
- Townley silt loam, 4 to 12 percent slopes
- Townley-Sunlight complex, 12 to 35 percent slopes
- Tupelo loam, frequently flooded
- Tupelo-Dewey complex



Sources: U.S. Department of Agriculture, Natural Resources Conservation Service, 2004 (Soils), MACTEC, 2005 (On Site Water Features), Shelby County, AL, 2005 (Roads, Other Water Features)

NRCS SOILS SURVEY MAP, ALTERNATIVE A



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FIGURE:

3-13

Table 3-2. Soil Units on Alternative A

Soil	Prime Farmland	Hydric	Soil Description
Decatur (DuB)	Yes	No	This soil type consists of a well-drained silt-loam underlain by limestone, found on two to six percent slopes. Permeability is moderate with a slight potential for erosion.
Dewey (DeB2)	Yes	No	This soil type consists of a well-drained clay loam underlain by limestone, found on two to six percent slopes. Permeability is moderate with a slight potential for erosion.
Dewey (DeC2)	No	No	This soil type consists of a well-drained clay loam found on six to ten percent slopes. Permeability is moderate with a slight potential for erosion.
Townley (ToE)	No	No	This soil type consists of a variable well-drained silt loam found on 12 to 18 percent slopes. Permeability is slow with moderate potential for erosion.
Townley-Sunlight Complex (TsE)	No	No	This soil type consists of a well drained soil group found on 12 to 35 percent slopes associated with uplands. Permeability is slow with a moderate potential for erosion.
Tupelo-Dewey Complex (Tx)	No	No	This soil type consists of a somewhat poorly drained to well drained soil group underlain by limestone, found on zero to six percent slopes. Permeability is slow with a slight potential for erosion.
Tupelo (Tu)	No	No	This soil type consists of a somewhat poorly drained loam found on zero to three percent slopes. Permeability is slow with a slight potential for erosion.

Source: SCS Shelby County Soil Survey, 1984; NRCS Hydric Soils of Alabama, 1995.

Prepared by: ZKH Checked by: AWC

3.8.3 Alternative B

The Townley-Sunlight and Dewey series soils account for the majority of the soil types on this alternative (Figure 3-14). As described above, the Townley-Sunlight series soils consist of well drained moderately deep to shallow soils found on uplands. These soils are moderately steep to steep and are formed in residuum of shale and siltstone. A large area located in the southwestern and western portions of this alternative contains these soils. Dewey series soils are described as one of the dominating soils for Alternative B, consisting of two to ten percent slopes, well drained soils that have a clay loam texture and underlain by limestone. Alternative B has a mainly flat to rolling landscape throughout the alternative.

Two soil types present on Alternative B are considered prime farmland by the NRCS: approximately 57.5 acres of Dewey clay loam, two to six percent slopes, eroded (DeB2); and approximately 19.0 acres of Decatur silt loam, two to six percent slopes (DuB).

Alternative B soils have a seasonal high water table greater than six feet below the surface, except for a small portion of the site located along State Highway 119 which may experience a seasonal high water table located one to two feet below the surface. Bedrock within this alternative is reported to be in varying depths of greater than 60 inches below the surface to within ten inches of the surface. Small amounts of bedrock were observed on the surface in various locations throughout the alternative during site visits.



Legend

Approximate Site Boundary

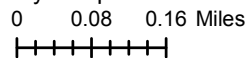
Roads

Water

Soil Classification (NRCS):

- Allen loam, 2 to 6 percent slopes
- Allen loam, 6 to 10 percent slopes
- Bodine-Minvale complex, 25 to 45 percent slopes
- Decatur silt loam, 2 to 6 percent slopes
- Decatur silt loam, 6 to 10 percent slopes

- Dewey clay loam, 2 to 6 percent slopes, eroded
- Dewey clay loam, 6 to 10 percent slopes, eroded
- Etowah silt loam, 2 to 6 percent slopes
- Etowah silt loam, 6 to 10 percent slopes
- Townley silt loam, 12 to 18 percent slopes
- Townley silt loam, 4 to 12 percent slopes
- Townley-Sunlight complex, 12 to 35 percent slopes
- Tupelo loam, frequently flooded
- Tupelo-Dewey complex



Sources: U.S. Department of Agriculture, Natural Resources Conservation Service, 2004 (Soils), MACTEC, 2005 (On Site Water Features), Shelby County, AL, 2005 (Roads, Other Water Features)

NRCS SOILS SURVEY MAP, ALTERNATIVE B



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FIGURE:

3-14

Table 3-3. Soil Units on Alternative B

Soil	Prime Farmland	Hydric	Soil Description
Decatur (DuB)	Yes	No	This soil type consists of a well-drained silt-loam underlain by limestone, found on two to six percent slopes. Permeability is moderate with a slight potential for erosion.
Dewey (DeB2)	Yes	No	This soil type consists of a well-drained clay loam underlain by limestone, found on two to six percent slopes. Permeability is moderate with a slight potential for erosion.
Dewey (DeC2)	No	No	This soil type consists of a well-drained clay loam found on six to ten percent slopes. Permeability is moderate with a slight potential for erosion.
Townley (ToE)	No	No	This soil type consists of a variable well-drained silt loam found on 12 to 18 percent slopes. Permeability is slow with moderate potential for erosion.
Townley-Sunlight Complex (TsE)	No	No	This soil type consists of a well drained soil group found on 12 to 35 percent slopes associated with uplands. Permeability is slow with a moderate potential for erosion.
Tupelo-Dewey Complex (Tx)	No	No	This soil type consists of a somewhat poorly drained to well drained soil group underlain by limestone, found on zero to six percent slopes. Permeability is slow with a slight potential for erosion.
Tupelo (Tu)	No	No	This soil type consists of a somewhat poorly drained loam found on zero to three percent slopes. Permeability is slow with a slight potential for erosion.

Source: SCS Shelby County Soil Survey, 1984; NRCS Hydric Soils of Alabama, 1995.

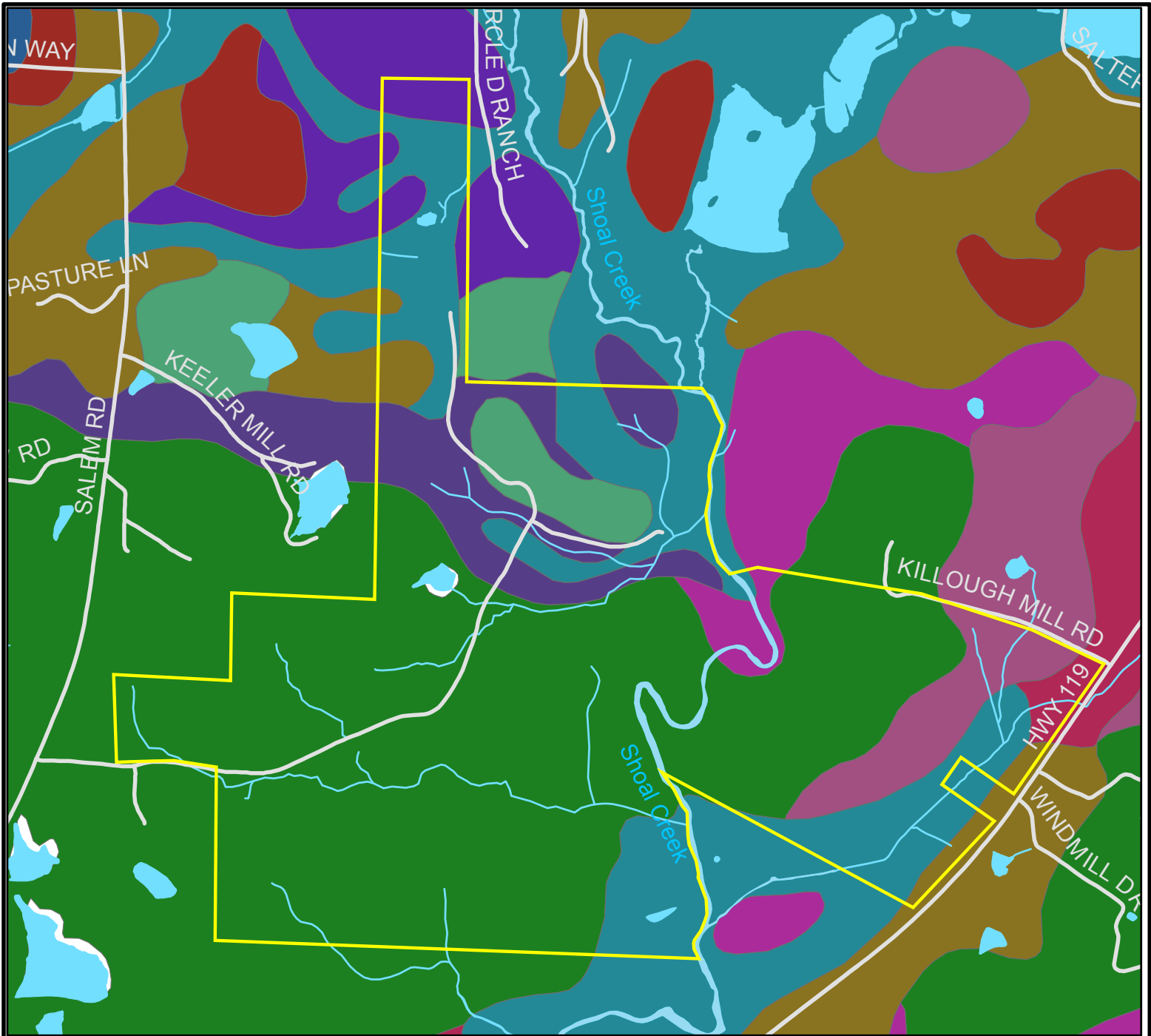
Prepared by: ZKH Checked by: AWC

3.8.4 Alternative C

The Townley-Sunlight and Tupelo soils account for the majority of the soil types on this site (Figure 3-15). The Townley-Sunlight has been described above in Alternatives A and B. This soil series is found in the central and southwestern portions of Alternative C. Tupelo series soils are characterized as deep, somewhat poorly drained, nearly level soils found along drainage-ways and in low depressional areas in valleys underlain by limestone. The slopes found in areas of this soil range from zero to three percent (SCS Shelby County Soil Survey, 1984). This soil series is found in the northern and southeastern portions of Alternative C along Shoal Creek and its tributaries.

Two soil types present on Alternative C are considered prime farmland soils by the NRCS: approximately 16.7 acres of Allen loam, two to six percent slopes (AnB); and approximately 9.0 acres of Dewey clay loam, two to six percent slopes, eroded (DeB2).

Alternative C soils have a seasonal high water table greater than six feet below the surface, except for the portions of the site found in the Tupelo series soils. These areas have a seasonal high water table of one to two feet below ground surface. Bedrock within this alternative is reported to be in varying depths of greater than 60 inches below the surface to within ten inches of the



Legend

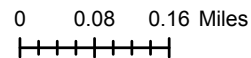
- Approximate Site Boundary
- Roads
- Water
- Shoal Creek

Soil Classification (NRCS):

NAME

- Allen loam, 2 to 6 percent slopes
- Allen loam, 6 to 10 percent slopes
- Decatur silt loam, 2 to 6 percent slopes

- Decatur silt loam, 6 to 10 percent slopes
- Dewey clay loam, 2 to 6 percent slopes, eroded
- Dewey clay loam, 6 to 10 percent slopes, eroded
- Etowah silt loam, 2 to 6 percent slopes
- Etowah silt loam, 6 to 10 percent slopes
- Townley silt loam, 12 to 18 percent slopes
- Townley silt loam, 4 to 12 percent slopes
- Townley-Sunlight complex, 12 to 35 percent slopes
- Tupelo loam, frequently flooded
- Tupelo-Dewey complex



Sources: U.S. Department of Agriculture, Natural Resources Conservation Service, 2004 (Soils), MACTEC, 2005 (On Site Water Features), Shelby County, AL, 2005 (Roads, Other Water Features)

NRCS SOILS SURVEY MAP, ALTERNATIVE C



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FIGURE:
3-15

surface. Some bedrock was observed exposed on the surface, but mainly along the steep slopes falling down to Shoal Creek.

Table 3-4. Soil Units on Alternative C

Soil	Prime Farmland	Hydric	Soil Description
Allen (AnB)	Yes	No	This soil type consists of well drained loam found on two to six percent slopes. Permeability is moderate with a slight potential for erosion.
Dewey (DeB2)	Yes	No	This soil type consists of a well-drained clay loam underlain by limestone, found on two to six percent slopes. Permeability is moderate with a slight potential for erosion.
Dewey (DeC2)	No	No	This soil type consists of a well-drained clay loam found on six to ten percent slopes. Permeability is moderate with a slight potential for erosion
Townley (ToD)	No	No	This soil type consists of a gently sloping well drained silt loam found on four to twelve percent slopes. Permeability is slow with a slight potential for erosion.
Townley (ToE)	No	No	This soil type consists of a well drained silt loam found on 12 to 18 percent slopes. Permeability is slow with a moderate potential for erosion.
Townley-Sunlight complex (TsE)	No	No	This soil type consists of a well drained soil group found on 12 to 35 percent slopes. Permeability is with a moderate potential for erosion.
Tupelo (Tu)	No	No	This soil type consists of a nearly level somewhat poorly drained loam found on zero to three percent slopes. Permeability is slow with a slight potential for erosion.
Tupelo-Dewey complex (Tx)	No	No	This soil type consists of a somewhat poorly drained to a well drained, nearly level to gently sloping soil group, underlain by limestone bedrock, found on zero to six percent slopes. Permeability is slow with a slight potential for erosion.

Source: SCS Shelby County Soil Survey, 1984; NRCS Hydric Soils of Alabama, 1995.

