PUBLIC NOTICE OF AVAILABILITY

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF A SHOPPING CENTER, FORT BENNING, GEORGIA

To Whom It May Concern:

The United States Army Infantry Center, Directorate of Public Works, Environmental Management Division, Fort Benning, Georgia, hereby announces the completion and public availability of the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI) concerning the construction of a shopping center on Fort Benning, Georgia. These documents were prepared pursuant to the National Environmental Policy Act of 1969.

The Army and Air Force Exchange Service (AAFES) proposes to construct a new shopping center for use by authorized individuals at Fort Benning. The proposed action would consist of construction and operation of a shopping center containing a main store, MCSS and a food court including an Anthony's Pizza, Robin Hood Deli, Burger King, Taco Bell, Church's Chicken, Manchu Wok, Charley's Grilled Subs, A & W, and Baskin Robbins. Services would include a barber shop, beauty shop, laundry/dry cleaners, alterations shop, optometrist/eyecare office, flower shop, one-hour photo store, nutrition center, shoe store, amusement arcade, beauty supply, collectibles, roving concessions, category enhancer, and local artisan.

New construction would consist of reinforced concrete slab/foundation with masonry/metal stud exterior walls, steel structure and built-up partitions, AAFES-provided shelving, suspended ceilings and recessed energy-efficient lighting. Exterior support would include required utilities, communications, paving, walks, curbs, storm drainage, site improvements, electrical, mechanical, and fire protection for a complete and usable facility. Only AAFES-authorized patrons would use the facility. These patrons are primarily active duty and retired military personnel, their family members, and certain categories of reserve military personnel.

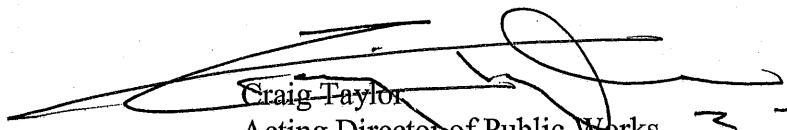
The EA evaluates the effects associated with the proposed action on soils, vegetation, water quality, wildlife, socioeconomics, land use, environmental justice, cultural resources, utilities, noise, air quality, hazardous materials containment/disposal, public health and safety, and the protection of children.

The EA and Draft FNSI for the proposed action have been completed and will be available to the public for a review period of 30 days starting from the first day of publication in "The Columbus Ledger-Enquirer," in accordance with part 1501.4 (e)(1) of Title 40 of the Code of Federal Regulations and Army Regulation 200-2. These documents are available at the following locations, in addition to the following website: www.benning.army.mil/EMD/Legal&PublicNotices.htm.

- W.C. Bradley Memorial Library, located at 1120 Bradley Drive, Columbus, Georgia.
- South Lumpkin Library, located at 2034 South Lumpkin Road, Columbus, Georgia.
- Fort Benning Main Post Library, located in Building 93, Fort Benning, Georgia.

Anyone wishing to comment on the proposed action or request additional information must write to the U.S. Army Infantry Center, Directorate of Public Works, Environmental Programs Management Branch (Attention: Ms. Melissa Kendrick), Building 6 (Meloy Hall) Room 309, Fort Benning, Georgia 31905-5122, or call (706) 545-9878.

Sincerely



Craig Taylor
Acting Director of Public Works 3 JAN 2005

Environmental Assessment for the Proposed Construction of a Shopping Center Fort Benning, Georgia

Contract No. HQ 00-PZC-013

December 2004

Prepared by:

UNITED STATES DEPARTMENTS OF THE ARMY AND AIR FORCE
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Environmental Assessment for Proposed Construction of an AAFES Shopping Center on Fort Benning, Georgia

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3 JAN 2005
Date

Executive Summary

AGENCY: United States Army (Army).

PURPOSE: The Army has coordinated the preparation of an environmental assessment (EA) of the potential environmental consequences of constructing a proposed shopping center at Fort Benning, Georgia, as described in the next paragraph. This EA has been completed pursuant to the National Environmental Policy Act (NEPA); the Council on Environmental Quality (CEQ) regulations implementing NEPA; United States Department of Defense (DoD) Directive 6050.1, "Environmental Effects in the United States of DOD Actions;" and 32 CFR 651 (Army Regulation [AR] 200-2), "Environmental Effects of Army Actions," which implements these regulations.

PROPOSED ACTION: The Army and Air Force Exchange Service (AAFES) proposes to construct a new shopping center for use by authorized individuals at Fort Benning. The proposed action would consist of construction and operation of a shopping center containing a main store, MCSS and a food court including an Anthony's Pizza, Robin Hood Deli, Burger King, Taco Bell, Church's Chicken, Manchu Wok, Charley's Grilled Subs, A & W, and Baskin Robbins. Services would include a barber shop, beauty shop, laundry/dry cleaners, alterations shop, optometrist/eyecare office, flower shop, one-hour photo store, nutrition center, shoe store, amusement arcade, beauty supply, collectibles, roving concessions, category enhancer, and local artisan.

New construction would consist of reinforced concrete slab/foundation with masonry/metal stud exterior walls, steel structure and built-up partitions, AAFES-provided shelving, suspended ceilings and recessed energy-efficient lighting. Exterior support would include required utilities, communications, paving, walks, curbs, storm drainage, site improvements, electrical, mechanical, and fire protection for a complete and usable facility. Only AAFES-authorized patrons would use the facility. These patrons are primarily active duty and retired military personnel, their family members, and certain categories of reserve military personnel.

ALTERNATIVES: Seven action alternatives and the no-action alternative were initially considered. These alternatives included expansion of the existing building, as well as construction of the proposed new facility on five alternative sites. This also included variations of site design to minimize environmental impacts. The seven action alternatives were evaluated against specific criteria, and four of the sites were eliminated from further consideration. One alternative complied with the criteria and is assessed, along with the no-action alternative, in this EA. The preferred site for the proposed action is on the north side of Marne Road, east of I-185.

SUMMARY OF EFFECTS: This EA evaluated the potential environmental effects of the proposed action on the following resources: earth resources, water resources, noise, climate and air quality, hazardous materials and wastes, biological resources, land use, cultural resources, infrastructure and utilities, and socioeconomics. Potential impacts of the proposed action to each environmental resource are summarized below.

Socioeconomics. Impacts to demographic compositions are not expected. Although AAFES anticipates increases of approximately 2,000 persons in the customer base at the new shopping center facility, these increases would likely not reflect compositional changes according to gender, age, or race.

The increased customer base is more likely to utilize this facility due to convenience of location and tax-free goods. Total sales volumes associated with this project could increase from current levels. Because of the distance of the nearest competing shopping centers, no major effect on the local economy is expected. The project is expected to have a minor positive impact, economic impact for the Installation and surrounding areas.

Water Resources. Construction activities at the approximately 18.25-acre site would result in the loss of natural vegetation, with the placement of approximately 14 acres of impervious surface. Because of the loss of vegetation during construction activities, highly erodible soils would be exposed and the potential for soil erosion and sedimentation to the unnamed tributaries and Hamlet Creek would increase. During construction activities, the contractor would be required to implement strict erosion control measures to prevent increased sedimentation during construction in accordance with the Georgia general permit (GAR 100001).

The SPCC will be part of the ESPCP that will be prepared for the construction site. The contractor and AAFES would also be required to prepare and implement a Spill Prevention, Control and Countermeasures (SPCC) Plan during construction activities and management of the facility. The SPCC would delineate measures and practices that would be implemented to prevent and/or minimize spill/release from hazardous materials into water surfaces. Basic Best Management Practices (BMPs) for pollution prevention will include monitoring of storage areas exposed to the inclement weather to ensure that pollutants are not discharged into storm drainage during construction and operation of the facility. These measures would ensure the protection of water resources. Additionally, under the new Municipal Separate Storm Sewer System (MS4) requirements, the same BMPs would address pollution of water from storage areas. All facilities within the Food Court would meet requirements to ensure that any above-ground storage tanks for oil/grease management are properly managed and they do not discharge into the storm drains. MS4 requirements

Implementation of the preferred alternative (Alternative 7) would result in adverse impacts to approximately 0.01 acres of wetlands and 26 linear feet of intermittent stream with some perennial streams, permanently converting these areas to improved land. Because of the small amount of wetlands impacted by the proposed action, the USACE has allowed AAFES to utilize Nationwide Permit #18 for the construction of the proposed action. Furthermore, in accordance with the Georgia Erosion and Sediment Control Act, a 25-foot buffer must be between any development and a defined stream channel. However, because the impacts would be associated with the road crossing for the shopping center project the proposed action would require an exemption from this requirement.