Prepared by: ZKH Checked by: AWC

3.8.5 Hydric Soils

According to the Natural Resources Conservation Service (NRCS), the definition of a hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA NRCS, 2005). The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. Also, soils in which the hydrology has been artificially modified are hydric if the soil in an unaltered state was hydric. Some series, designated as hydric, have phases that are not hydric depending on water table, flooding, and ponding characteristics. For the three alternatives under consideration, no hydric soils are listed according to the soil survey maps and hydric soils list. However, according to the NRCS, caution must be used when comparing the list of hydric soil series to soil survey maps. Many of the soils on the list have ranges in water table depths that allow the soil to range from hydric to nonhydric depending on the location. Hydric soils are often associated with wetlands, though not limited to wetlands. Certain engineering and environmental constraints will need to be considered before

cemetery development on any unlisted hydric soils. See Figures 3-10 through 3-12 for the locations of hydric soils observed associated with wetlands at each site.

3.9 Hydrology

This area of Alabama, on average, receives approximately 52 inches of rainfall per year. Typically, March is the wettest month with 6.80 inches of rainfall and October being the driest month with 2.70 inches of rainfall (www.weather.com, 2005). This precipitation that falls within the 55 square-mile Montevallo watershed is ultimately discharged through ditches and tributary streams into the Shoal Creek drainage basin.

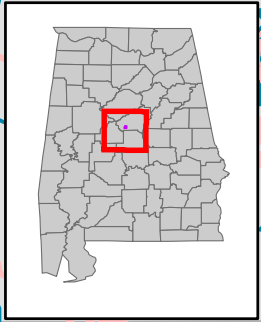
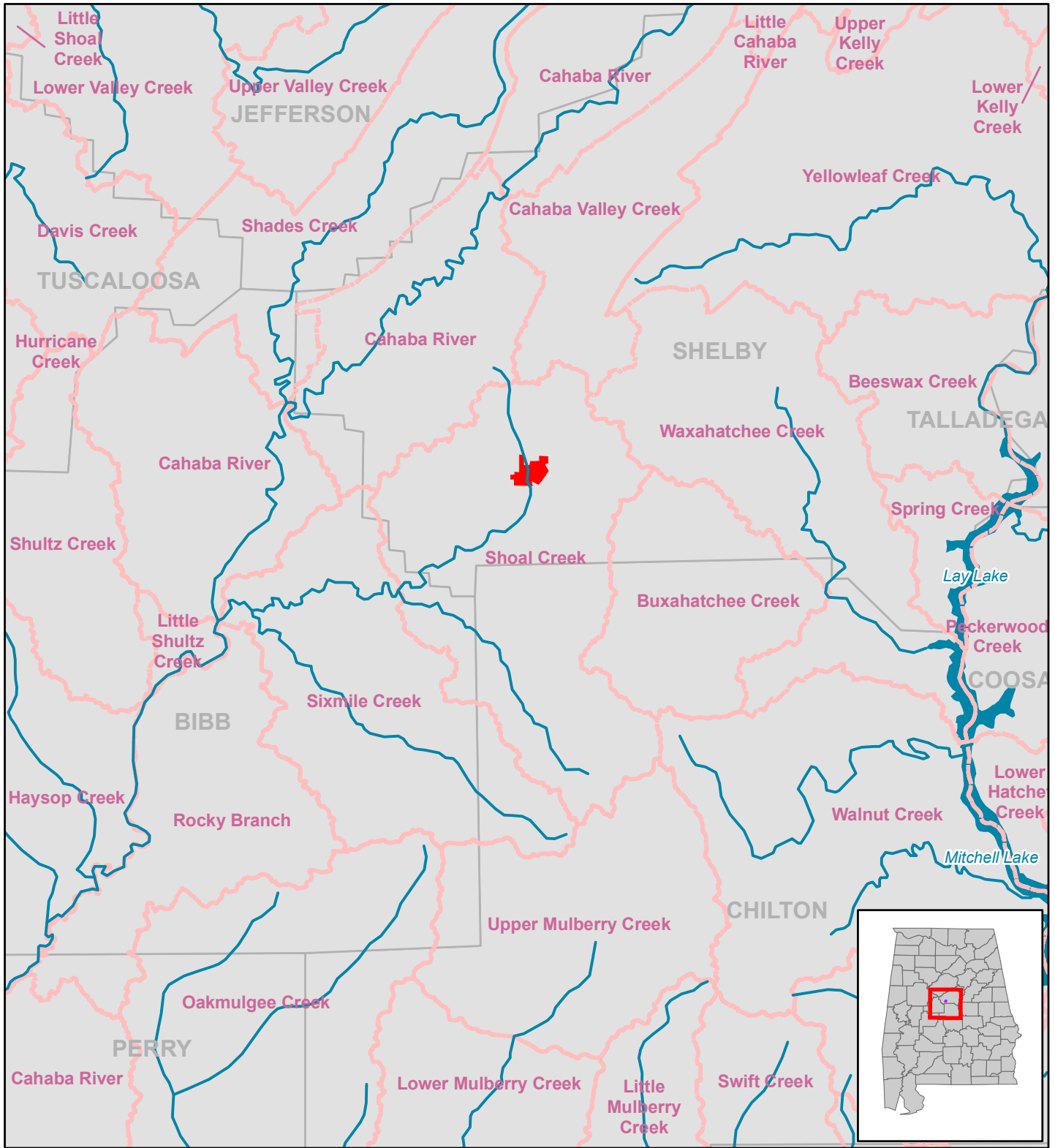
All of the alternative sites fall within the Shoal Creek drainage basin (Figure 3-16). Shoal Creek forms the western property boundary for Alternatives A and B, and runs through Alternative C. There are no other major named streams running through any of the proposed sites.

The Hydrogeology Unit of the Groundwater Branch provides hydrogeologic expertise and project management for the Alabama State Groundwater Protection Program. This program addresses a broad spectrum of contaminants not regulated by other authorized programs within the agency. Examples include petroleum hydrocarbons not related to underground storage tanks and chemical releases not regulated as hazardous wastes under Resource Conservation and Recovery Act (RCRA). The Hydrogeology Unit also provides hydrogeological (groundwater related) services to other groups within the Department, other State agencies, government, and the public. Complaints received from the public regarding contamination of ground water are assigned to project managers in this program if they do not fall within any of the regulatory programs mentioned above.

3.10 Water Resources

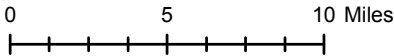
The Alabama Department of Environmental Management (ADEM, 2005) regulates water use and supplies in the region which includes Shelby County. According to information provided by ADEM, the Districts' water use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated. Of necessity, the assignment of use classifications must take into consideration the physical capability of waters to meet certain uses. As previously discussed, Shoal Creek is currently classified as Fish and Wildlife water use. Fish and Wildlife uses require that development of a new or increased source of thermal pollution shall assure that such release will not impair the propagation of a balanced indigenous population of fish and aquatic life. This classification runs from the Little Cahaba River to the source of Shoal Creek (ADEM, 2001).

Existing surface water features at each site are discussed more completely in Section 3.6.2. However, because many of the wetlands have hydrological connections with each other and/or with off-site waters, it is important to note that on-site surface water features can be connected to



Legend

- Site Location
- Water
- Surface Water Basins



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FJB	04/19/2006	GH	04/19/2006			3-16

nearby waters. This is important in understanding pollutant transport, the ways in which resident livestock respond to seasonal variation in water availability, distribution and migration of invasive / exotic aquatic plant species, etc.

On-site surface waters are actively used by livestock for watering. In some of the surface waters the livestock impact on water quality is severe. This impact was observed during site visits. Livestock were observed using a perennial channelized ditch running through the pasture. This ditch connects to Shoal Creek in the southern portion of Alternatives B and C. At Alternative A livestock were observed using a perennial stream running along the northwest property boundary. This perennial stream, unnamed tributary, connects to Shoal Creek. Livestock use of Alternatives A and B is restricted to two farm stock ponds located in the central portion of this site. These depressional ponds which do not connect to off-site surface waters during the dry season, present a lower likelihood that fecal coliform bacteria, or other pollutants associated with the animal husbandry practices at this site, are exported off-site during the dry season.

3.10.1 Alternative A

The water resources at Alternative A consist of a perennial unnamed tributary to Shoal Creek, Shoal Creek, two stock ponds, and an ephemeral ditch. The perennial unnamed tributary runs along the northwestern corner of the Jackson tract found within this site. This tributary then joins Shoal Creek to continue the property boundary along the western edge of the Jackson Tract. The two stock ponds are located in the central portion of the Tharp Tract. These ponds are used as a water source for the livestock located on this tract. The ephemeral ditch is located along the northeastern edge of the American Village Tract. This ditch is located in a drain between the horse pasture found on the Tract and the current American Village Educational Center.

3.10.2 Alternative B

This Alternative consists of several intermittent streams and adjacent wetlands, Shoal Creek, two stock ponds and an ephemeral ditch. The intermittent streams and associated wetlands are located in the central portion of the section of the Fowler tract that is incorporated into this alternative. These water resources drain the cattle pasture located on the Fowler Tract. Shoal Creek runs along the western boundary of the portion of the Fowler Tract that is being considered for this alternative. As stated in the previous alternative, the two stock ponds are located on the Tharp Tract, and the ephemeral ditch is located on the American Village Tract.

3.10.3 Alternative C

This alternative consists of the same portion of the Fowler Tract described in Alternative B, as well as the rest of the Fowler Tract. This tract has multiple ephemeral and intermittent streams running through it with associated wetlands and two ponds. All of these streams found on site drain to Shoal Creek, which is located in the east-central portion of the site. One stream is located in the northern corner of the site. This stream crosses the site in a southwest to northeast flow and has an approximately 11.9-acre wetland area associated with it. There is also an

approximately 5.4-acre pond found just north of the wetland and stream. In the west-central portion of the tract there is another man-made pond with an intermittent stream flowing eastward from the spillway. This stream connects with another intermittent stream which originates just southwest of the pond. After these two intermittent streams connect they flow east-northeast passing through an approximate 8.3-acre wetland before emptying into Shoal Creek. In the central southwestern portion of the site, two intermittent streams originate close to the edge of the property boundary and flow southeast before connecting and flowing eastward toward Shoal Creek. The more southern stream briefly goes offsite before returning in the southwest portion of the site.

3.11 Land Use

The Carter and American Village tracts lie within the City of Montevallo and are not currently zoned for any particular use. The Fowler, Tharp, and Jackson tracts lie in unincorporated Shelby County and are not currently zoned for any particular use.

Currently, the Tharp, Carter, Jackson, and American Village tracts are used for agricultural purposes. A portion of the Fowler tract is used for agricultural purposes; however the majority of the parcel is forested.

3.12 Real Property

Three residences are located on Alternative A; two residences on the Tharp tract and one residence on the Jackson tract. Two residences are located on Alternative B on the Tharp tract. Two residences are located on Alternative C, including an abandoned home site in the northeastern portion of the site and an unoccupied house along the west bank of Shoal Creek.

Data from the Shelby County tax assessor's office indicates that the properties are identified as follows:

Table 3-5. Property Information for Each Tract

Site	Parcel ID
Fowler Tract	27 2 10 0 000 004.000
Tharp Tract	27 2 10 0 000 002.000
Carter Tract	27 2 03 0 000 001.000
Jackson Tract	27 2 10 0 000 002.001
American Village Tract	27 2 10 0 000 001.000

Source: Shelby County Tax Assessor, 2006.

Prepared by: GKH Checked by: AWC

Under the proposed action, structures currently on-site would likely be demolished, and the agricultural lands would be converted to cemetery use.

3.13 Resident Population

Three occupied residences are located on Alternative A and two occupied residences are located on Alternative B. Two residences are located on Alternative C, one of which is abandoned and the other is currently unoccupied.

Table 3-6. Demographics at each Site

Demographics	Alternative A	Alternative B	Alternative C
Resident People	5	4	0
Workforce (FTE)	0	0	0
Reduction in Agriculture Workforce if Converted to National Cemetery	0	0	0

Source: On-site interviews, September, 2005.

Prepared by: GKH Checked by: AWC

3.14 Solid / Hazardous Waste

A modest amount of residential and farm waste is generated by the families in residence at Alternatives A and B. No wastes are currently generated at Alternative C. Residences and agricultural outbuildings on Alternatives A, B and C will need to be removed as part of the cemetery construction process. Alternative A will generate the most debris because it has more buildings. Alternative B would generate some debris because of existing residences located on the property. Alternative C would generate the smallest amount of debris because there are few buildings on the property. All three alternatives contain residential structures that should be evaluated for hazardous materials (i.e. asbestos containing materials).

Garbage service is currently provided at Alternatives A and B. The NCA will need to arrange with the County for regular garbage and recycling pick-up once the cemetery construction process begins.

During a preliminary field reconnaissance of Alternative A, modest amounts of residential and farm wastes were observed in the southwestern portion of the site. A moderate amount of abandoned farm equipment and several abandoned vehicles were also observed.

Alternative B consists primarily of large open fields utilized for pasture; however, the residential property located along the unimproved road that bisects the site contains several abandoned vehicles and farm equipment. Alternative C contains two abandoned residences and associated outbuildings. The majority of the property on Alternative C is currently wooded and no dumps were observed during the limited field reconnaissance conducted on the property.

A review of Hazardous Waste databases (Table 3-7) indicated that none of the proposed alternatives were listed. One RCRA Information- Small Quantity Generator was identified

within a half mile radius of the proposed alternatives. This facility also appears on the Facility Index System and was identified as “Professional Auto Body Shop” located at 2601 Highway 119. During the field reconnaissance, this location was visited and appeared to be well maintained. The only other regulated facility within the reportable search radius of the proposed alternatives appeared on the Underground Storage Tank List. This facility was listed as the Crossroads Mart and is located northeast of the proposed alternatives.