No impact would occur to either groundwater resources or floodplains from the implementation of the preferred alternative.

Noise. Construction and land-disturbing activities would result in temporary increases in noise levels. Noise generators during construction include vehicles and equipment involved in site clearing and grading, construction, landscaping, and finishing work. Short-term noise impacts would continue for approximately 20 months from the commencement of site work to the end of construction activities. Also, there would be an increase in vehicular traffic noise due to the increase in visits by construction vehicles per day. Impacts can be minimized by limiting construction activity to daylight hours and by

using properly maintained and muffled equipment. Noise from operation of the new shopping center would be limited primarily to an increase in the number of vehicles in the area, including delivery trucks and patron traffic. Impacts to sensitive receptors for the project and ongoing actions at Fort Benning would not be significant.

Air Quality. Long-term impacts to the immediate project area would occur from emissions due to an increase in deliveries and customer vehicular traffic. However, because of the improvement in shopping opportunities on Base, individuals would not need to leave the base to obtain goods and services. Therefore, it is anticipated that overall emissions associated with vehicular traffic would decrease. Therefore, there would be no significant long-term impacts to air quality associated with the preferred alternative.

The operation of heavy equipment would have minor, temporary negative impacts on air quality during the construction phase. These impacts would be primarily in the form of increased exhaust pollutants, which can be minimized by good vehicle maintenance. Windblown soil and dust may also occur during the construction phase as a result of equipment movement over exposed soil areas. Appendix D provides additional data on air quality impacts. Fugitive dust can be greatly minimized by appropriate dust control measures such as wetting the surfaces and by re-vegetating disturbed areas as soon as possible. Therefore, the short-term air quality impacts resulting from the proposed action would be a temporary increase of air pollutants during construction, which would cease once the project was completed. No significant adverse impacts would result from the proposed action.

Earth Resources. A moderate amount of excavation and fill is anticipated within the 18.25-acre disturbed area. Short-term construction impacts could result in a significant increase in soil erosion. Any increased exposure of the Nankin soils could result in the formation of gullies and in a large volume of soil runoff. A construction National Pollutant Discharge Elimination System (NPDES) stormwater permit would be required to ensure that construction activities adhere to BMPs/other measures and are associated with the ES&PC Plan. Erosion controls and structures for this permit would likely be extensive due to the quality of soils present. Long-term impact would be dependent on the increase in exposure of the Nankin soils.

Adverse impacts from geologic hazards, including seismic shaking or subsidence, are not likely to affect this project. In addition, no known unique geologic features or mineral resources would be affected.

Infrastructure and Utilities. Implementation of the preferred alternative would result in an increase demand upon existing infrastructure and utilities. Existing infrastructure and utility services at Fort Benning have adequate capacity to accommodate the proposed action. However, construction of the proposed action would increase the volume of traffic slightly in the project area due to on-road use by construction equipment, construction workforce vehicles, and vehicles delivering construction materials. Management actions to minimize impacts from increased traffic have been included in the project design. The increase in traffic following construction is not expected to be large compared to the volume of traffic currently present in the area and is not expected to affect the current levels of service for adjacent roadways and intersections.

Hazardous Materials and Wastes. Hazardous materials, including retail-sized containers of motor oil, paints and solvents, would likely be stored at the site during operation of the new shopping center. However, these materials would be stored solely for retail sale and individual, off-site use by military personnel and their families. Any hazardous materials that are accumulated would be stored and disposed of in accordance with all local, state and Federal laws and regulations, and Fort Benning

hazardous materials plans to include a site specific SPCC for the facility. These would also be on-site during the construction phase of the project and must be managed in accordance with Federal and State laws and Fort Benning's RCRA Part B Permit. No significant adverse impacts would result from the proposed action.

Biological Resources. The majority of the species that currently use the area have adapted to living in urban areas and co-existing with human activity, and are mobile generalist species that utilize a variety of interspersed/fragmented habitats, range over wide areas for food and cover, and/or are migratory and would use the site seasonally. No Federally and State Protected Species are known to exist on or use the preferred site. No significant adverse impacts to habitat, wildlife, and threatened and endangered species would result from the proposed action.

Although no foreseen direct impacts would occur, approximately 18.25 acres of potential foraging habitat for the Federally endangered red-cockaded woodpecker (RCW) would be lost. This action requires consultation with the United States Fish and Wildlife Service (USFWS) as directed by the 2002 Jeopardy Biological Opinion issued to the Installation. This Biological Opinion was issued to assure the future ability of the RCW to perpetuate on the Installation.

Cultural Resources. Based on the field visit, and past studies conducted within the area of potential effect (APE), it is unlikely that cultural resources would be impacted within or near the APE. Appendix B provides information obtained during the Coordination with the State Historic Preservation Office (SHPO). The SHPO concurred that this action overall, would not affect any resources eligible for the National Register of Historic Places (NRHP).

Land Use. The proposed site is currently undeveloped and wooded with more woodlands to the north and east; however, the areas to the west and south are urbanized. The proposed action would be contained within Fort Benning, which sets its own land use and zoning designations and would not present conflicts with local or state land use or zoning designations. The proposed site is designated as "family housing" and "open space." The construction of the proposed PX facility would change the land designation to "community." No significant adverse impacts are anticipated from this proposed action, and use of the proposed site would be compatible with surrounding land uses.

NO-ACTION ALTERNATIVE: The conditions and characteristics anticipated under the no-action alternative for each of the resources at Fort Benning would continue at levels equal to those occurring under the existing condition. No significant impacts are experienced or generated by the existing condition because infrastructure can accommodate the current levels of activity. However, future levels of activity could exceed infrastructure capacity. No significant impacts would be expected for the no-action alternative.

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List of Acronyms and Abbreviations

AAFES	Army and Air Force Exchange Service
ACHP	Advisory Council on Historic Preservation
AIRFA	American Indian Religious Freedom Act
AMSL	above mean sea level
APE	area of potential effect
AR	Army Regulation
Army	United States Department of the Army
ARPA	Archaeological Resources Protection Act
ARRP	Army Radon Reduction Program
ASL	above sea level
ASP	Ammunition Supply Point
ASTM	American Society for Testing and Materials
ATM	automated teller machine
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMP	comprehensive monitoring program
CO	carbon monoxide
dBA	A-weighted sound level, measured in decibels
DoD	(United States) Department of Defense
DOT	(United States) Department of Transportation
DPW	Directorate of Public Works
DRMO	Defense Reutilization Marketing Office
DS/GS	Direct Support/General Support
EA	environmental assessment
EDR	Environmental Data Resources, Inc.

EIAP	environmental impact analysis process
EMD	Environmental Management Division
EMS	Emergency Medical Service
EO	Executive Order
EPA	(United States) Environmental Protection Agency
ES&PC	erosion, sedimentation, and pollution control
ESA	Endangered Species Act
Flint EMC	Flint Electrical Membership Corporation
FY	fiscal year
GA DNR	Georgia Department of Natural Resources
GA EPD	Georgia Environmental Protection Division
GA HPD	Georgia Historic Preservation Division
GIS	geographic information system
gpd	gallons per day
gpm	gallons per minute
GWTF	Georgia Wetlands Trust Fund
hcf	hundred cubic feet
HPC	historic properties component
I	Interstate
ICRMP	Integrated Cultural Resources Management Plan
IHWMP	Installation Hazardous Waste Management Plan
INRMP	Integrated Natural Resources Management Plan
ISCP	Installation Spill Contingency Plan
JBO	“Jeopardy” Biological Opinion
LMU	land management unit
MBTU	1,000 British thermal units
MCA	Major Construction, Army
mgd	million gallons per day
MPRC	Multi-Purpose Range Complex
MRF	Materials Recovery Facility
MSA	metropolitan statistical area
MWR	Morale, Welfare, and Recreation
NAAQS	National Ambient Air Quality Standards
NAF	non-appropriated fund

NAFI	non-appropriated fund instrumentality
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHP	Natural Heritage Program
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOI	Notice of Intent
NOT	Notice of Termination
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
PCB	polychlorinated biphenyl
pCi/L	picoCuries per liter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
$PM_{2.5}$	particulate matter of 2.5 microns or less
ppb	parts per billion
ppm	parts per million
PSI	pollutant sub-index
PX	Post Exchange
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Act Information System
RCW	red-cockaded woodpecker
REC	Record of Environmental Consideration
ROI	region of influence
RPMP	Real Property/Master Planning
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC Pland	Spill Prevention Control and Countermeasures Plan

SWPPP	Stormwater Pollution Prevention Plan
TAC	Terrain Analysis Center
TMDL	Total Maximum Daily Load
tpy	tons per year
TRADOC	Training and Doctrine Command
TSD	transportation-storage-disposal
URS	URS Group, Inc.
USACE	United States Army Corps of Engineers
USAIC	United States Army Infantry Center
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound
WWTP	wastewater treatment plant

1 Purpose of and Need for the Proposed Action

1.1 Introduction

This environmental assessment (EA) identifies, describes, and evaluates the potential impacts to the environment as a result of the proposed construction of a commercial building with the intent of consolidating multiple businesses in one location at Fort Benning, Muscogee County, Georgia (also referred to herein as the "Installation"). This report also identifies the required environmental permits relevant to the proposed action and identifies actions that could be taken to minimize environmental impacts.

This document was prepared as part of the environmental impact analysis process (EIAP) for the proposed action as set forth in Army Regulation (AR) 200-2, *"Environmental Effects of Army Actions,"* dated 29 March 2002. This EA also implements the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations, and the United States Department of Defense (DoD) Instruction 4715.9, "Environmental Planning and Analysis," dated May 3, 1996.

Organization of the Document

The first three sections of this EA establish the existing conditions at Fort Benning. Section 1 provides a general overview of the purposes for preparing the EA. This section also describes the proposed action and explains the purpose of and need for the proposed action, as well as provides a list of the agency personnel consulted, and a description of the necessary environmental permits and contractor requirements. Section 2 describes the location of the proposed action and the methods used to identify the alternatives. In addition, this section describes the no-action alternative and the alternative that best meets the siting criteria. Section 3 establishes the environmental setting at Fort Benning by describing the physical, biological, socioeconomic, and the cultural and archaeological resources on the Installation. The characteristics described include, but are not limited to, groundwater, wetlands and other surface waters, vegetation, threatened and endangered species,

utility infrastructure, air quality, hazardous waste, land use, and transportation. Section 4 discusses the environmental consequences of the no-action alternative and the preferred alternative. Section 5 discusses cumulative effects associated with the siting of the proposed action at the preferred alternative site. Section 6 provides a list of persons who prepared this document and Section 7 lists the references used to develop this EA. Appendix A provides the wetlands jurisdictional delineation, Appendix B contains cultural resources and protected species information, and Appendix C is the United States Army Corps of Engineers (USACE) Nationwide Permit. Appendix D contains the air quality analysis tables, and Appendix E contains the Draft Finding of No Significant Impact (FNSI). Appendix F contains the Public and Stakeholder Involvement Plan.

1.2 Description of the Proposed Action

The Army and Air Force Exchange Service (AAFES)[1] proposes to construct and operate a new shopping center for use by authorized individuals at Fort Benning. The proposed action would consist of construction and operation of a shopping center containing a main store, MCSS and a food court including an Anthony's Pizza, Robin Hood Deli, Burger King, Taco Bell, Church's Chicken, Manchu Wok, Charley's Grilled Subs, A & W, and Baskin Robbins. Services would include a barber shop, beauty shop, laundry/dry cleaners, alterations shop, optometrist/eyecare office, flower shop, one-hour photo store, nutrition center, shoe store, amusement arcade, beauty supply, collectibles, roving concessions, category enhancer, and local artisan. Once the proposed PX facility is completed, Soldiers' Support Services would be relocated to the vacated, existing PX facility (Holloway 2000). Soldiers' Support Services is currently located in a group of World War II-era structures within an older part of the Installation. Once Soldiers' Support Services moves, the old structures formerly used by Soldiers' Support Services would be demolished (Holloway 2000).

New construction would consist of reinforced concrete slab/foundation with masonry/metal stud exterior walls, steel structure and built-up partitions, AAFES-provided shelving, suspended ceilings, and recessed energy-efficient lighting. Exterior support would include required utilities, communications, paving, walks, curbs, storm drainage, site improvements, electrical, mechanical, and fire protection for a complete and usable facility. Only AAFES-authorized patrons would use the facility. These patrons are primarily active-duty and retired military personnel, their family members, and certain categories of reserve military personnel.

[1] The Army and Air Force Exchange Service (AAFES) is a non-appropriated fund instrumentality (NAFI) organized as a joint command of the Army and Air Force under the Department of Defense. AAFES was established more than 100 years ago. Its mission is to provide quality merchandise and services at uniformly low prices to active duty military, Guard and Reserve members, military retirees, and family members. One hundred percent (100%) of the earnings of the AAFES are returned to the Army and the Air Force to provide funding for quality of life programs for service members and their families. AAFES operates more than 10,500 facilities worldwide, including 1,423 retail facilities and 200 military clothing stores.

1.3 Purpose of and Need for the Proposed Action

The purpose of the proposed action is to better serve the needs of the military community through the improvement of shopping facilities on Fort Benning. The Post Exchange (PX) facility was built in 1973 and is part of the PX and commissary complex, which is 95,000 square feet and includes a gas station, parking lots, and other services. The PX and commissary complex facility is located on a site bounded by Marne Road to the north, I-185 to the west, Hamlet Creek to the north, and undeveloped property to the east and south (Figure 2-2).

Currently, the Post Exchange (PX) is located in a confined space adjacent to the commissary, is highly congested, and too small to adequately serve the customer base. All AAFES food stores require substantial upgrades to meet the current retail standards AAFES requires at its newer facilities. Mechanical equipment is antiquated and the roof routinely leaks. To meet current AAFES retail standards, AAFES proposes to construct a new shopping center to solve the sizing, overcrowding, and maintenance problems, while maintaining easy access and locating the facility near the existing commissary and other associated services.

1.4 Scope of the Environmental Review

This EA identifies, describes, and evaluates the potential environmental impacts that could result from implementing the proposed action or alternatives, taking into consideration possible cumulative impacts from other actions underway or planned at Fort Benning. Required environmental permits relevant to the proposed action or alternatives are identified, and mitigation measures and management actions that could minimize environmental impacts are described.

The following topics were identified for study at Fort Benning: noise, air quality, earth resources, water resources, infrastructure and utilities, hazardous materials and waste, biological resources, cultural resources, socioeconomics, and land use. Assessment of safety and health impacts is not included in this document; all contractors would be responsible for compliance with applicable Occupational Safety and Health Administration (OSHA) regulations concerning occupational hazards and specifying appropriate protective measures for all employees.

The Army has proposed other actions at Fort Benning concurrent with the proposed action. The environmental impacts of these other actions have been analyzed and are addressed in this EA only in the context of potential cumulative impacts, if any. A cumulative impact, as defined by the CEQ (40 Code of Federal Regulations [CFR] 1508.7), is the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (Federal or non-Federal) or person undertakes

such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

1.5 Agency Coordination and Public Participation

In accordance with the NEPA of 1969 and AR 200-2, a Public and Stakeholder Involvement (PIP) was drafted and is available upon request. The NOA of the EA and draft FNSI has been published in *The Bayonet*, the *Columbus Ledger-Enquirer*, and any other suitable media. The Fort Benning website also includes the NOA, as well as the full text of the EA, draft FNSI, and, when possible, the appendices to the EA. In addition to the announcement of the NOA in various media, the NOA is also being mailed to all persons/agencies on the Distribution/Mailing List for the project. Hard copies of the EA and draft FNSI is being made available for review to anyone on this list (or in the general public) upon request. At a minimum, hard copies of the EA and draft FNSI are being provided to key Installation personnel, regulatory agencies, and for libraries on and off post. The review and comment period for the draft EA and FNSI is 30 days after the first publication of the NOA in the local media.