Table 3-7. Results of Hazardous Waste Records Searches*

	No Action Alternative	Alternative A	Alternative B	Alternative C
Search Distance	N/A	0.5 – 1.5 miles	0.5 – 1.5 miles	0.5 – 1.5 miles
Database Searched				
National Priority List	N/A	0	0	0
Proposed National Priority List Sites	N/A	0	0	0
Comprehensive Environmental Response, Compensation, and Liability Information System	N/A	0	0	0
CERCLIS No further Remedial Action Planned	N/A	0	0	0
Corrective Action Report	N/A	0	0	0
Resource Conservation and Recovery Act Information- Treatment, Storage, and Disposal Facility	N/A	0	0	0
Resource Conservation and Recovery Act Information- Large Quantity Generator	N/A	0	0	0
Resource Conservation and Recovery Act Information- Small Quantity Generator	N/A	1	1	1
Emergency Response Notification System	N/A	0	0	0
Hazardous Substance Cleanup Fund Sites	N/A	0	0	0
Permitted Landfill Sites	N/A	0	0	0
Leaking Underground Storage Tank (LUST)	N/A	0	0	0
Underground Storage Tank (UST)	N/A	1	1	1
Recycling/Recovered Materials Processors Directory	N/A	0	0	0
Voluntary Cleanup Inventory	N/A	0	0	0
Superfund (Comprehensive Environmental Response, Compensation, and Liability Act) Consent Decrees	N/A	0	0	0
Records of Decision	N/A	0	0	0
National Priority List Deletions	N/A	0	0	0
Facility Index System/ Facility Identification	N/A	1	1	1

	No Action Alternative	Alternative A	Alternative B	Alternative C
Search Distance	N/A	0.5 – 1.5 miles	0.5 – 1.5 miles	0.5 – 1.5 miles
Database Searched				
Initiative Program Summary Report				
Hazardous Materials Information Reporting System	N/A	0	0	0
Material Licensing Tracking System	N/A	0	0	0
Mines Master Index File	N/A	0	0	0
Federal Superfund Liens	N/A	0	0	0
Polychloryl bi phenyl Activity Database System	N/A	0	0	0
Indian Reservation	N/A	0	0	0
Uranium Mill Tailings Sites	N/A	0	0	0
Open Dump Inventory	N/A	0	0	0
US Engineering Controls	N/A	0	0	0
Formerly Used Defense Sites	N/A	0	0	0
Department of Defense	N/A	0	0	0
Resource Conservation and Recovery Act Administrative Action Tracing System	N/A	0	0	0
Toxic Chemical Release Inventory System	N/A	0	0	0
Toxic Substances Control Act	N/A	0	0	0
Section Seven Tracking Systems	N/A	0	0	0
Federal Insecticide, Fungicide, and Rodenticide Act/ Toxic Substances Control Act Tracking System	N/A	0	0	0
Aboveground Storage Tank Sites (AST)	N/A	0	0	0
Area of Concern	N/A	0	0	0
Leaking Aboveground Storage Tank Sites (LAST)	N/A	0	0	0
Former Manufactured Gas Sites (Coal Gas)	N/A	0	0	0
Clandestine Methamphetamine Lab Sites (CDL)	N/A	0	0	0
Brownfields	N/A	0	0	0
Sites with Institutional Controls	N/A	0	0	0
Institutional Controls Registry	N/A	0	0	0
Voluntary Cleanup of Brownfields	N/A	0	0	0

* Searches were completed on May 10, 2005 for the proposed NCA Project Sites (units are Total # Sites Plotted within project site Search Area)

Source: EDR, 2005.

Prepared by: REP Checked by: AWC

3.15 Transportation and Parking

3.15.1 Current Conditions

All three alternatives for the proposed cemetery are located off of State Highway 119, between Moore's Crossroads (Highway 119 and Highway 22) and downtown Montevallo. State Highway 119 would be the primary access route for the proposed cemetery. State Highway 119 is a two-lane road with no passing lanes. Average Daily Traffic (ADT) in 2004 for State Highway 119 is 9,460 vehicles per day (Alabama DOT, 2006).

3.15.2 Current and Future Projects

According to the ALDOT (2005), no current or future (through 2010) road improvement projects are planned for State Highway 119.

3.16 Utilities

Based on site observations during the site visits and interviews with landowners, all three of the proposed alternatives have existing utilities on the properties. All of the Alternatives have natural gas available within the area, but none of the alternatives currently utilize this service.

The following utility providers are located in or adjacent to all three alternatives:

Electricity:	Alabama Power
Water:	City of Montevallo
Sewage:	City of Montevallo
Telephone:	Bell South
Cable TV:	Charter Cable

3.16.1 Alternative A

Utilities present on Alternative A include: wastewater lines, overhead and underground electrical lines, telephone lines, municipal water supply lines, and two private wells.

The main wastewater line runs along Alternative A on the State Highway 119 right-of-way. This service is utilized by the American Village, but is not used at the four single family residences, which are on septic systems. The four residences and the American Village utilize the municipal water supply, but the Jackson tract also operates two potable water wells for livestock and the residence. An abandoned well is located on the Tharp tract, but is not currently in use. An overhead three phase power line with pole mounted transformers runs along State Highway 119 on the eastern side of the American Village Tract. An additional single phase line from the three phase line runs down Killough Mill Road along the southern property boundary of this alternative. This line serves the four residences located on the Tharp and Jackson Tracts within

this alternative. Transformers appeared in good condition and no leaks were observed. No irrigation lines or stormwater lines were observed on Alternative A during the site visits.

3.16.2 Alternative B

Utilities present on Alternative B include the same utilities that are available and located on Alternative A, except for an extension of a single phase overhead power line, phone line extension, a single septic tank system, an extension of the municipal water line, and the two wells, which are all associated with the Jackson tract. No additional utilities were observed on the portion of the Fowler tract included for this alternative. Transformers appeared in good condition and no leaks were observed. No stormwater lines were observed within this alternative.

3.16.3 Alternative C

Utilities present on the Alternative C include: a single overhead electrical line, a telephone line, a potable water supply well, and a single residence septic system. No other utilities were observed on Alternative C.

An overhead single phase electrical line was observed at Alternative C along a dirt road running northeast through the center of the property eventually ending at an abandoned house site along Shoal Creek. Overhead three phase electrical lines with pole-mounted transformers were observed along State Highway 119 on the eastern side of the Fowler Tract. Transformers appeared in good condition and no leaks were observed at the time of the site reconnaissance. Although no water supply wells were observed during the site visit, it is assumed one is present at the abandoned residence located in the interior of this tract.

3.17 Vegetation and Wildlife

3.17.1 Vegetation

A limited survey of natural communities present on each site was conducted in April 2005 on the Fowler Tract, Tharp Tract, and Carter Tract, and in September 2005 on the Jackson Tract and American Village Tract.

3.17.1.1 Alternative A

At Alternative A, four plant communities were observed: Maintained Pasture, Agricultural Fields, Oak-Pine Forest and Mixed Mesophytic Forest. In the American Village tract, agricultural fields and maintained lawn are the primary vegetation types. The area is mowed regularly as well as maintained by cattle and horses and has low species diversity. The Carter tract consists of oak-pine forest and agricultural fields. The agricultural fields are maintained by livestock and dominated by various grass (*Poa annua*), broom sedge (*Andropogon virginicus*), panic grass (*Panicum spp.*), fescue (*Festuca spp.*), toadflax (*Linaria spp.*), and bluestem (*Andropogon*

ternarius). The oak-pine forest is located at the southern portion of the tract and grazed by cattle. Since the forest is grazed by cattle, the dominant forbs are lower grasses (*Poaceae*), the subcanopy consists of red cedar (*Juniperus virginiana*) and sweetgum (*Liquidambar styraciflua*), and the canopy is dominated by white pine (*Pinus strobus*), loblolly pine (*P. taeda*), willow oak (*Quercus phellos*), and white oak (*Q. alba*). The Jackson and Tharp tracts have plant communities of agricultural fields and mixed mesophytic forest. The agricultural fields are currently maintained by livestock. In the mixed mesophytic forest, the canopy is dominated by white oak, Southern red oak (*Quercus falcata*), American beech (*Fagus grandifolia*), and tulip poplar (*Liriodendron tulipifera*). The subcanopy is dominated by persimmon (*Diospyros virginiana*), hop hornbeam (*Ostrya virginiana*), flowering dogwood (*Cornus florida*), Southern sugar maple (*Acer barbatum*), oak-leaf hydrangea (*Hydrangea quercifolia*), and witch-hazel (*Hamamelis virginiana*). The herbaceous layer is dominated with bursting-heart (*Euonymus americanus*), Alabama supplejack (*Berchemia scandens*), trillium (*Trillium cuneatum*), windflower (*Thalictrum thalictroides*), phlox (*Phlox divaricata*), Canadian blacksnakeroot (*Sanicula canadensis*), Christmas fern (*Polystichum acrostichoides*), and Carex (*Carex cherokeensis*).

3.17.1.2 Alternative B

At Alternative B, five plant communities were observed: Maintained Lawn, Agricultural Fields, Oak-Pine Forest, Mixed Mesophytic Forest, and Riparian Forest. In the American Village tract, agricultural fields and maintained lawn are the primary vegetation types. The area is mowed regularly as well as maintained by horses and has low species diversity. The Carter tract consists of oak-pine forest and agricultural fields. The agricultural fields are maintained by livestock and dominated by grass (*Poa annua*), broom sedge, panic grass, fescue (*Festuca spp.*), toadflax (*Linaria spp.*), and bluestem. The oak-pine forest is located at the southern portion of the tract and grazed by cattle. Since the forest is maintained by cattle, the dominant species are lower grasses, the subcanopy consists of red cedar and sweetgum, and the canopy is dominated by white pine, loblolly pine, willow oak, and white oak. The Jackson tract and southeastern portion of the Fowler tract have plant communities of agricultural fields and mixed mesophytic forest. The agricultural fields are currently maintained by livestock. In the mixed mesophytic forest, the canopy is dominated by white oak, Southern red oak, American beech, and tulip poplar. The subcanopy is dominated by hop hornbeam, flowering dogwood, Southern sugar maple, oak-leaf hydrangea, and witch-hazel. The herbaceous layer is dominated with bursting-heart, Alabama supplejack, crossvine (*Bignonia capreolata*), poison ivy (*Toxicodendron radicans*), wild onion (*Allium bivalve*), trillium, windflower, phlox, Canadian blacksnakeroot, Christmas fern, and Carex. The Fowler tract has riparian forest along the stream located throughout its eastern portion and its dominant canopy plant is American sycamore (*Platanus occidentalis*), there is no subcanopy, and the herbaceous layer is dominated by lower grasses and poison ivy.

3.17.1.3 Alternative C

At Alternative C, three plant communities were observed: Agricultural Fields, Mixed Mesophytic Forest, and Riparian Forest. In Alternative C, the agricultural fields are maintained by livestock and dominated by grass, broom sedge, panic grass, fescue, toadflax, and bluestem. The canopy of the mixed mesophytic forest is dominated by white oak, Southern red oak, shagbark hickory (*Carya ovata*), mockernut hickory (*C. alba*), sugar maple (*Acer rubrum*), and Southern sugar maple. The subcanopy is dominated by flowering dogwood, persimmon, hop hornbeam, red buckeye (*Aesculus pavia*), redbud (*Cercis canadensis*), red cedar, sweetgum, mountain laurel (*Kalmia latifolia*), low bush blueberry (*Vaccinium spp.*), possum haw (*Viburnum nudum*), black cherry (*Prunus serotina*), winged elm (*Ulmus alata*), red mulberry (*Morus rubra*), Chinese privet (*Ligustrum sinense*), and sparkleberry (*Vaccinium arboretum*). The herbaceous layer is dominated by Alabama supplejack, crossvine, poison ivy, wild onion, trillium, windflower, phlox, Christmas fern, seedbox (*Ludwigia spp.*), dandelion (*Taraxacum officinale*), iris (*Iris virginica*), violet (*Viola spp.*), and Virginia creeper (*Parthenocissus quinquefolia*).

3.17.2 Wildlife

A limited wildlife and habitat survey was completed during site visits in April 2005 and September 2005. *Outdoor Alabama*, the official website for the Alabama Department of Conservation and Natural Resources information on wildlife and fisheries was used as a guide to compile a list of possible species found within the observed habitats on each Alternative and animals that are typically found in this region of Alabama (ADCNR, 2005).

3.17.2.1 All Alternatives

The on-site habitats support a variety of song-birds and raptors, in addition to small and large mammals. The intermittent streams and wetland areas may support amphibians and possibly limited seasonal fish populations, while Shoal Creek and the on-site ponds will support a wide variety of riverine and aquatic animals. A general list of each species found within these different habitats, and within this region of Alabama was compiled (Table 3-8). This general list may not be all inclusive, but provides a good reference of species expected in this area.

Table 3-8. General List of Species and the Associated Habitats.

Habitat	Common Name	Scientific Name
All Sites	Birds	
	Olive-sided Flycatcher	<i>Contopus cooperi</i>
	Eastern Wood-Pewee	<i>Contopus virens</i>
	Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>
	Acadian Flycatcher	<i>Empidonax virescens</i>
	Least Flycatcher	<i>Empidonax minimus</i>
	Eastern Phoebe	<i>Sayornis phoebe</i>
	Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	

Habitat	Common Name	Scientific Name
	Great Crested Flycatcher	<i>Myiarchus crinitus</i>
	Brown-crested Flycatcher	<i>Myiarchus tyrannulus</i>
	La Sagra’s Flycatcher	<i>Myiarchus sagrae</i>
	Sulphur-bellied Flycatcher	<i>Myiodynastes luteiventris</i>
	Couch’s Kingbird	<i>Tyrannus couchii</i>
	Western Kingbird	<i>Tyrannus verticalis</i>
	Eastern Kingbird	<i>Tyrannus tyrannus</i>
	Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>
	Fork-tailed Flycatcher	<i>Tyrannus savana</i>
	Loggerhead Shrike	<i>Lanius ludovicianus</i>
	Bell’s Vireo	<i>Vireo bellii</i>
	Blue-headed Vireo	<i>Vireo solitarius</i>
	Warbling Vireo	<i>Vireo gilvus</i>
	Philadelphia Vireo	<i>Vireo philadelphicus</i>
	Red-eyed Vireo	<i>Vireo olivaceus</i>
	Blue Jay	<i>Cyanocitta cristata</i>
	American Crow	<i>Corvus brachyrhynchos</i>
	Horned Lark	<i>Eremophila alpestris</i>
	Purple Martin	<i>Progne subis</i>
	Tree Swallow	<i>Tachycineta bicolor</i>
	Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
	Bank Swallow	<i>Riparia riparia</i>
	Barn Swallow	<i>Hirundo rustica</i>
	Carolina Chickadee	<i>Poecile carolinensis</i>
	Tufted Titmouse	<i>Baeolophus bicolor</i>
	Red-breasted Nuthatch	<i>Sitta canadensis</i>
	White-breasted Nuthatch	<i>Sitta carolinensis</i>
	Brown Creeper	<i>Certhia americana</i>
	Carolina Wren	<i>Thryothorus ludovicianus</i>
	Bewick’s Wren	<i>Thryomanes bewickii</i>
	House Wren	<i>Troglodytes aedon</i>
	Winter Wren	<i>Troglodytes troglodytes</i>
	Sedge Wren	<i>Cistothorus platensis</i>
	Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
	Eastern Bluebird	<i>Sialia sialis</i>
	Veery	<i>Catharus fuscescens</i>
	Gray-cheeked Thrush	<i>Catharus minimus</i>
	Swainson’s Thrush	<i>Catharus ustulatus</i>
	Hermit Thrush	<i>Catharus guttatus</i>
	Wood Thrush	<i>Hylocichla mustelina</i>
	American Robin	<i>Turdus migratorius</i>
	Gray Catbird	<i>Dumetella carolinensis</i>

Habitat	Common Name	Scientific Name
	Northern Mockingbird	<i>Mimus polyglottos</i>
	Brown Thrasher	<i>Toxostoma rufum</i>
	European Starling	<i>Sturnus vulgaris</i> *
	American Pipit	<i>Anthus rubescens</i>
	Sprague’s Pipit	<i>Anthus spragueii</i>
	Cedar Waxwing	<i>Bombycilla cedrorum</i>
	Blue-winged Warbler	<i>Vermivora pinus</i>
	Golden-winged Warbler	<i>Vermivora chrysoptera</i>
	Tennessee Warbler	<i>Vermivora peregrina</i>
	Orange-crowned Warbler	<i>Vermivora celata</i>
	Nashville Warbler	<i>Vermivora ruficapilla</i>
	Northern Parula	<i>Parula americana</i>
	Yellow Warbler	<i>Dendroica petechia</i>
	Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>
	Magnolia Warbler	<i>Dendroica magnolia</i>
	Cape May Warbler	<i>Dendroica tigrina</i>
	Black-throated Blue Warbler	<i>Dendroica caerulescens</i>
	Yellow-rumped Warbler	<i>Dendroica coronata</i>
	Black-throated Green	Warbler <i>Dendroica virens</i>
	Blackburnian Warbler	<i>Dendroica fusca</i>
	Yellow-throated Warbler	<i>Dendroica dominica</i>
	Prairie Warbler	<i>Dendroica discolor</i>
	Palm Warbler	<i>Dendroica palmarum</i>
	Bay-breasted Warbler	<i>Dendroica castanea</i>
	Blackpoll Warbler	<i>Dendroica striata</i>
	Cerulean Warbler	<i>Dendroica cerulea</i> **
	Black-and-white Warbler	<i>Mniotilta varia</i>
	American Redstart	<i>Setophaga ruticilla</i>
	Worm-eating Warbler	<i>Helmitheros vermivorus</i> **
	Ovenbird	<i>Seiurus aurocapillus</i>
	Northern Waterthrush	<i>Seiurus noveboracensis</i>
	Kentucky Warbler	<i>Oporornis formosus</i>
	Connecticut Warbler	<i>Oporornis agilis</i>
	Mourning Warbler	<i>Oporornis philadelphia</i>
	Common Yellowthroat	<i>Geothlypis trichas</i>
	Hooded Warbler	<i>Wilsonia citrina</i>
	Canada Warbler	<i>Wilsonia canadensis</i>
	Yellow-breasted Chat	<i>Icteria virens</i>
	Summer Tanager	<i>Piranga rubra</i>
	Scarlet Tanager	<i>Piranga olivacea</i>
	Eastern Towhee	<i>Pipilo erythrophthalmus</i>
	Bachman's Sparrow	<i>Aimophila aestivalis</i> **

Habitat	Common Name	Scientific Name
	Chipping Sparrow	<i>Spizella passerina</i>
	Field Sparrow	<i>Spizella pusilla</i>
	Vesper Sparrow	<i>Pooecetes gramineus</i>
	Lark Sparrow	<i>Chondestes grammacus</i>
	Savannah Sparrow	<i>Passerculus sandwichensis</i>
	Grasshopper Sparrow	<i>Ammodramus savannarum</i>
	Le Conte's Sparrow	<i>Ammodramus leconteii</i>
	Fox Sparrow	<i>Passerella iliaca</i>
	Song Sparrow	<i>Melospiza melodia</i>
	Lincoln's Sparrow	<i>Melospiza lincolni</i>
	Swamp Sparrow	<i>Melospiza georgiana</i>
	White-throated Sparrow	<i>Zonotrichia albicollis</i>
	Harris's Sparrow	<i>Zonotrichia querula</i>
	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
	Dark-eyed Junco	<i>Junco hyemalis</i>
	Northern Cardinal	<i>Cardinalis cardinalis</i>
	Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
	Blue Grosbeak	<i>Passerina caerulea</i>
	Indigo Bunting	<i>Passerina cyanea</i>
	Painted Bunting	<i>Passerina ciris</i>
	Dickcissel	<i>Spiza americana</i>
	Eastern Meadowlark	<i>Sturnella magna</i>
	Rusty Blackbird	<i>Euphagus carolinus</i>
	Brewer's Blackbird	<i>Euphagus cyanocephalus</i>
	Common Grackle	<i>Quiscalus quiscula</i>
	Brown-headed Cowbird	<i>Molothrus ater</i>
	Orchard Oriole	<i>Icterus spurius</i>
	Baltimore Oriole	<i>Icterus galbula</i>
	Purple Finch	<i>Carpodacus purpureus</i>
	House Finch	<i>Carpodacus mexicanus</i>
	Pine Siskin	<i>Carduelis pinus</i>
	American Goldfinch	<i>Carduelis tristis</i>
	Evening Grosbeak	<i>Coccothraustes vespertinus</i>
	House Sparrow	<i>Passer domesticus</i> *
	Great Blue Heron	<i>Ardea herodias</i>
	Cattle Egret	<i>Bubulcus ibis</i>
	White Ibis	<i>Eudocimus albus</i>
	Black Vulture	<i>Coragyps atratus</i>
	Turkey Vulture	<i>Cathartes aura</i>
	Canada Goose	<i>Branta canadensis</i>
	Wood Duck	<i>Aix sponsa</i>
	White-tailed Kite	<i>Elanus leucurus</i>

Habitat	Common Name	Scientific Name
	Northern Harrier	<i>Circus cyaneus</i>
	Sharp-shinned Hawk	<i>Accipiter striatus</i>
	Broad-winged Hawk	<i>Buteo platypterus</i>
	Red-tailed Hawk	<i>Buteo jamaicensis</i>
	Rough-legged Hawk	<i>Buteo lagopus</i>
	Golden Eagle	<i>Aquila chrysaetos</i>
	American Kestrel	<i>Falco sparverius</i>
	Merlin	<i>Falco columbarius</i>
	Peregrine Falcon	<i>Falco peregrinus</i>
	Wild Turkey	<i>Meleagris gallopavo</i>
	Northern Bobwhite	<i>Colinus virginianus</i>
	Sandhill Crane	<i>Grus canadensis</i>
	Rock Dove	<i>Columba livia</i> *
	Eurasian Collared Dove	<i>Streptopelia decaocto</i> *
	White-winged Dove	<i>Zenaida asiatica</i>
	Mourning Dove	<i>Zenaida macroura</i>
	Common Ground-Dove	<i>Columbina passerina</i>
	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
	Eastern Screech-Owl	<i>Otus asio</i>
	Great Horned Owl	<i>Bubo virginianus</i>
	Barred Owl	<i>Strix varia</i>
	Common Nighthawk	<i>Chordeiles minor</i>
	Whip-poor-will	<i>Caprimulgus vociferus</i>
	Chimney Swift	<i>Chaetura pelagica</i>
	Ruby-throated Hummingbird	<i>Archilochus colubris</i>
	Black-chinned Hummingbird	<i>Archilochus alexandri</i>
	Calliope Hummingbird	<i>Stellula calliope</i>
	Belted Kingfisher	<i>Ceryle alcyon</i>
	Red-bellied Woodpecker	<i>Melanerpes carolinus</i>
	Downy Woodpecker	<i>Picoides pubescens</i>
	Northern Flicker	<i>Colaptes auratus</i>
	Pileated Woodpecker	<i>Dryocopus pileatus</i>
Reptiles		
	Slender Glass Lizard	<i>Ophisaurus attenuatus</i>
	Eastern Fence Lizard	<i>Sceloporus undulatus</i>
	Green Anole	<i>Anolis carolinensis</i>
	Common Five-lined Skink	<i>Eumeces fasciatus</i>
	Broad-headed Skink	<i>Eumeces laticeps</i>
	Ground Skink	<i>Scincella lateralis</i>
	Eastern Chicken Turtle	<i>Deirochelys reticularia reticularia</i>
	Eastern Box Turtle	<i>Terrapene carolina</i>

Habitat	Common Name	Scientific Name
	Pond Slider	<i>Trachemys scripta</i>
	Eastern Mud Turtle	<i>Kinosternon subrubrum</i>
	Loggerhead Musk Turtle	<i>Sternotherus minor</i>
	Scarlet Snake	<i>Cemophora coccinea</i>
	Black Racer	<i>Coluber constrictor</i>
	Ring-necked Snake	<i>Diadophis punctatus</i>
	Corn Snake	<i>Elaphe guttata guttata</i>
	Rat Snake	<i>Elaphe obsoleta</i>
	Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>
	Mole Kingsnake	<i>Lampropeltis calligaster rhombomaculata</i>
	Black Kingsnake	<i>Lampropeltis getula nigra</i>
	Scarlet Kingsnake	<i>Lampropeltis triangulum elapsoides</i>
	Plain-bellied Water Snake	<i>Nerodia erythrogaster</i>
	Midland Water Snake	<i>Nerodia sipedon pleuralis</i>
	Rough Green Snake	<i>Opheodrys aestivus</i>
	Northern Pine Snake	<i>Pituophis melanoleucus melanoleucus</i>
	Queen Snake	<i>Regina septemvittata</i>
	DeKay's Brown Snake	<i>Storeria dekayi</i>
	Northern Red-bellied Snake	<i>Storeria occipitomaculata occipitomaculata</i>
	Southeastern Crowned Snake	<i>Tantilla coronata</i>
	Eastern Garter Snake	<i>Thamnophis sirtalis sirtalis</i>
	Rough Earth Snake	<i>Virginia striatula</i>
	Smooth Earth Snake	<i>Virginia valeriae</i>
	Copperhead	<i>Agkistrodon contortrix</i>
	Cottonmouth	<i>Agkistrodon piscivorus</i>
	Timber Rattlesnake	<i>Crotalus horridus</i>
	Pigmy Rattlesnake	<i>Sistrurus miliarius</i>
Mammals		
	Eastern Chipmunk	<i>Tamias striatus</i>
	Woodchuck	<i>Marmota monax</i>
	Gray Squirrel	<i>Sciurus carolinensis</i>
	Fox Squirrel	<i>Sciurus niger</i>
	Southern Flying Squirrel	<i>Glaucomys volans</i>
	Beaver	<i>Castor canadensis</i>
	Eastern Harvest Mouse	<i>Reithrodontomys humulis</i>
	Oldfield Mouse	<i>Peromyscus polionotus</i>
	Cotton Mouse	<i>Peromyscus gossypinus</i>
	White-footed Mouse	<i>Peromyscus leucopus</i>
	Golden Mouse	<i>Ochrotomys nuttalli</i>
	Hispid Cotton Rat	<i>Sigmodon hispidus</i>
	Northern Long-eared Myotis	<i>Myotis septentrionalis</i> **
	Coyote	<i>Canis latrans</i>