2 Description of the Proposed Action and Alternatives

2.1 Location of the Proposed Action

Fort Benning, Georgia (Figure 2-1) occupies approximately 184,000 acres of land, of which approximately 172,400 acres are located in Georgia and 11,600 acres are located in Georgia. The Post is located in the lower Piedmont Region of central Georgia and Alabama, predominantly within Chattahoochee, Muscogee, and Marion Counties in Georgia and partially within Russell County, Alabama.

2.2 Alternatives Development Process

Although a large amount of development exists on Fort Benning, several large undeveloped areas dedicated to training activities remain throughout the Installation. In an attempt to minimize the impact on existing training activities and future projects, both Fort Benning and AAFES staff evaluated several feasible sites and site designs against initial concerns and general site selection criteria to determine the most viable and reasonable alternative locations and site designs. Proposed sites were identified according to the size of the parcel and the ability to meet the requirements of the purpose and need.

Site Selection Criteria

The following criteria were developed based upon the purpose and need for the proposed action, as well as other land use and environmental factors:

- Located near I-185 to be convenient to customers, in an area of heavy traffic flow and high visibility;
- Located near a main entrance into Fort Benning;
- Consistent with AAFES mission activities;
- Located near existing commissary and services;

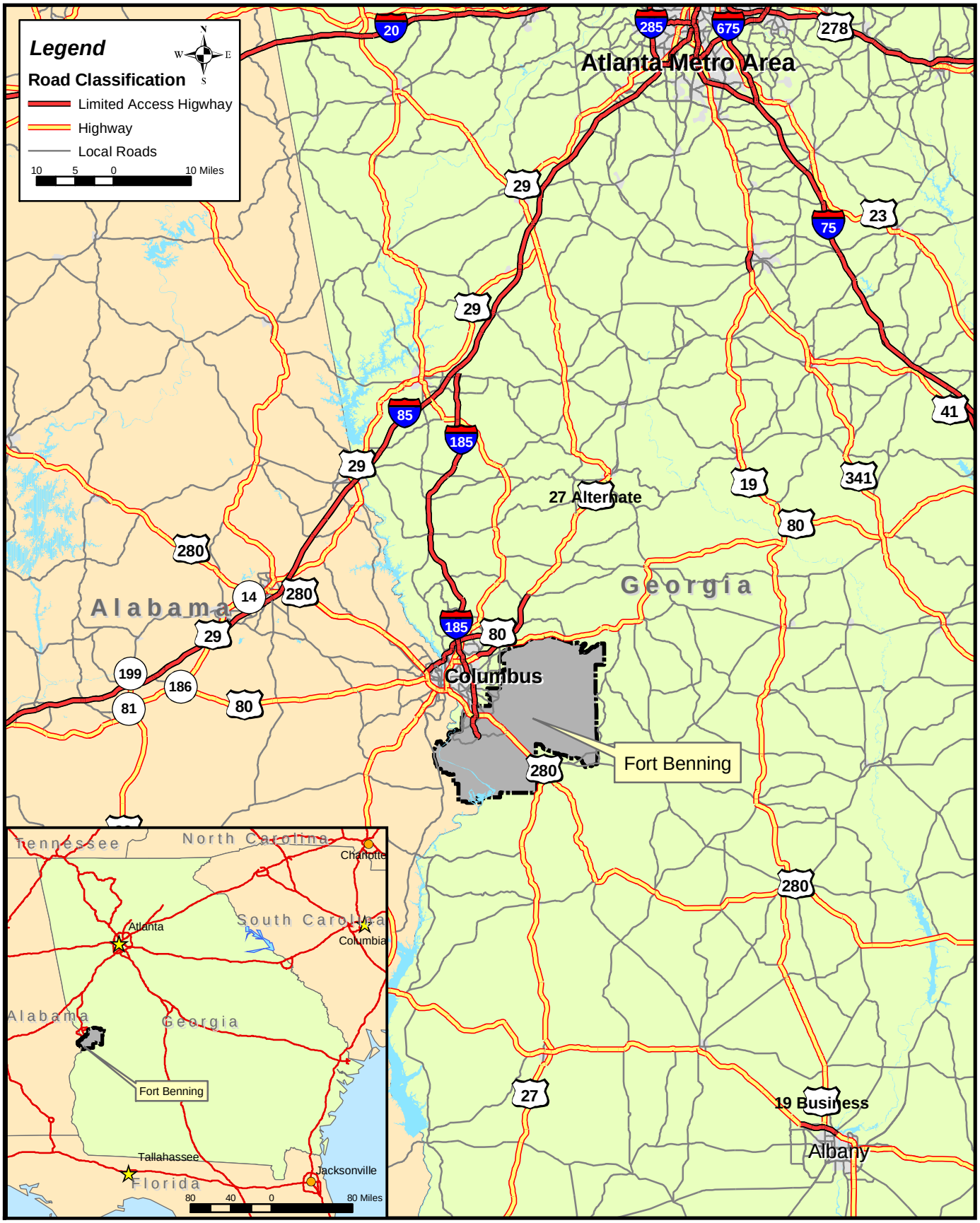

Figure 2-1
Vicinity Map
Fort Benning, Georgia

- Located near family housing areas;
- Minimal environmental constraints;
- Provides adequate space for the new uses; and
- Has adequate availability of utilities.

Table 2-1
Evaluation of Alternatives Based on Site Evaluation Criteria

Alt.	Near I-185	Near Main Gate	Consistent with AAFES Mission Activities	Near Existing Commissary	Near Family Housing	Adequate Space	Consistent with Military Activities	Minimal Environmental Constraints	Adequate Utilities
1	✓	✓	✓	✓	✓	✓	✓	X	✓
2	X	X	✓	X	✓	✓	✓	✓	✓
3	✓	X	✓	X	✓	✓	✓	✓	✓
4	✓	✓	X	X	✓	X	✓	✓	✓
5	✓	✓	✓	✓	✓	✓	✓	X	✓
6	✓	✓	✓	✓	✓	X	X	✓	X
7	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key:
✓ = Criterion met
X = Criterion not met.

2.3 Alternative Sites Considered, but Eliminated from Further Review

Alternatives 1 through 6 do not meet all the proposed site evaluation criteria and, therefore, are not considered in subsequent sections of the analysis. These six alternatives are briefly described below. Alternative 7 (the preferred alternative) meets all of the proposed site evaluation criteria and will be evaluated along with the no-action alternative (Alternative 8) in Section 2.4 of this EA.

2.3.1 Alternative 1

This proposed alternative site is bounded by Marne Road to the south, Lindsay Creek Parkway to the west, Hamlet Creek to the north, and undeveloped forested areas to the north and east (Figure 2-2). The existing land use is Commercial. The site is directly north of Marne Road from the existing facility, commissary, and gas station. The nearest family housing is located approximately 0.75 mile to the southwest, across Lindsay Creek Parkway. The nearest access control point entrance gate is approximately 2 miles to the north/northwest on Lindsay Creek Parkway.

Alternative 1 meets all but one of the evaluation criteria for the siting of the proposed action. Environmental constraints associated with the implementation of this alternative would be greater than other alternatives. These include the long-term conversion of 45 acres of undeveloped land to a shopping mall facility. Furthermore, recent wetland delineations concluded that 3.44 acres of wetlands exist on this alternative site, of which 1.80 acres would be impacted. Additionally, a total of 1,171 linear feet of intermittent stream would be impacted by the proposed action under this alternative. In accordance with the Georgia Erosion and Sediment Control Act, a 25-foot buffer must be between any development and a defined stream channel. Impacts to an intermittent stream would require a variance, which the State of Georgia is not approving (Fisher 2003). Variances are only allowed for road construction activities that do not impact the flow of the stream; therefore, because no variances are provided for this type of construction, the project is considered not possible to construct. Even if variances were granted for this project, the costs of mitigation would be extensive, totaling approximately $77,000 (Fisher 2003). Furthermore, because of the grade changes on the site, earth-moving activities would be required bringing in approximately 25,000 cubic yards of fill. Costs associated with these impacts would substantially increase the costs of the project to AAFES. This alternative was modified and is studied throughout this EA as Alternative 7.