Habitat	Common Name	Scientific Name
	Red Fox	<i>Vulpes vulpes</i>
	Gray Fox	<i>Urocyon cinereoargenteus</i>
	Raccoon	<i>Procyon lotor</i>
	Long-tailed Weasel	<i>Mustela frenata</i>
	Striped Skunk	<i>Mephitis mephitis</i>
	Eastern Spotted Skunk	<i>Spilogale putorius</i>
	Bobcat	<i>Lynx rufus</i>
	Southern Short-tailed Shrew	<i>Blarina carolinensis</i>
	Least Shrew	<i>Cryptotis parva</i>
	Southeastern Shrew	<i>Sorex longirostris</i>
	Eastern Mole	<i>Scalopus aquaticus</i>
	Eastern Cottontail	<i>Sylvilagus floridanus</i>
	White-tailed Deer	<i>Odocoileus virginianus</i>
	Virginia Opossum	<i>Didelphis virginiana</i>
	Amphibians	
	American Toad	<i>Bufo americanus</i>
	Fowler's Toad	<i>Bufo fowleri</i>
	Southern Toad	<i>Bufo terrestris</i>
	Northern Cricket Frog	<i>Acris crepitans crepitans</i>
	Southern Cricket Frog	<i>Acris gryllus gryllus</i>
	Cope's Gray Treefrog	<i>Hyla chrysoscelis</i>
	Barking Treefrog	<i>Hyla gratiosa</i>
	Mountain Chorus Frog	<i>Pseudacris brachyphona</i>
	Northern Spring Peeper	<i>Pseudacris crucifer crucifer</i>
	Upland Chorus Frog	<i>Pseudacris feriarum feriarum</i>
	Eastern Narrow-mouthed Toad	<i>Gastrophryne carolinensis</i>
	Eastern Spadefoot	<i>Scaphiopus holbrookii</i>
	American Bullfrog	<i>Rana catesbeiana</i>
	Bronze Frog/Green Frog	<i>Rana clamitans</i>
	Southern Leopard Frog	<i>Rana sphenoccephala</i>
	Spotted Salamander	<i>Ambystoma maculatum</i>
	Marbled Salamander	<i>Ambystoma opacum</i>
	Mole Salamander	<i>Ambystoma talpoideum</i>
	Eastern Hellbender	<i>Cryptobranchus alleganiensis alleganiensis</i> **
	Seepage Salamander	<i>Desmognathus aeneus</i> Concern
	Spotted Dusky Salamander	<i>Desmognathus conanti</i>
	Seal Salamander	<i>Desmognathus monticola</i>
	Southern Two-lined Salamander	<i>Eurycea cirrigera</i>
	Three-lined Salamander	<i>Eurycea guttolineata</i>
	Spring Salamander	<i>Gyrinophilus porphyriticus</i>
	Slimy Salamander	<i>Plethodon glutinosus</i>
	Northern Slimy Salamander	<i>Plethodon glutinosus</i>

Habitat	Common Name	Scientific Name
	Southern Red-backed Salamander	<i>Plethodon serratus</i>
	Webster's Salamander	<i>Plethodon websteri</i>
	Gulf Coast Mud Salamander	<i>Pseudotriton montanus flavissimus</i>
	Northern Red Salamander	<i>Pseudotriton ruber ruber</i>
	Eastern Newt	<i>Notophthalmus viridescens</i>

Habitat	Common Name	Scientific Name
Riverine and Aquatic Areas Associated with Shoal Creek and Tributaries	Fish	
	Largescale Stoneroller	<i>Camptostoma oligolepis</i>
	Blue Shiner	<i>Cyprinella caerulea</i> Concern
	Alabama Shiner	<i>Cyprinella callistia</i>
	Red Shiner	<i>Cyprinella lutrensis</i> (E)
	Tricolor Shiner	<i>Cyprinella trichroistia</i>
	Blacktail Shiner	<i>Cyprinella venusta</i>
	Streamline Chub	<i>Erimystax dissimilis</i> (Concern)
	Blotched Chub	<i>Erimystax insignis</i>
	Lined Chub	<i>Hybopsis lineapunctata</i>
	Striped Shiner	<i>Luxilus chrysocephalus</i>
	Pretty Shiner	<i>Lythrurus bellus</i>
	Scarlet Shiner	<i>Lythrurus fasciolaris</i>
	Burrhead Shiner	<i>Notropis asperifrons</i>
	Rainbow Shiner	<i>Notropis chrosomus</i>
	Tennessee Shiner	<i>Notropis leuciodus</i>
	Silver Shiner	<i>Notropis photogenis</i>
	Telescope Shiner	<i>Notropis telescopus</i>
	Skygazer Shiner	<i>Notropis uranoscopus</i>
	Sawfin Shiner	<i>Notropis sp. cf. spectrunculus</i>
	Riffle Minnow	<i>Phenacobius catostomus</i>
	Stargazing Minnow	<i>Phenacobius uranops</i> (Concern)
	Yellow Bass	<i>Morone mississippiensis</i>
	Shadow Bass	<i>Ambloplites ariommus</i>
	Green Sunfish	<i>Lepomis cyanellus</i>
	Warmouth	<i>Lepomis gulosus</i>
	Bluegill	<i>Lepomis macrochirus</i>
	Longear Sunfish	<i>Lepomis megalotis</i>
	Redear Sunfish	<i>Lepomis microlophus</i>
	Redeye Bass	<i>Micropterus coosae</i>
	Spotted Bass	<i>Micropterus punctulatus</i>
	Crystal Darter	<i>Crystallaria asprella</i>
Greenside Darter	<i>Etheostoma blennioides</i>	
Holiday Darter	<i>Etheostoma brevirostrum</i>	
Fringed Darter	<i>Etheostoma crossopterum</i>	

Habitat	Common Name	Scientific Name
	Blueside Darter	<i>Etheostoma jessiae</i>
	Greenbreast Darter	<i>Etheostoma jordani</i>
	Alabama Darter	<i>Etheostoma ramseyi</i>
	Rock Darter	<i>Etheostoma rupestre</i>
	Goldline Darter	<i>Percina aurolineata (Concern)</i>
	Blackbanded Darter	<i>Percina nigrofasciata</i>
	Mountain Brook Lamprey	<i>Ichthyomyzon greeleyi</i>
	White Catfish	<i>Ameiurus catus</i>
	Channel Catfish	<i>Ictalurus punctatus</i>
	Highlands Stonecat	<i>Noturus sp. cf. flavus (Concern)</i>
	Redfin Pickerel	<i>Esox americanus</i>
	Chain Pickerel	<i>Esox niger</i>
Reptiles		
	Common Snapping Turtle	<i>Chelydra serpentina serpentina</i>
	Northern Map Turtle	<i>Graptemys geographica</i>
	Black-knobbed Sawback	<i>Graptemys nigrinoda</i>
	River Cooter	<i>Pseudemys concinna concinna</i>
	Stinkpot	<i>Sternotherus odoratus</i>
Mammals		
	Muskrat	<i>Ondatra zibethicus</i>
	Mink	<i>Mustela vison</i>
	River Otter	<i>Lontra canadensis</i>

Source: Outdoor Alabama; <http://www.dcnr.state.al.us/watchable-wildlife/what/>
Prepared by: ZKH Checked by: AWC

Note: * indicates an Exotic species, ** indicates a species of High Conservation Concern

3.18 Threatened and Endangered Species

Public Law 93-205, or the Endangered Species Act (ESA) requires that all Federal agencies protect listed species and preserve their habitats. According to the U.S. Fish and Wildlife Service (USFWS), these agencies must utilize their authorities to conserve listed species and make sure their actions do not jeopardize the survival of listed species (USFWS, 2004).

The USFWS stated in a letter dated February 10, 2006 (see Appendix E) that six species could potentially occur on all three alternatives (Table 3-9). A brief description of each species by the USFWS from their letter is provided below.

Table 3-9. Federally-protected Species that May Occur on All Three Alternatives

Scientific Name	Common Name	Federal Status
INVERTEBRATES		
<i>Lampsilis atilis</i>	Fine-lined Pocketbook	T
<i>Lampsilis perovalis</i>	Orange-nacre Mucket	T
<i>Leptoxis ampla</i>	Round Rocksnail	T
<i>Lepyrium showalteri</i>	Flat Pebblesnail	E
VERTEBRATES		
<i>Percina aurolineata</i>	Goldline Darter	T
PLANTS		
<i>Xyris tennesseensis</i>	Tennessee Yellow-eyed Grass	E

Note: E = Endangered
T = Threatened

Source: Letter from USFWS dated February 10, 2006 (Appendix E)

Created by: DAM Reviewed by: AWC

Fine-lined Pocketbook

This medium-sized mussel is suboval in shape and rarely exceeds 100mm in length. It is yellow-brown to blackish and is found primarily in small river and stream habitats. It has been found in sand, gravel, and gravel-cobble substrates. The ventral margin of the shell is angled posteriorly in females, resulting in a pointed posterior margin. The periostracum is yellow-brown to blackish and has fine rays on the posterior half. The nacre is white, becoming iridescent posteriorly. The fine-lined pocketbook can be distinguished from a similar species, the orange-nacre mucket (*Lampsilis perovalis*), by its more elongate shape, thinner shell, white nacre, pointed posterior, and ray ornamentation. Threats to this species include channel modification for navigation and flood control, impoundment, pollution, and sedimentation.

Orange-nacre Mucket

The orange-nacre mucket is a medium-sized mussel approximately 50-90 mm in length. The shell is oval in shape and moderately thick. The posterior margin of the shell of mature females is obliquely shortened. The inner surface is usually rose colored, pink, or occasionally white. The outer surface ranges from yellow to dark reddish brown, with or without green rays. The orange-nacre mucket is currently restricted to high-quality stream and small-river habitat, and is found on stable sand, gravel or cobble substrate in moderate to swift currents. The general water quality deterioration that has resulted from siltation and other pollutants contributed by coal mining, poor land use practices, and waste discharges are likely responsible for the further decline of this species.

Round Rocksnail

The round rocksnail grows to about 20 mm in length. The shell is subglobose, with an ovately rounded aperture. The body whorl is shouldered at the suture, and may be ornamented with folds or plicae. Color may be yellow, dark brown, or olive green, usually with four entire or broken bands. Round rocksnails inhabit riffles and shoals over gravel, cobble, or other rocky substrates. They are currently threatened by pollutants such as sediments and nutrients that wash into streams from the land surface.

Flat Pebblesnail

The flat pebblesnail is a small snail in the family Hydrobiidae. However, the species has a large and distinct shell, relative to other hydrobiid species. This snail's shell is also distinguished by its depressed spire and expanded, flattened body whorl. The shells are ovate in outline, flattened, and grow to 3.5 to 4.4 mm high and 4 to 5 mm wide. The umbilical area has no opening, and there are 2 to 3 whorls which rapidly expand. The flat pebblesnail is found attached to clean, smooth stones in rapid currents of river shoals. Eggs laid singly in capsules on hard surfaces. Little else is known of the natural history of this species. Surviving populations are currently threatened by pollutants such as sediments and nutrients that wash into streams from the land surface.

Goldline Darter

A slender, medium-sized fish, the goldline darter is about 3 inches long with brownish-red and amber dorsolateral stripes. It differs from other members of the subgenus *Hadropterus* in the color pattern of its back, which is pale to dusky. The species' white belly has a series of square lateral and dorsal blotches that are separated by a pale or gold-colored longitudinal stripe. The goldline darter prefers a moderate to swift current and water depths greater than 2 feet. It is found over sand or gravel substrate interspersed among cobble and small boulders. Water quality degradation has reduced the goldline's range within the Cahaba River System. Populations have been extirpated by urbanization, sewage pollution, and strip-mining activities. Reservoir construction has fragmented and isolated some populations.

Tennessee Yellow-eyed Grass

This member of the yellow-eyed grass family is a perennial, growing to 2.3-3.3 ft in height. Plants typically occur in clumps and arise from fleshy bulbous bases. Leaves are basal, the outermost scale-like, the larger ones linear, twisted, deep green and 5.5-7.7 inches long. The inflorescence consists of brown conelike spikes 0.4-0.6 inches in length, occurring singly at the tips of long slender stalks from 1-2 ft long. Flowering occurs from August through September. The pale yellow flowers, are about 0.2 inches long, and unfold in the late morning, withering by mid-afternoon. Fruits are thin-walled capsules containing numerous seeds 0.02 inches in length.

This species can be found growing in clumps on seep-slopes, in springy meadows, and on the banks of small streams. It is threatened by roadside management practices, timbering, fire suppression, and conversion of habitat for agricultural use.

3.19 Exotic and Invasive Species

Executive Order 11987, Exotic Organisms, addresses requirements related to the control of exotic species. Exotic and invasive species are those plants or animals which are not native to Alabama, but were introduced as a result of human-related activities. Exotic and invasive species have fewer natural enemies and may have a higher survival rate than native species. Thus, control or removal of exotic and invasive species from native natural communities is desirable.

Varieties of invasive plants are distributed in Alabama and are considered by resource agencies to be “noxious weeds”. The state requires that certain noxious weeds be managed to diminish their spread and it prohibits the sale or importation of other species. Plants which are considered to be noxious weeds in Alabama are listed in Table 3–10.

Table 3-10. Alabama Noxious Weeds

Scientific Name	Common Name
▪ <i>Ageratina adenophora</i>	▪ Crofton weed
▪ <i>Ailanthus altissima</i>	▪ Tree of heaven
▪ <i>Alliaria petiolata</i>	▪ Garlic mustard
▪ <i>Alternanthera philoxeroides</i>	▪ Alligatorweed
▪ <i>Asphodelus fistulosus</i>	▪ Onionweed
▪ <i>Avena sterilis</i>	▪ Animated oat
▪ <i>Azolla pinnata</i>	▪ Mosquito fern
▪ <i>Cannabis sativa</i>	▪ Marijuana
▪ <i>Cardiospermum halicacabum</i>	▪ Balloon vine
▪ <i>Celastrus orbiculatus</i>	▪ Oriental bittersweet
▪ <i>Chrysopogon aciculatus</i>	▪ Pilipiliula
▪ <i>Commelina benghalensis</i>	▪ Benghal dayflower
▪ <i>Crupina vulgaris</i>	▪ Common crupina
▪ <i>Digitaria scalarum</i>	▪ African couch grass
▪ <i>Digitaria velutina</i>	▪ Velvet fingergrass
▪ <i>Dioscorea bulbifera</i>	▪ Air-potato
▪ <i>Drymaria arenarioides</i>	▪ Alfombrilla
▪ <i>Egeria densa</i>	▪ Brazilian elodea
▪ <i>Eichhornia azurea</i>	▪ Anchored waterhyacinth
▪ <i>Eichhornia crassipes</i>	▪ Floating waterhyacinth
▪ <i>Eleagnus umbellate</i>	▪ Autumn olive
▪ <i>Emex australis</i>	▪ Three-cornered jack
▪ <i>Emex spinosa</i>	▪ Devil’s thorn
▪ <i>Fatoua villosa</i>	▪ Hairy crabgrass
▪ <i>Galega officinalis</i>	▪ Goatsrue
▪ <i>Heracleum mantegazzianum</i>	▪ Giant Hogweed

Scientific Name	Common Name
▪ <i>Hydrilla verticillata</i>	▪ Hydrilla
▪ <i>Hygrophila polypsperma</i>	▪ Miramar weed
▪ <i>Imperata brasiliensis</i>	▪ Brazilian satintail
▪ <i>Imperata cylindrical</i>	▪ Cogongrass
▪ <i>Ipomoea aquatica</i>	▪ Chinese waterspinach
▪ <i>Ischaemum rugosum</i>	▪ Murain-grass
▪ <i>Lagarosiphon major</i>	▪ Oxygen weed
▪ <i>Leptochloa chinensis</i>	▪ Asian sprangletop
▪ <i>Limnophila sessiliflora</i>	▪ Ambulia
▪ <i>Ligustrum sinense</i>	▪ Chinese privet
▪ <i>Lonicera japonica</i>	▪ Japanese honeysuckle
▪ <i>Lygodium japonicum</i>	▪ Japanese climbing fern
▪ <i>Lygodium microphyllum</i>	▪ Old World climbing fern
▪ <i>Lythrum salicaria</i>	▪ Purple loosestrife
▪ <i>Melaleuca quinquenervia</i>	▪ Melaleuca
▪ <i>Microstegium vimineum</i>	▪ Japanese stilt grass
▪ <i>Mikania cordata</i>	▪ Mile-a-minute
▪ <i>Mikania micrantha</i>	▪ Mile-a-minute
▪ <i>Mimosa diplotricha</i>	▪ Giant sensitive plant
▪ <i>Monochoria hastate</i>	▪ Monochoria
▪ <i>Monochoria vaginalis</i>	▪ Pickerel weed
▪ <i>Myriophyllum aquaticum</i>	▪ Parrotfeather watermilfoil
▪ <i>Myriophyllum spicatum</i>	▪ Eurasian watermilfoil
▪ <i>Najas minor</i>	▪ Spinyleaf naiad
▪ <i>Nassella trichotoma</i>	▪ Serrated tussock
▪ <i>Opuntia aurantiaca</i>	▪ Jointed prickly pear
▪ <i>Ornithogalum umbellatum</i>	▪ Star of Bethlehem
▪ <i>Oryza longistaminata</i>	▪ Red rice
▪ <i>Oryza punctata</i>	▪ Red rice
▪ <i>Oryza rufipogon</i>	▪ Red rice
▪ <i>Ottelia alismoides</i>	▪ Duck-lettuce
▪ <i>Paederia foetida</i>	▪ Skunk vine
▪ <i>Panicum repens</i>	▪ Torpedo grass
▪ <i>Paspalum scrobiculatum</i>	▪ Kodo-millet
▪ <i>Pennisetum clandestinum</i>	▪ Kikuyugrass
▪ <i>Pennisetum macrourum</i>	▪ African feathergrass
▪ <i>Pennisetum pedicellatum</i>	▪ Kyasuma-grass
▪ <i>Phragmites australis</i>	▪ Common reed
▪ <i>Phyllanthus tenellus</i>	▪ Longstalked phyllanthus
▪ <i>Phyllanthus urinaria</i>	▪ Chamberbitter
▪ <i>Pistia stratiotes</i>	▪ Water-lettuce
▪ <i>Polygonum cuspidatum</i>	▪ Japanese knotweed
▪ <i>Polygonum perfoliatum</i>	▪ Mile-a-minute
▪ <i>Potamogeton crispus</i>	▪ Curlyleaf pondweed
▪ <i>Pueraria lobata</i>	▪ Kudzu
▪ <i>Rosa multiflora</i>	▪ Multiflora rose
▪ <i>Rottboellia cochinchinensis</i>	▪ Itchgrass
▪ <i>Rubus fruticosus</i>	▪ Wild blackberry

Scientific Name	Common Name
▪ <i>Rubus moluccanus</i>	▪ Wild blackberry
▪ <i>Saccharum spontaneum</i>	▪ Wild sugarcane
▪ <i>Sagittaria sagittifolia</i>	▪ Arrowhead
▪ <i>Salsola vermiculata</i>	▪ Wormleaf salsola
▪ <i>Salvinia auriculata</i>	▪ Giant salvinia
▪ <i>Salvinia biloba</i>	▪ Giant salvinia
▪ <i>Salvinia herzogii</i>	▪ Giant salvinia
▪ <i>Salvinia molesta</i>	▪ Giant salvinia
▪ <i>Solanum tampicense</i>	▪ Wetland nightshade
▪ <i>Solanum torvum</i>	▪ Turkeyberry
▪ <i>Sorghum halepense</i>	▪ Johnson grass
▪ <i>Sparganium erectum</i>	▪ Exotic bur-reed
▪ <i>Tridax procumbens</i>	▪ Coat buttons
▪ <i>Tussilago farfara</i>	▪ Coltsfoot
▪ <i>Urochloa panicoides</i>	▪ Liverseed grass

Source: USDA Forest Service; http://www.plants.nrcs.usda.gov/cgi_bin/topics.cgi?earl=noxious.cgi
Created by: DAM Reviewed by: AWC

3.19.1 All Alternatives

During the April and September 2005 site visits, two noxious weeds were observed, Japanese honeysuckle and Chinese privet. The Chinese privet occurred in dense thickets in and around the wetland areas and streams and in lower concentrations in forested areas. Chinese privet offers certain limited habitat value for wildlife including escape and nesting cover for birds and small mammals and food from leaves and fruit. However, the dense growth habit has the potential to exclude native species and will aggressively dominate disturbed and unmaintained areas. It is likely that a variety of state-listed noxious weeds occur on Alternative B and would need to be managed.

3.20 Environmental Justice

According to 2000 census data, Shelby County has a median family income of \$64,105, which is the highest county in Alabama. However, 22.5 percent of persons living in census tract 304.03, which contains the alternative sites, are below the poverty level and 14.1 percent of families are below the poverty level. The population in census tract 304.03 consists of 69.7 percent white, 26.4 percent black or African-American, 2.6 percent Hispanic or latino, 0.3 percent Asian, 0.6 percent two or more races, and 0.5 percent some other race (USCB, 2000).

All three of the alternative sites under consideration for cemetery development are large, mostly undeveloped parcels (described in Section 2.3). The surrounding land uses are predominantly agricultural with homesteads located on them. However, residential neighborhoods are being largely developed on the lands surrounding the alternatives sites, as well as in much of Shelby County. The neighboring large-lot subdivisions with sizeable homes would not be considered affordable housing for low-income or minority populations.

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) requires that federal projects consider whether the project would have an adverse effect on minority or low-income populations. The three alternatives under consideration in this EA are agricultural and forested lands located in a rural area. Based on the available demographic and census data, there are minority and low-income populations in the vicinity of the alternative sites. However, these groups and individuals only could be indirectly affected by the proposed action.

4.0 Environmental Consequences and Mitigation Opportunities

Section 4.0 describes the environmental consequences associated with the National Cemetery on the four alternatives defined in Section 2.0.

4.1 Noise and Other Aesthetic Concerns

Under the No Action Alternative, there would be no impacts on the noise levels or aesthetics of the area.

Under the Proposed Alternatives, there would be minimal noise impacts to the surrounding area and no impact to the aesthetics of the area resulting from the development of a cemetery at any of the three alternatives. National cemeteries are required to maintain a park-like setting and keep the grounds visually pleasing. NCA guidelines recommend that native vegetation be used in site landscaping, and valuable trees be preserved. Thus, the pastoral landscape which currently exists at these sites would probably remain, although in an altered form.

Gun salutes will occur at most interments. The short bursts of noise with the salutes will only occur during weekday business hours. Due to the existing hunting and weapons-fire which occurs routinely at American Village, there would be minimal impact to the residents in the surrounding area from this additional noise source.

Nesting birds and resident wildlife would be subjected to temporary increases in noise levels during each phase of cemetery construction, but most especially during the first phase. Sources of construction noise would likely include earthmoving equipment, trucks, and paving equipment. Impacts could be minimized by limiting construction activity to daylight hours and by using properly muffled equipment. The VA will need to comply with federal noise regulations during construction and operation.

Once the cemetery is in operation, daily noises will include gardening equipment (mowers, weed eaters, etc.), backhoes, and dump trucks. Noises associated with funerals will include traffic from the corteges, “taps” or other music, and gun salutes. The current situation is limited to road traffic, agricultural activities, and firing of Revolutionary War era arms at the American Village. These activities are expected to have only a minimal impact to receptors in the vicinity of the three alternatives.

4.2 Air Quality

Under the No Action Alternative, there would be no impacts on the air quality of the area.

Under the Proposed Alternatives, there would be minimal impacts to the air quality of the area resulting from the development of a cemetery at any of the three alternative sites. During construction and demolition of buildings, there will be heavy equipment exhaust at the site, in addition to increased fugitive dust emissions. Best management practices to control erosion should also help to minimize releases of fugitive dust. At build-out there may be as many as several hundred vehicle trips per weekday to the cemetery. These vehicles' emissions will result in a net increase in air pollutants. However, because the air quality in Shelby County meets standards, the amounts of air pollutants likely to be released from these vehicle trips are not likely to cause any significant impact on air quality in the vicinity.

There are no air-quality permitting requirements that apply to the construction of a cemetery. The three alternative sites do not have any permitted emission sources.

4.3 Community Services

Under the No Action Alternative, there would be no impacts on community services in the area.

Under the Proposed Alternatives, no significant impacts to community services would be expected. The Carter and American Village parcels are located in the City of Montevallo and the Tharp, Jackson, and Fowler tracts are located in Shelby County, Alabama. The parcels in all alternatives can either retain their current status or the entire alternative site could be annexed into the City of Montevallo. There will be no live-in personnel, thus there would be no noticeable effect on the school districts. There will be jobs created at the site for temporary construction workers and permanent employees. These employees may be drawn from current residents, or they may be recruited from elsewhere and become new residents. The City of Montevallo and Shelby County have adequate capacity in their emergency and non-emergency service departments to support the employees of and visitors to the proposed cemetery.

4.4 Archaeological Resources and Historical Structures

Under the No Action Alternative, there would be no impact to NRHP eligible cultural resources.

There are no previously identified NRHP eligible properties located within the APE of Alternative A. One historic mill site was discovered during the preliminary field reconnaissance. While much of the subject property has been historically impacted by intensive agriculture, areas within approximately 650 feet (200 meters) of water on the property exhibit a high potential for the existence of unidentified archaeological sites.

There are no previously identified NRHP eligible properties located within the APE of Alternative B. During the field reconnaissance, the previously-mentioned historic mill site, one

19th century house site and one prehistoric site were located within this alternative site. While much of the subject property has been historically impacted by intensive agriculture, areas within approximately 650 feet (200 meters) of water on the property exhibit a high potential for the existence of unidentified archaeological sites.

There are no previously identified NRHP eligible properties located within the APE of Alternative C. During the field reconnaissance, eight previously undiscovered archaeological sites were identified including the mill site, another historic site and six prehistoric sites. While much of the subject property has been historically impacted by intensive agriculture, areas within approximately 650 feet (200 meters) of water on the property exhibit a high potential for the existence of unidentified archaeological sites.

The Alabama SHPO has requested that a Phase I Intensive Cultural Resource Assessment be conducted should the NCA select this alternative for the proposed National Cemetery. The NCA should include consultation with consulting parties as specified under 36 CFR 800.2 at the earliest possible date, provide for SHPO review of project design plans and incorporation of SHPO recommendations to ensure consistency with the Secretary of Interior's standards for the treatment of historic properties. A Phase I Intensive Cultural Resource Assessment is recommended in order to meet the standard of identification of historic properties specified in 36 CFR 800.4. Upon completion of the Phase I Intensive Cultural Resource Assessment, the VA would be in an informed position to allow avoidance and/or minimization of impacts of NRHP eligible resources, should any be identified on the subject property.

4.5 Local Economy

Under the No Action Alternative, there would be no effect on the local economy.

Based on the experience of the VA at other National Cemeteries, it is presumed that the change from current use to cemetery use, and the resulting open space, would be considered an amenity by neighbors and that surrounding property values would not be affected or could even increase.

Under the Proposed Alternatives, construction of a national cemetery is expected to have a beneficial effect on economic activity in the area as a result of temporary jobs associated with the construction activities and permanent jobs associated with operating and maintaining the cemetery. The taxable value of the land at the three alternative sites is low due to the millage rate assigned to these agricultural properties. Removing these properties from the tax roll in Shelby County would cause a reduction of the County school system's tax base due to lost revenue. Cemetery construction and operation likely will result in creation of more jobs than would be lost. Due to the low existing tax rate assigned to these alternative sites, the relatively limited land area involved, and the beneficial aspects of increased employment, impacts on the local economy are expected to be minimal.

4.6 Wetlands

Under the No Action Alternative, there would be no new impacts to wetlands. Existing impacts from livestock use of the wetlands would continue.

Under the Proposed Action Alternatives, it is anticipated that the site chosen for construction of the new cemetery would require filling of federal jurisdictional wetlands. Therefore, wetlands that would be impacted during construction would need a formal delineation by a wetland scientist, appropriate jurisdictional confirmation of the wetland boundaries by the USACE, and submittal of a Joint Application for an Environmental Resource Permit (ERP) to the Alabama Department of Environmental Management (ADEM).

The Clean Water Act (CWA) Section 404 permit program relies on the use of compensatory mitigation to offset unavoidable damage to wetlands and other aquatic resources, which can be accomplished by several options. Mitigation for wetland impacts may take place on-site, off-site, in mitigation banks, or be funded by in-lieu fees. Mitigation may include creation, enhancement or restoration of wetlands and their functions or, in some cases, may include preservation of wetlands and associated upland buffers (USACE, 2005).