2.3.2 Alternative 2

This proposed alternative site is located on the northeast side of First Division Road, east of the golf course, and near Outpost Number 2 (Figure 2-2). The site is approximately 82 acres. The existing and proposed land use for the site is Outdoor Recreation and Open Space. If the proposed action was sited at this location, land use would change to Community Facilities. The site is currently undeveloped and contains vegetation/trees.

Alternative 2 meets six of the land use and environmental criteria for the siting of the proposed facility; however, this proposed site is too great a distance from I-185 (approximately 4.1 miles), from the main gate (3.2 miles), and from the existing commissary (1.6 miles).

2.3.3 Alternative 3

This proposed alternative site is approximately 112 acres located on the north side of First Division Road and east of Santa Fe Road (Figure 2-2). The existing land use for the site is Open Space; proposed future land use is Family Housing. If the proposed action was sited at this location, land use would change to Community Facilities. The site is currently undeveloped and contains vegetation/trees.

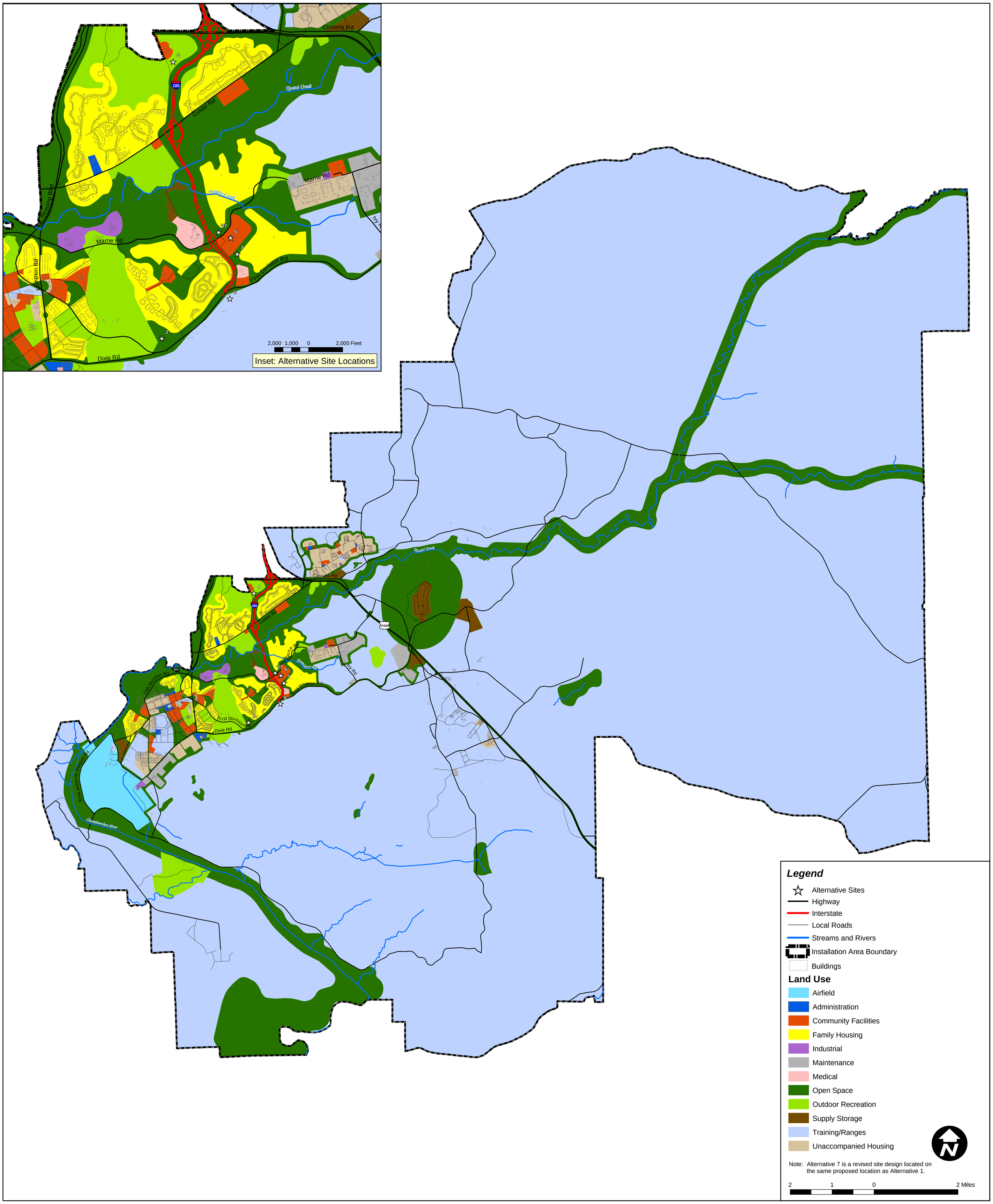

Figure 2-2
Fort Benning Alternative Site Locations and Land Use Map
Fort Benning, Georgia

Alternative 3 meets seven of the land use and environmental criteria for the siting of the proposed facility. This proposed site, however, is located approximately 2.7 miles from the main gate and 0.2 miles from the existing commissary.

2.3.4 Alternative 4

Proposed Alternative 4 is located to the south of Victory Drive, west of I-185, and east of Santa Fe Road, near Lloyd Elementary School (Figure 2-2). The site is approximately 62 acres. The existing and proposed future land use for the site is Outdoor Recreation. If the proposed facility was sited at this location, land use would change to Community Facilities. The site is currently undeveloped and contains vegetation/trees.

Alternative 4 meets six of the land use and environmental criteria for siting of the proposed facility; however, the site is located approximately 2.7 miles from the existing commissary. This site is distant from existing Fort Benning utilities (e.g., sanitary sewer), but could be tied into the City of Columbus's utility systems.

2.3.5 Alternative 5

Alternative 5 consists of expanding the existing 95,000-square foot PX facility. The PX and existing commissary complex is located on a site bounded by Marne Road to the north, I-185 to the west, Hamlet Creek to the north, and undeveloped property to the east and south (Figure 2-2). The existing facility was built in 1973 and is part of the PX and commissary complex, which includes a gas station, parking lots, and other services. Additional parking would be added to the east of Hamlet Creek and would be connected to the proposed facility via a pedestrian bridge. Construction of the proposed action at this alternative site would conform to all applicable building and utility codes, including the 1997 Unified Building Code (Beachler 2000).

Alternative 5 meets eight of the nine site-selection criteria. The site proposes some environmental constraints. First, the proposed site is located within close proximity to an intermittent stream and would require the presence of a 25-foot buffer. Construction of the proposed action and parking facility would infringe upon this buffer requirement and therefore, cannot be constructed. In addition, the site is flat in disturbed areas, but slopes slightly to the east and south near the undisturbed areas at the eastern and southern edges of the property. Correction of these slopes would require the placement of significant amounts of fill. Furthermore, the site would require the placement of a retaining wall to support the new fill. Contractor estimates indicated that the design and construction of this retaining wall would cost approximately $8 million dollars.

2.3.6 Alternative 6

The Alternative 6 site is located on the south side of First Division Road (Figure 2-2). This proposed site is approximately 19.8 acres. The existing land use for the site is Ranges/Training; proposed land use is the same. The site is currently undeveloped and contains some vegetation/trees. The site was once a borrow pit, evidenced by the bulk area being devoid of trees.

Alternative 6 meets six of the nine evaluation criteria and therefore did not meet the purpose and need for this action; however, this site would not provide adequate space or utilities and location of the facility at this site would not be consistent with military training activities. Siting at this location would restrict future range requirements and would require the hardening and possible relocation of the tank trail located south of this site. Safety and noise concerns would arise because of the proximity of the site to the Pierce and Red Cloud Ranges.

2.4 Actions to be Evaluated Further in the EA

2.4.1 Alternative 7: (Preferred Alternative)

The preferred alternative site is the same as the Alternative 1 site location (Figure 2-2), however, due to the environmental constraints presented by Alternative 1, AAFES redesigned the facility and minimized the footprint of the construction activity to minimize the environmental constraints, resulting in Alternative 7. The facilities and services that would be provided under Alternative 7 are as described in Section 1.2 " Description of the Proposed Action." Alternative 7 is the only alternative that meets all of the site selection criteria.

This site is currently undeveloped with no known previous development. The site primarily consists of mature mixed hardwood pine forest and grassland. It is generally flat at the plateau in the center and slopes out in a radial fashion at the edges of the area to be developed. Two unnamed tributaries flow to the north on the eastern and western sides of the central plateau and feed into Hamlet Creek.

Construction of the proposed action at the Alternative 7 site location would last approximately 20 months. The total disturbed area proposed for the site activities would be approximately 18.25 acres, including an approximately 218,000-square foot building. A conceptual site plan for the proposed action at the preferred alternative site is shown on Figure 2-3. Construction of the proposed action at the Alternative 7 site would conform to all applicable building and utility codes, including the 1997 Unified Building Code (Beachler 2000). Since the funding is non-appropriated, the Fort Benning Spirit design standards do not apply. However, where appropriate, AAFES will incorporate Spirit design standards into the construction of the new shopping center.

2.4.2 Alternative 8: The No-Action Alternative (*Status Quo*)

Under Alternative 8, the no-action alternative (*status quo*), a new shopping facility would not be built on the Installation. The military community that shops at Fort Benning would continue to use the existing facility that is limited in space and offers an unsatisfactory range of services and merchandise. Without the construction of a new, modern shopping center, the military community could increasingly be forced to shop at commercial establishments located off the Installation. This would be both inefficient and inconvenient for active military personnel, their families, and other shoppers eligible to shop in the PX.

Figure 2-3
Conceptual Site Plan
Ft. Benning, Georgia

3 Affected Environment

This section describes the existing natural and human environment on Fort Benning that may be impacted by the implementation of the proposed action.

3.1 Installation Location and History

Fort Benning is located in the lower Piedmont Region of central Georgia and Alabama, predominately within Chattahoochee County, Georgia. Portions of the Installation are in Muscogee County, Georgia, with the western segment extending into Russell County, Alabama (Figure 2-1). The Installation is approximately 100 miles south-southwest of Atlanta, Georgia, 6 miles southeast of Columbus, Georgia, and consists of approximately 182,000 acres of river valley terraces and rolling terrain. The Chattahoochee River flows through the southern portion of the Installation (Figure 2-1).

Fort Benning was established in 1918 to train much-needed infantry troops to fight in Europe during World War I, and became known as "Home of the Infantry." The U.S. Army Infantry School was established at Fort Benning, and has gradually emerged as the most influential infantry center in the modern world. From 1918 until the present, the development of Fort Benning has been directly proportional to the progress of the infantry school (Fort Benning 2003a). Fort Benning has carried out its mission to train troops through two World Wars and a number of other military conflicts. Presently, five types of infantry, including mechanized, light, airborne, air assault, and ranger infantry, train at Fort Benning (United States Department of the Army [Army] 2001).

3.2 Socioeconomic Resources

The Columbus, Georgia Metropolitan Statistical Area (MSA) consists of Muscogee, Harris, and Chattahoochee Counties in Georgia, as well as Russell County, Alabama, and encompasses a total of approximately 4,125 square miles.

3.2.1 Demographics

As of September 30, 2000, approximately 114,293 total persons were at Fort Benning. This figure includes on-Post troops, reserves, visitors, and Allied Military personnel and students (31,466), civilians (7,080), retirees (13,542), dependents of active, retired, and deceased personnel (55,566), and satellite personnel (6,639). Some personnel included in these figures may actually be assigned and deployed elsewhere in support of Fort Benning. Also, approximately 3,950 families are housed on-Post, while approximately 6,609 families are housed off-Post (Jackson 2000). Only authorized personnel and their dependents are allowed to use the services provided by the existing shopping center facility; these authorized users comprise approximately 4,300 customers daily (Taylor 2000a).

3.2.2 Economy, Employment, and Income

Columbus is Georgia's third largest city and is the center of commerce for a 26-county trade area of west-central Georgia and east-central Alabama. Four counties comprise the central MSA for the City of Columbus include: Muscogee, Harris, and Chattahoochee Counties in Georgia and Russell County in Alabama. The Columbus MSA contains over 4.5 million square feet of developed retail space and continues to attract new development, show growth in sales, and a growing customer base.

Fort Benning provides a significant economic impact to the Columbus MSA through military and civilian payroll and the purchase of goods and services. The existing PX facility has a customer base that includes: 23,305 active duty personnel with 22,076 dependents; 11,126 retiree sponsors with 18,997 dependents; 4,261 reserve and guard sponsors; and 6,096 dependents, for a total of 85,861 potential customers. Approximately 4,300 customers utilize the existing PX facility on a daily basis, and facility has 129 employees (90 military; 34 civilian; and five active military; Taylor 2000a).

3.3 Water Resources

3.3.1 Surface Water

The Chattahoochee River is the dominant surface water feature at Fort Benning. The Chattahoochee River, in conjunction with the Flint River to the east, is a major component of the Apalachicola River drainage basin of eastern Alabama, western Georgia, and the Florida Panhandle. Numerous oxbows, abandoned meander channels, isolated ponds, and wetland areas are located along the river. Principal tributaries on the Installation that lead to the Chattahoochee include Bull Creek and Upatoi Creek, each of which has several lesser tributaries flowing into them. The preferred site for the proposed action (Alternative 7) is located between two unnamed tributaries that flow north and discharge to Hamlet Creek, which is located outside the project limits. Hamlet Creek flows to the

northwest approximately 0.5 miles to Upatoi Creek. Upatoi Creek flows approximately 2.5 miles to the southwest to the Chattahoochee River.

Water Quality

A Total Maximum Daily Load (TMDL) is defined as the amount of a particular pollutant that a water body (stream or water segment, lake or estuary) can receive and still meet its beneficial use designation and state water quality standards for that pollutant. TMDLs are developed for all water bodies identified as not meeting water quality standards and for which there are no ongoing actions to resolve the impairment.

The State of Georgia has identified 31 stream segments in the Chattahoochee River Basin as "water quality limited" [i.e., Clean Water Act, Section 303(d) listed] or impaired due to sedimentation. The Biota Impacted designation is given when studies show a modification of the biological community. There are no impaired streams located in or adjacent to the preferred alternative site.

3.3.2 Groundwater

The state of Georgia possesses the largest amount and highest quality groundwater aquifers in the world. Fort Benning is located in the Coastal Plain hydrogeologic province of Georgia and Alabama, whose principal groundwater source is the Cretaceous aquifer system. The recharge area for these aquifers is the Sand Hills area, which includes Fort Benning (Georgia Department of Natural Resources [GA DNR] 1986).

The *Georgia Geologic Survey* identifies the Cretaceous aquifers in the Fort Benning area as the A-3 through A-6 aquifers. The confining strata above and below the aquifers are designated C-3, C-4, and C-5. Aquifer A-6 is part of the upper Tuscaloosa and the overlying Lower Eutaw Formations. This aquifer typically yields approximately 50 gallons per minute (gpm) near the Fall Line, but yields approximately 700 gpm near the southern Installation boundary. Water from A-6 is usually of good quality.

Aquifer A-5 is part of the basal sedimentary sequence of the Blufftown Formation. The A-5 water is more acidic than A-6. Some sedimentary lenses of the A-5 aquifer contain gypsum crystals, which result in a high sulfate content. Aquifer A-4 is in the upper sedimentary sequence of the Blufftown Formation, and contains increasing amounts of dissolved solids, sodium, and bicarbonate concentrations. Both A-4 and A-5 aquifers have low yields and are usually combined with other aquifers to produce adequate supplies.