4.7 Geology

Under the No Action Alternative, there would be no impacts on the geology of the area.

Under the Proposed Alternatives A, B, & C, minimal impacts to the geology of the area are expected resulting from the development of a cemetery at the sites. It is assumed that excavations for stormwater basins, burial vaults, building foundations into the subsoils, etc., will be required, but no large-scale excavations into the deeper strata would occur.

Proximity of bedrock will pose challenges for vault placement. Similarly, the existence of carbonate bedrock will pose a challenge due to the potential for occurrence of sinkholes on the site. The potential shallow depth-to-bedrock and depth-to-groundwater may impede vault placement without alteration of the natural hydrology and/or placement of substantial fill material. Cemetery development at these sites may require the addition of up to several feet of fill to increase surface elevations above the bedrock and water table in certain areas. The filling activities will need to be planned with attention to using material that will provide the proper drainage characteristics. An additional geotechnical assessment is recommended at these sites to determine the depth-to-bedrock, depth-to-groundwater or to further delineate the karst topography areas of limestone to determine the encumbrance with regards to the development of a national cemetery.

4.8 Soils

Under the No Action Alternative, there would be no new impacts to site soils.

Construction of a National Cemetery on the alternative sites could result in a moderate adverse impact to soils as a result of the mass grading. In addition, the placement of several feet of fill in certain areas, as discussed above, would also impact soil conditions.

As previously discussed, it is anticipated that the development of the National Cemetery would include the construction of buildings, roadways, and the installation of crypts. This typically involves mass grading. Typical burial practices usually involve the placement of a concrete burial vault to allow interment during winter months and to prevent subsurface soil subsidence. It is anticipated that vaults would be installed during the initial site development, with soil fill placed over the vaults and then sodded. The spoils would be removed from the pre-positioned vaults in a single phase during cemetery construction. For several reasons, the installation of vaults should be completed with the vault bottom at an elevation above the normal high water table.

Earthmoving is the excavating of lakes, pits, and depressions, and/or mounding, stockpiling, creating berms, installing or transporting fill. Earthmoving activities are regulated by counties because of the potential adverse impacts these activities may cause to the environment. Earthmoving activities may adversely impact watersheds, drainage patterns, native habitats, water quality, historical resources, and may cause erosion and sedimentation problems. Changes in topography, such as filling of drainage ways, could increase the flood potential of the surrounding area. Additionally, earthmoving activities may cause adverse visual, noise, vibration, dust, and safety impacts to surrounding areas.

Excavation activities on a site, which typically require obtaining an earthmoving or land disturbance permit, should be obtained in consultation with ADEM and local counties. The permits are available for excavations, stockpiles, and fills over the life of the construction project.

Burying topsoil would destroy the biota, many of which are necessary for ecological health/function. As mitigation against this adverse impact, NCA could stockpile topsoil in a manner that protects its natural biota, and then re-use the topsoil on site once the additional fill and vaults have been placed. This type of soil conservation mitigation measure will have the added benefit of assisting with water conservation.

Construction activities, excavation for soils, and site grading would result in the increased potential for sediment impacts to on-site and adjacent wetlands and surface waters. Some soil erosion would also occur during construction activities; however, implementation of a sediment

and erosion control plan, including use of best management practices (BMPs) such as silt fencing and hay bales, would dramatically reduce erosion associated with the project.

Mitigation against soil erosion that should be considered during cemetery construction include:

- Require grading contractor to prepare and adhere to a plan for management of excavated material.
- Stabilize soft/loose soils during excavation and fill activities.
- Soft and near surface soils should be stabilized as soon as practical after disturbance.
- A qualified engineer should monitor construction, excavation, fill and compaction activities.
- Installation of silt fences/erosion control fabric on slopes created during construction.
- Re-vegetation of bare areas as soon as practical after their creation.

4.8.1 Farmland Protection Policy Act Compliance

Although cemetery construction plans were not available during preparation of this report, it is assumed that implementation of Alternative A, Alternative B, or Alternative C would also result in the disturbance to existing prime farmland soils. Existing acreages of prime farmland soils present at Alternative A, Alternative B, and Alternative C are 89.87 acres, 76.42 acres and 25.75 acres, respectively (Figures 3-13 to 3-15).

According to the NRCS, the federal Farmland Protection Policy Act (FPPA) was created to protect farmland and address urban sprawl (USDA NRCS, 1994). Consequently, soils specifically suited to agricultural uses may be protected under FPPA. Conversion of these soils from agricultural to nonagricultural uses may be limited. Specifically protected are cultivated areas identified by the FPPA as prime farmland, unique farmland, and farmland that is of local or statewide importance. Areas that have been cultivated within the last five years may also qualify. It is anticipated that all three alternatives would result in the conversion of viable farmland to a non-renewable use. The NRCS offices in Shelby County should be contacted in order to coordinate the alternative sites considered in this EA as per the FPPA (USDA NRCS, 1994). Form AD-1006 should be completed and submitted to the NRCS office in Shelby County in order to assist in determining the disposition of the portions of the site that may be protected by the FPPA (USDA NRCS, 1999).

4.9 Surface Water and Water Quality

Under the No Action alternative there would be no new impacts to water resources.

The proposed action would impact water resources at Alternatives A and B in the following ways: removal of livestock from the site and the main unnamed tributary to Shoal Creek found on-site; control of exotic aquatic plants and animals; temporary water quality modification during

construction (discussed in Section 4.9.1 under stormwater concerns); increase impervious surfaces on-site; and increase runoff of excess water and landscaping chemicals as part of lawn/turf maintenance activities. These impacts would occur along Shoal Creek since these alternatives include land located along the creek.

The proposed action would impact water resources at Alternative C in the following ways: removal of livestock from the site; control of exotic aquatic plants and animals; temporary water quality modification during construction (discussed elsewhere under stormwater concerns); increase impervious surfaces on-site; and increase runoff of excess water and landscaping chemicals as a part of lawn/turf maintenance activities. Shoal Creek runs through the middle of this alternative and the proposed action would likely pose greater potential impacts to the creek and its' associated wetlands on Alternative C.

Impacts to water resources for each of the project alternatives would be similar given their similar land-use, location within the same watershed, depth-to-groundwater, similarities in construction challenges, and presence of on-site wetlands. Under the Proposed Action Alternatives, cemetery development at Alternatives A, B, and C should have minimal impacts on the area's surface water resources provided the site is developed and managed according to minimum standards required by federal laws and regulations as they relate to watershed protection.

The mitigation measures discussed above for minimizing soil erosion, in addition to others described below for stormwater management, floodplain protection, and wetland protection should be implemented during construction to also protect surface water quality.

Mitigation measures that can be implemented during cemetery operation and management to protect water quality include:

- Selecting interment sites that are above the seasonal water table.
- Managing turf without, or with minimal, use of pesticides or fertilizers.
- Implementation of an integrated pest management plan (IPM).
- Landscaping with native plants.
- Maximizing stormwater retention times on-site.
- Creating sizable vegetated (natural) buffer areas in and around wetlands.
- Maintain vegetated buffers adjacent to Shoal Creek and other perennial streams.

4.9.1 Stormwater

According to the EPA, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES Stormwater Program regulates stormwater discharges. Stormwater runoff from construction sites contains sediments and other pollutants which degrade water quality and habitat of surrounding streams and water bodies. The NPDES Stormwater

Program requires all construction sites one acre or larger, or smaller sites within a larger development, to obtain a permit to discharge stormwater and utilize BMPs to mitigate the effects of the construction activity (USEPA, NPDES, 2005).

Cemetery construction at any of the alternative sites will require compliance with the federal stormwater program, and implementation of BMPs for stormwater control. An additional stormwater management consideration could be the construction of dry storm water retention areas which would collect storm water runoff and direct it back into the ground. Compliance with the stormwater management sections of 40 CFR 122 (USEPA's NPDES Regulations) is anticipated as long as State/County BMP's are implemented.

4.9.2 Floodplain

In accordance with the requirements of EO 11988, the NCA must demonstrate that there is no practicable alternative to carrying out the Proposed Action within the 100-year floodplain.

Under the No Action Alternative, there would be no impacts to the floodplain.

4.9.3 Landscaping and Turf Irrigation

At this time there are no regulations or restrictions on water usage in this part of Alabama. Future restrictions may limit water usage in the area, and additional landscaping and irrigation applications would have to be considered.

The NCA will need to design site landscaping with water conservation as a prime objective. This may include: irrigation water re-use, xeriscaping, stormwater re-use, installation of rooftop catchment /cistern irrigation systems near buildings, modifying expectations to allow for seasonal die-back of vegetation, etc.

4.9.4 Surface Water Protection

Under the No Action Alternative, no impact to current surface water quality is expected.

At present, water quality at all of the sites is negatively impacted by livestock. In theory, water quality improvements in on-site surface waters could be achieved at any of the three alternatives via removal of livestock. Water quality could then be maintained with creation of appropriately-sized wetland buffers (see Section 4.6), implementation of an appropriate turf-management program that minimizes fertilizer or pesticide runoff, and restoration of native vegetation via exotic species management (see Section 4.17).

4.10 Groundwater

Under the No Action Alternative, there would be no impacts to groundwater resources.

With regard to each site, the development of the national cemetery is not anticipated to have negative impacts on the groundwater provided the site is developed so that any interments are above the zone of saturation. A burial depth of five feet below ground surface in conjunction with the seasonal high water tables may require additional fill in order to provide a suitable separation of the interments from the seasonal high water table. Periodic saturation/ponding at the grave sites would appear difficult to avoid; therefore, the selected site should be designed to ensure graves are not saturated for long periods of time. As noted in Section 4.7 of this report, additional geotechnical studies may be required to determine the typical high groundwater elevation during the wetter months of the year.

Water table elevations at each site may require several feet of fill for portions of the development areas. On-site subsoils, which consist of a mixture of silts and clays, would be suitable for the selected site grading fill.

At present, there are groundwater wells in the area. These wells are used either for on-going agricultural practices or limited residential water supplies. The wells will need to be re-evaluated, re-permitted, or “closed” in consultation with local and county offices.

In areas with a high water table, groundwater could enter burial vaults and come in contact with the remains they contain. Human remains are often embalmed before burial and contain formaldehyde, a chemical used to kill bacteria, slow down decomposition, and prevent associated odors. The EPA regulates formaldehyde as a hazardous substance, though it does not recommend testing drinking water for it and has not issued standards for acceptable concentrations in the water supply. In general, the formaldehyde used in embalming processes is a biodegradable product that binds with any protein to form stable compounds. Therefore, the potential for pollution of the surficial groundwater by formaldehyde is low. As mentioned previously, burial areas may be elevated with fill to allow the gravesites to remain above the high water table. This and the use of pre-placed crypts minimize the potential impacts of embalming fluids or pathogens upon the surrounding environment.

4.11 Land Use

Under the No Action Alternative, there would be no impacts to zoning or land use.

Under the Proposed Alternatives, there would be minimal impacts to zoning and land use or the area resulting from the development of a cemetery at any of the three alternatives. None of the three alternatives are specifically zoned for cemetery use. However, with cemetery construction

the ultimate landscape would still be open space with many of the existing habitat functions either preserved or improved.

4.12 Solid and Hazardous Wastes

Under the No Action Alternative, there would be no new impacts related to waste generation or disposal.

No hazardous materials were observed to be associated with Alternatives A, B, and C. Any solid waste and hazardous material associated with the buildings located on the three Alternatives may require proper disposal should these buildings be demolished for cemetery construction. Additional assessment concerning the presence of asbestos-containing materials and lead-based paint is recommended.

Cemetery development at any of the three alternatives would require proper disposal of trash, construction debris, fencing, floral arrangements, funerary objects, etc. Once the cemetery is in operation, proper disposal of trash and yard waste would be required. The cemetery operation is not expected to generate hazardous wastes.

4.13 Traffic, Transportation, and Parking

Under the No Action Alternative, there would be no impacts on local traffic or transportation.

Funerals and employee activity at the proposed cemetery would increase the traffic volume at the chosen site. According to an analysis completed for another proposed national cemetery in Florida (URS, 2002) funerals occur between 9:00 AM and 3:00 PM Monday through Friday. This would constitute the majority of traffic to and from the cemetery. Additional traffic would be generated by visitors to the cemetery, mainly on weekends and holidays. Employees commuting to and from the cemetery would generate the cemetery's only peak hour traffic.

The cemetery will likely be available for services for approximately 250 days out of the year, on non-holiday weekdays only. The NCA estimates the number of interments will peak at 4,079 in 2012. Assuming approximately 16 funerals per day with approximately 17 vehicles in each funeral procession (URS 2002), there would be approximately 272 vehicles entering and exiting the cemetery for funerals each day.

Non-funeral visits to the cemetery would likely most frequently occur during weekends and holidays. The VA expects approximately 3,000 such visitors a year, averaging about 10 visitors per day (URS, 2002). This data is summarized below in Table 4-1.

Table 4-1. Expected Daily Traffic Volumes Generated by VA Cemetery for Year 2012

Reason for Visit	Vehicles Entering VA Cemetery (vehicles/day)	Vehicles Leaving VA Cemetery (vehicles/day)	During Peak Hours (vehicles/day)	During Off-Peak Hours (vehicles/day)
Attending Funeral	272	272	0	544
Other visitations	10	10	0	20
Employed by VA	15	15	30	0
Total	297	297	30	564
Total daily traffic generated by VA Cemetery (vehicles/day): 594				

Source: URS, 2002; VA NCA 2005.

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4.14 Infrastructure

Under the No Action Alternative, there would be no impacts to infrastructure.

Construction of a veteran’s cemetery on Alternative A, Alternative B, or Alternative C would result in minimal impacts to infrastructure. The demand on local utilities would increase slightly and the installation of certain utilities will be necessary. Utilities most affected by the construction of a National Cemetery include water supply, sanitary and stormwater sewers.