The A-3 aquifer correlates with the Cusseta Sand Formation. Yields from this aquifer range from 1 to 10 gpm in the area surrounding the Installation. This aquifer is not considered an individual source aquifer (Pollard and Vorhis 1980).

The Fort Benning Master Planning Office has mapped aquifer recharge areas to consider during the planning process for Master Plan projects. The preferred site for the proposed action (Alternative 7) is located within a general recharge area for the Cretaceous aquifer system (Davis *et al.* 1988).

3.3.3 Floodplains and Wetlands

Executive Order (EO) 11988, entitled "Floodplain Management," requires Federal agencies to take action to minimize development within floodplains. The Fort Benning Master Planning Office has developed an environmental overlay that identifies 100-year floodplains on the Installation. Areas most likely to be inundated during a 100-year flood event are located within the vicinity of Lawson Field to the east of the Chattahoochee River, and a large area near the mouth of Uchee Creek southward to the west of the river. The preferred site for the proposed action is located in Zone X, outside the 100-year and 500-year floodplain (Natural Resources Conservation Service 2000). Because no floodplains are located for either alternative this resource will not be addressed further in this EA.

Gulf Engineers and Consultants completed a mapping overlay of the wetland areas on Fort Benning. These overlays are available at the Fort Benning Directorate of Public Works (DPW) for review. This map was generated from data gleaned from National Wetland Inventory (NWI) maps (also available at DPW for review), United States Department of Agriculture (USDA) Natural Resources Conservation Service county soil surveys that show soils classified as hydric, color infrared aerial photographs, and the terrain analysis for Fort Benning.

AAFES prepared a wetlands jurisdictional delineation for the preferred site (Alternative 7) of the proposed action (Appendix A). Field surveys confirmed that two wetland areas totaling 0.15 acres are located on the preferred site (see Figure 3-1); however, only 0.01 acres of jurisdictional waters on the Alternative 7 site would be impacted by development activities related to the proposed action (Figure 3-1). Some of the areas on the preferred site were considered to be intermittent streams; impacts to these areas are documented by the amount of linear feet impacted. Approximately 26 linear feet would be impacted by the construction of the facility at the preferred site (Figure 3-1). These areas were delineated using standard survey procedures according to guidelines outlined in the USACE *Wetland Delineation Manual* (Environmental Laboratory 1987). Each area is addressed below (*also see* Appendix A; Figure 3-1).

Legend

- Impacted Wetland and Stream
- Non-Impacted Jurisdictional Wetlands

Figure 3-1
Fort Benning Wetland Impacts Associated with the Preferred Alternative (Alternative 7)
Ft. Benning, Georgia

- **Area A.** This jurisdictional feature is 0.11 acres in size and is located on the eastern side of the ridge proposed for development. All of Area A would be impacted by the proposed development activities.
- **Area B.** This jurisdictional feature is 0.04 acres in size and is located on the western side of the ridge proposed for development. A total of 0.004 acres of Area B would be impacted by the proposed development activities.

The wetland impacts associated with the implementation of Alternative 7 were substantially decreased from the original design. The redesign reduced the overall footprint of the facility from 45 acres to approximately 18.25 acres and substantially reduced the size of the parking areas. As a result of these design modifications, the proposed impacts to wetlands areas have been minimized.

3.4 Noise

Noise-sensitive receptors of activities related to the implementation of the proposed action at the Alternative 7 site include Martin Army Community Hospital, nearby family housing and/or barracks, schools (Faith Middle School), and recreation areas (i.e., athletic complex, swimming pool). Noise contributors would include vehicular traffic associated with the shopping facility and with I-185 and Marne Road, helicopter traffic to and from the hospital, sirens from Emergency Medical Service (EMS) units and other emergency response vehicles, artillery and small arms fire from nearby firing ranges, and flight operations at Lawson Army Airfield.

3.5 Air Quality

3.5.1 National Ambient Air Quality Standards

The Clean Air Act (CAA) of 1970, 42 United States Code (USC) 7401 *et seq.*, amended in 1977 and 1990, is the primary Federal statute governing air pollution. The CAA designates six pollutants as criteria pollutants, for which National Ambient Air Quality Standards (NAAQS) have been promulgated to protect public health and welfare. The six criteria pollutants are particulate matter, (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and ozone (O_3). Volatile organic compounds (VOCs) are not considered criteria pollutants, but emissions of VOCs are linked to ozone concentrations.

In addition, Federal law requires states or local air quality control agencies to establish a State Implementation Plan (SIP) that prescribes measures to achieve or maintain attainment of these standards. Areas that do not meet NAAQSs are designated as "non-attainment" for that criteria pollutant. New standards for 8-hour ozone and $PM_{2.5}$ concentrations were promulgated in 1997, and

on April 15, 2004 the United States Environmental Protection Agency (EPA) designated attainment and non-attainment areas for the new ozone standard. The GA DNR's Environmental Protection Division (GA EPD) manages air quality for the state of Georgia. A small portion of the Installation is located in Alabama, but the emission sources associated with this portion of the Installation are considered to be insignificant (Fort Benning 2003b). Therefore, it has been determined that the State of Georgia regulates air quality issues and concerns pertaining to the proposed action site.

The northern portion of Fort Benning is located in Muscogee County and the southern portion, including the proposed action site and each alternative site, is located in Chattahoochee County. Both counties are currently in attainment for all criteria pollutants. Fort Benning is part of the Columubus-Phenix City Metropolitan Statistical Area. The MSA may be designated as non attainment for PM 2.5 in early 2005 under the proposed Interstate Air Quality Rule, but this designation has not yet been determined.

3.5.2 Air Emissions

Fugitive Dust is particulate emissions released from sources that do not have a pinpoint exit such as a stack or vent. Examples are an uncovered truck bed, or train car, or emissions caused by vehicles traveling over an unpaved road. The letter referenced above from Harold Reheis, GA EPD, April 2003, gives relief during military training and exercises, but not for other activities such as construction. Fugitive Dust is of a concern during the construction phase of the project. The Georgia Rule for Air Quality (391-3-1.02(2)(n) suggests several ways to mitigate for fugitive dust for activities not related to military training. Fort Benning's Title V Permit contains sections on Particulate Emissions and Visible Emissions. The Title V section Particulate Emissions states the exact wording as the GA Rules for Air Quality 391-3-1.02(2)**(e)** Particulate Emissions for Manufacturing Processes except for the section title.

The General Conformity Rule has been promulgated by EPA to ensure that the actions of federal departments or agencies conform to the applicable SIP. The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors that are caused by a federal action. If the Metropolitan Columbus Area were designated as non-attainment for ozone, this action would require evaluation of nitrogen oxides (NO_X) and VOC emissions under the General Conformity Rule. However, such an evaluation is not currently required. The CAA also requires states to implement a Title V permitting program, which is enforced in Georgia by the GA EPD. Fort Benning was issued a Title V permit effective June 13, 2003 (#9711-215-0021-V-01-0), that provides limits for various source emissions. This permit contains conditions for several boilers, test cell operations, fuel tanks, paint booths, and other various emissions sources.

A Risk Management Plan for a worst-case scenario of a chlorine release from Fort Benning's water treatment plant indicated the proposed action site would be impacted since it is located within, although on the fringe of, a 1.3-mile impact circle. The water treatment plant is located approximately 1.2 miles west of the proposed action site (Gustafson 2000a).

A radon gas survey was not performed at the Alternative 7 site as part of this EA. However, the EPA Map of Radon Zones and the Environmental Data Resources, Inc. (EDR) Report indicate the project area is in an area of low potential. Furthermore, in 1993 Fort Benning hired Vail Research and Technology Corporation to conduct radon monitoring for the Army Radon Reduction Program (ARRP). Only three of the 2,681 Alpha Track Monitors resulted in readings above 4 picocuries per liter (pCi/L). Two of the three readings were from "spike detectors." The third had a reading of 7.3 pCi/L. A memorandum dated March 18, 1993, stated that because only one of the tested Alpha Track Monitors resulted in a level above the original threshold and that all results were overwhelmingly below the revised level (of 4 pCi/L), it was recommended that the Fort Benning ARRP be closed with no further action required. Fort Benning requested that EPA release them from further testing. EPA never responded, therefore, the Installation ceased any further testing (Gustafson 2000b).