At Alternatives A and B, the local utilities most affected by the cemetery construction are public water supply. The necessity for irrigation on the cemetery will require an ample water supply. Although the impact will be minimal, this increase in demand could be mitigated by installing on-site water supply wells utilized for the sole purpose of maintenance activities for the cemetery. All other on-site utilities, including stormwater and sanitary sewer, will be affected by the proposed construction; however, the impact is anticipated to be minimal.

At Alternative C, the local utilities most affected by the cemetery construction will also be a combination of on-site water supply wells, on-site sewage disposal systems and stormwater sewer installation. This site would be considered the most remote of the three alternatives. Utility lines would have to be run the longest distances from established lines along State Highway 119. Connections to the local water supply or to on-site wells will need to be made since no on-site water lines currently exist. In addition, all remaining necessary utilities will need to be installed including stormwater sewers, electric lines, communication lines and on-site septic sewage systems if approved. Septic systems would have to be adequate for the capacity of the cemetery facility and must meet local permit requirements.

4.15 Vegetation, Fish and Wildlife

Under the No Action Alternative, there would be no impacts to vegetation, fish, or wildlife.

Cemetery construction will replace the existing pasture and forest ecosystems with a managed landscape. Given that the forage vegetation in the pastures is not native to the sites, the overall effect on natural communities will be minimal. Some wetlands may be filled or other natural habitats may be disrupted. However, these overlays are expected to be limited.

Under the Proposed Action alternatives, human disturbances and alterations of the sites would have a minor impact on most terrestrial species, and construction of any of the three alternatives may remove portions of the existing natural communities. It is the desire of the NCA to retain the site in as natural a state as possible, retaining features such as natural drainage ways, valuable trees or tree groups, shrubs, ground covers, and streams. Given these goals of the NCA to preserve the natural vegetation communities present on-site, construction should be minimized and/or avoided in these areas; however, some habitat loss due to construction is expected. The wildlife habitat loss at Alternative C would consist of good quality habitat, and loss of moderate quality habitat at Alternatives A and B.

Most of the species inhabiting or expected to inhabit the sites (see Table 3-13) are mobile generalist species that can survive within wide ranges of food and habitats, and/or are migratory and would use the sites seasonally. Therefore, it is anticipated that most wildlife species would avoid the disturbance during construction activities, and surrounding available habitat would be able to support them. Phased construction will provide some relief to resident wildlife. Clearing of vegetation and earth moving activities would result in some unavoidable mortality to burrowing and less mobile fauna.

Cemetery development at Alternatives A, B, or C will include clearing and grading activities that will result in the complete removal of existing vegetation in large areas. This will not only result in replacement of existing vegetation with turf, but will also result in unavoidable mortality to burrowing and less mobile fauna. However, large areas of Alternatives A (approximately 152.06 acres) and B (approximately 180.86 acres) are active pasture/hayfield. The conversion of these pastures and hay fields to interment areas will have a less severe impact on vegetation, fish and wildlife. To further minimize impacts to on-site fauna, site development is expected to occur in phases so that mobile wildlife will be able to seek refuge elsewhere on-site. Although with the resulting reduced carrying capacity, the fate of these individuals would be considered as mortality. At build-out, natural wildlife habitat will be restricted to wooded buffers, streams and wetlands with associated buffers, and interment and maintained turf areas.

Cemetery operations will impact the on-site vegetation and wildlife in the following ways:

- Site vegetation mostly will change from current conditions (i.e. agricultural lands at Alternatives A and B and mature to successional forest at Alternative C) to turf and ornamental plantings.

- Gun salutes will occur several times per day which may deter/frighten some wildlife, but current conditions on the adjoining American Village property consist of daily cannon and firearms discharge.
- Ornamental plantings are likely to include shade trees which will provide improved habitat to some wildlife, but a decrease in open field grass habitat for other species associated with that niche on Alternatives A and B.
- The conversion of agricultural lands at Alternatives A and B to cemetery use may result in improved water quality to on-site streams and wetlands over time due to less soil erosion and impacts as currently resulting from livestock use, but runoff from cemetery fertilizers, fungicides, pesticides, etc. could present impacts if not properly managed.
- Conversion of the relatively undeveloped lands to cemetery use will make the lands unavailable for hunting and other consumptive use.
- Plant species diversity is likely to decrease at all Alternatives as a result of cemetery development.

In general, it is usually the desire of the NCA to retain cemetery sites in as natural a state as possible, retaining features such as natural drainage ways, valuable trees, existing hedgerows, woodlots, etc. Therefore, construction activities should be planned to avoid and/or minimize impacts to these features.

NCA will have an opportunity to incorporate native species into its planting plan at the site, which could provide limited habitat diversity for a wider variety of species at Alternatives A and B. For example, managing/eradicating nuisance species in on-site stream corridors and wetlands, and replacing them with native species would benefit habitat for wildlife and birds.

Minimization of impacts to Shoal Creek will be a high priority for all the alternatives. If Alternative A or B is chosen, the western edge of these alternatives will have to maintain a buffer along Shoal Creek and the unnamed tributary. If Alternative C is chosen, a buffer will have to be established along the entire run of the stream on both sides. These buffers will include the steep terrain associated with the sides and banks of the stream. If a road within Alternative C is established for access across Shoal Creek, a bridge structure would be recommended for the proposed crossing. This construction is recommended to be confined to a narrow corridor, and at an appropriate location along the stream. The bridge location will have to minimize impacts to wetlands and other waters of the U.S. Based on field observations, upland areas and previously disturbed areas should allow for a crossing with minimal impact to waters of the U.S.

4.16 Threatened and Endangered Species

Under the no action alternative, there would be no impacts to threatened and endangered species.

Based on information obtained from USFWS, State agencies, other reports and the site development requirements, development of a National Cemetery on Alternatives A and B would have minimal impact on Federally-listed species and their habitat. Development on Alternative C could potentially have a moderate impact on Federally-listed species and their habitat.

Details relating to on-site investigations for threatened and endangered species, and agency correspondence related to this issue can be found in Section 3.18 and Appendix E.

There are five Federally-protected aquatic species known to occur in the Little Cahaba River which is fed by Shoal Creek located in all three alternatives. USFWS recommends that the following Best Management Practices (BMPs) be implemented on site:

- Inspect erosion control routinely, especially during and immediately following significant rain events, to insure no impacts to nearby surface waters and aquatic habitat.
- Take immediate corrective action if erosion or sedimentation is observed.
- Maintain vegetated buffers adjacent to any ditches or drainages.
- Immediately re-vegetate disturbed areas with a native species or an annual grass.
- Clear large tracts of land in phases, where practicable, with rapid re-vegetation upon completion of each phase.

Preferred habitat for the Tennessee yellow-eyed grass is on seep-slopes, in springy meadows, and on the banks or gravelly shallows of small streams with basic soils that is nearly wet all year.

Alternative A habitat consists of maintained pasture, agricultural fields, oak-pine forest, and mixed hardwood forest. Shoal Creek and a tributary to Shoal Creek are within Alternative A and could potentially be habitat for Tennessee yellow-eyed grass. The soils within the site consist of acidic soils and the two soils that could be potential habitat are along Shoal Creek and the tributary to Shoal Creek, but the topography is nearly level in both areas. Therefore, it is unlikely that Alternative A supports populations of the Tennessee yellow-eyed grass.

Alternative B habitat consists of maintained lawn, agricultural fields, oak-pine forest, mixed mesophytic forest, and riparian forest. There are two wetlands and four jurisdictional streams within Alternative B that could potentially be habitat for Tennessee yellow-eyed grass. The soils within the site consist of acidic soils and the two soils that could support potential habitat run along the southeastern boundary of the site, but the topography is nearly level. Therefore, it is unlikely that Alternative B supports populations of the Tennessee yellow-eyed grass.

Alternative C habitat consists of agricultural fields, mixed mesophytic forest, and riparian forest. The alternative was determined to contain significant streams and wetlands. The soils within the site consist mainly of acidic soils, and the topography could potentially support habitat for Tennessee yellow-eyed grass. There is limited potential habitat within Alternative C for Tennessee yellow-eyed grass.

Although all three sites are unlikely to support populations of listed threatened and endangered species, a final determination of the presence or absence of these species and the potential impact of the proposed action has not been concluded. This is due to the limited scope of the protected species investigations and the timing of field observations having occurred outside times when the plant of concern would have been flowering.

When the site-selection process is complete, a comprehensive protected species survey should be completed at the preferred site. The same should take place within the flowering season of listed plants and within the breeding/spawning/nesting season of listed animals. These surveys should be coordinated with USFWS.

If a listed species is found on the site, a conservation plan and Section 7 Consultation with the USFWS will be conducted. Avoiding any encroachment in the protected species habitat would be the prime objective of such a plan, however, if that interfered substantially with NCA's ability to deliver services at the site, then appropriate and prudent measures to minimize the effect of the project would be considered. A sediment and erosion control plan will be approved prior to construction to minimize sediment in Shoal Creek in order to protect the five threatened and endangered aquatic biota.

Minimization of impacts to Shoal Creek will be a high priority for all the alternatives. If Alternative A or B is chosen, the western edge of these alternatives will have to maintain a buffer along Shoal Creek and the unnamed tributary. If Alternative C is chosen, a buffer will have to be established along the entire run of Shoal Creek on both sides. These buffers will include the steep terrain associated with the sides and banks of the stream. If a road within Alternative C is established for access across Shoal Creek then a bridge will have to be constructed. This construction will have to remain within a narrow corridor, and at an appropriate location along the stream. The bridge location will have to minimize impacts to wetlands and other waters of the U.S. Based on field observations, upland areas and previously disturbed areas should allow for a crossing with minimal impact to waters of the U.S.

In all the alternatives, the majority of the development on each of the alternative sites would occur in man-induced landscapes including old fields and agricultural fields. Based on field assessments, the facility will not require significant impacts to jurisdictional wetlands and other waters of the U.S. Site discharges will be properly permitted and managed to avoid significant off-site impacts to fish and wildlife and their habitats.

4.17 Exotic and Invasive Species

Under the No Action Alternative, there would be no impact as a result of invasive species.

Two exotic and invasive species of concern on all three alternatives are Japanese honeysuckle and Chinese privet. Alternative B has the potential to have a variety of state-listed noxious weeds that would need to be managed.

The control of invasive species would allow for native species to flourish. A more intensive survey should be completed to identify invasive species and their distribution on the selected site prior to site development. Additionally, it is anticipated that the selected site would require a long-term invasive species management plan to control invasive species. Efforts associated with control of nuisance species should be conducted under the auspices of the cemetery's IPM.

4.18 Potential for Generating Controversy

Local news coverage and interaction with local elected representatives for this project during the site identification phase has been positive.

Under the No Action Alternative, controversy may be generated by local veterans and their public officials who would not have access to local burial services.

Agencies and local groups interested in Shoal Creek issues, particularly water quality, will likely be active participants in the public process associated with this project. Their concerns will likely be focused on the adequacy of measures to protect water quality, both ground and surface.

Interviews with local residents during our site visits in April 2005 and September 2005 indicated a strong approval by locals and adjoining land owners. A letter from Shelby County indicated support for this federal action (Shelby County Environmental Services, 2005, Appendix E).

4.19 Federal Compliance

The analysis and recommendations in this EA support the conclusion that NCA's proposed project will be in compliance with Federal Regulations (see Table 4-2).

Table 4-2. Compliance with Federal Regulations

Regulation	Subject	Project Compliance Issues
EO 11988	Floodplain Management	100-year floodplain occupies a small area on the western portion of Alternative A. 100-year floodplain is located in the southern portion and along the eastern property boundary of Alternative B. 100-year floodplain is located in the central and eastern portion of Alternative C. Project objectives can be accomplished with avoidance and/or minimization of impacts to the regulatory floodplain.
EO 11990	Protection of Wetlands	Appropriate Section 404 permits will need to be obtained from the USACE. Wetlands protection will include: avoid impacts; minimize impacts; and/or mitigation.
EO 11987	Exotic Organisms	Exotic / invasive species are present at each of the three alternatives. The IPM and planting / landscaping plans for the developed site will need to be developed and implemented to ensure that invasive species are not inadvertently introduced and that those present are controlled.
EO 12898	Environmental Justice	Although minority and disadvantaged populations are located proximate to all alternatives, no disproportionate impact on this population is expected as a result of this proposed project.
33 USC 1323, Section 313; 40 CFR 122	Clean Water	This project will not require a discharge permit, but coverage under an NPDES stormwater (land disturbance) permit will be required. BMPs for construction and operation phases associated with protection of surface- and ground-water are discussed in the report.
PL 93-205	Endangered Species	No incidental “take” of federally-listed species are expected as a result of cemetery development at any of the alternative sites. Additional coordination and/or consultation with the USFWS is recommended.
16 USC 1274 ET SEQ	Wild and Scenic Rivers	None of the sites are in areas that have federal designation as Wild and Scenic Rivers.
Noise Control Act of 1972	Noise Control	Compliance with federal noise standards is expected during construction and operation.
PL 93-523	Safe Drinking Water	BMPs for construction and operation of the cemetery as they relate to groundwater protection are discussed in the report.
PL 97-348	Coastal Barriers	Shelby County is not a regulated coastal county.
16 USC 1451 Et SEQ, Amended by PL 101-508	Coastal Zone Management	Shelby County is not a regulated coastal county.
40 CFR 230	Discharge of Dredge or Fill Material	Once a site has been selected and a design plan prepared, NCA will consult with the USACE to determine whether or not a dredge and fill permit would be required.
40 CFR 117	Reportable Quantities of Hazardous Substances	Reportable quantities of hazardous substances are not known from any of the alternatives, nor expected to be generated by the proposed project.
40 CFR 761	PCB Issues	PCBs are not reported from any of the alternative sites.
36 CFR 800	Historic Preservation	SHPO consultation and Section 106 compliance are necessary. SHPO coordination is ongoing for this project.

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