3.6 Earth Resources

3.6.1 Geology

Fort Benning lies within the Fall Line, which extends approximately from central Alabama to southern New York and serves as a linear transition zone between the higher Piedmont Physiographic province to the north and west and lower Coastal Plain physiographic province to the south and east. The Fall Line Hills are characterized by fairly deep valleys forming a valley, ridge, and plateau system ranging in altitude from 100 to 200 feet above sea level (ASL). These hills define the rim of the Chattahoochee basin. The Fall Line Hills elevation within Fort Benning ranges from 190 to 735 feet ASL. Two land-form types make up the Installation: low plains and high plains. The low plains are defined as flat to gently rolling in floodplain areas and gently to moderately rolling elsewhere (Herrick and Vorhis 1963).

The preferred site of the proposed action (Alternative 7) is situated at the juncture of the Eutaw and Blufftown Formations. The Eutaw Formation predominates in the form of short, steep outcrops along the streams draining into Upatoi Creek. This Formation consists of a basal course sand overlain by a dark gray, soft siltstone or shale that is interbedded with fine white sand. Gully erosion can be severe in this area especially if slopes are modified and vegetation is removed. Conversely, the Blufftown Formation exists on higher elevations and to the south of the preferred site of the proposed

action. This formation consists of alternating beds of sand and sandy clay overlying cross-bedded coarse sand (USDA 1997). No rock outcrops were observed on the preferred site of the proposed action.

3.6.2 Soils

The Alternative 7 (preferred) site is subdivided into two distinct soil classifications. Soils in the northern half of the preferred site fall within the general classification of Troup-Cowarts-Nankin with the predominant soil on site being Nankin Sandy Clay Loam. Soils covering the southern half of the preferred site are Ruston Sand. The site consists predominantly of Ruston Sand and a small amount of Ruston Sandy Loam (at the eastern corner of the facility; Fort Benning Land Management Branch 2000). Ruston series soils consist of very deep, well-drained, moderately permeable soils. On the preferred alternative site, they are comprised of a surface layer of loose to firm, fine to medium sand overlaying a loose to very dense, fine to coarse sand. These sand layers are from 10 to 20 feet deep (Hill-Staton Engineers 1999). Groundwater depth in the area is from 11 to 14 feet below existing ground surface, as determined by soil borings (Hill-Staton Engineers 1999). Additional soils data can be obtained from the soil survey (USDA 1997).

3.7 Infrastructure/Utilities

This section evaluates the demand and distribution methods for infrastructure and utility systems on Fort Benning. It should be noted that the Fort Benning water treatment and supply facilities are in the process of being privatized to Columbus Water Works. Fort Benning will retain ownership of the underlying lands; however, the ownership, operation, and maintenance of the buildings, systems, and associated water and wastewater facilities will become the responsibility of Columbus Water Works.

3.7.1 Stormwater Drainage

Stormwater discharge in the Main Post districts of Fort Benning drain directly into the Chattahoochee River through a system of drain pipes. Other stormwater drain systems on the Installation include the Harmony Church area, which drains into Mill Creek and Harps Pond; the Sand Hill area, which drains into Upatoi Creek; and the training compartments, which drain directly or indirectly into Upatoi Creek, Uchee Creek, and/or the Chattahoochee River. Fort Benning maintains a Stormwater Pollution Prevention Plan (SWPPP) that establishes best management practices (BMPs) for controlling and preventing siltation and other contaminants associated with

construction and industrial activity sites from reaching Fort Benning and surrounding area surface waters.

3.7.2 Potable Water

As of October 2004, the Columbus Water Works (CWW) is the owner and operator of the water and wastewater systems at Fort Benning. Fort Benning's raw water source is Chattahoochee River. The withdrawal permit associated with the drinking water treatment plant is limited to 12 million gallons per day (mgd) and an average monthly withdrawal of 10 mgd. Upatoi Creek flow data indicates that the minimum flow during the dry season is 121 mgd for the month of October. Therefore, it is determined that Fort Benning's use totals only approximately 10% of the recorded low flows for Upatoi Creek.

Raw water is pretreated with chlorine dioxide, alum and lime for coagulation, phosphate, and fluoride. Fort Benning has the capacity to meet current and projected future water demands. Total water reserves for the Installation are approximately two days (Wilkins 2000). Treated water is distributed throughout Main Post, Kelley Hill, Sand Hill, Harmony Church, and housing areas via a network of lines ranging in diameter from 3 to 20 inches.

3.7.3 Wastewater and Water Reclamation

As of October 2004, the Columbus Water Works (CWW) is the owner and operator of the water and wastewater systems at Fort Benning. There are two wastewater treatment plants (WWTPs) that serve the entire Installation with a combined capacity of 16 mgd. One WWTP is a filter sedimentation plant. The second WWTP has an average monthly capacity of 10,000 mgd. Current demand is approximately 7.5 mgd. Demand increases during the summer months to approximately 8 to 10 mgd. Approximately 95,000 gallons per month of anaerobically digested sewage sludge is land applied at ten locations on the Installation.

Both WWTPs discharge to the Chattahoochee River and operate under one National Pollutant Discharge Elimination System (NPDES) permit issued by GA DNR. The NPDES permit establishes wastewater pollutant limits allowed for release to the environment. Fort Benning has no problems meeting these discharge limits from its industrial facilities.

3.7.4 Solid Waste Management

Fort Benning generates un-compacted solid waste at an estimated rate of 1,200 to 1,500 tons per month. The Installation does not have a permitted sanitary landfill in operation. Currently, all Fort Benning sanitary waste is transported to a state-permitted facility located off the Installation. Three

approved inert landfills are on the Installation; however, only one is currently in operation. These landfills are designed to accept only inert materials, such as fallen limbs and trees, concrete (free of lead-based paint), and cured asphalt. In addition, several closed landfills are located on the Installation; however, none are near the proposed action site or any of the alternative sites.

Recycling reduces disposal cost, conserves natural resources and minimizes environmental problems associated with land disposal. Fort Benning's policy on recycling is governed by the June 11, 2003, Policy Memorandum 200-1-8, entitled "Qualified Recycling Program." Under this policy, recyclable materials generated by contractors must be turned in to the Installation Defense Reutilization Marketing Office (DRMO) and the Materials Recovery Facility (MRF) for processing.

3.7.5 Transportation Systems

Fort Benning is served by several major thoroughfares including I-185 leading from the City of Columbus, U.S. Highway 27/280, which runs east/west, and Fort Benning Road located west of I-185. Primary highway access to Fort Benning is via I-185 from the north near its intersection with Highway 27/280.

A network of primary and secondary roads provides access to and from the Alternative 7 site via Marne Road from the west, and Dixie Road, 1st Calvary Division Road, and First Division Road from the south and southwest. Traffic congestion in the area of the Alternative 7 site is minor and primarily associated with hospital and consumer traffic.

Traffic conditions on Fort Benning have been impacted by the events of September 11, 2001. For instance, until recently, Fort Benning has been an "open post." The events of September 11, 2001, resulted in a high level of security for the Installation and access was limited. The number of entry points into the Installation was limited and plans are underway for permanent structures (i.e., traffic islands, fences, gates, and guard houses at seven existing entry points). Portions of the Installation are considered off-limits and are gated or secured in some manner.

3.7.6 Public Safety

Police and security services at Fort Benning are provided on a 24-hour basis by both military police and civilian personnel. Four fire stations serve Fort Benning, including an aircraft and helicopter crash rescue unit. Emergency services are provided through Martin Army Hospital (Fort Benning 2003a). A fire reporting communications system is operated by the Fort Benning Fire Department. An E-911 (enhanced) public emergency reporting system is in place for the Fort Benning/Columbus area. This system allows emergency responders to immediately locate the origin of any emergency call received by the control center.

The construction of the new shopping center may involve the use of heavy machinery and involve some safety risks to personnel working and/or monitoring these activities. As with all work on Fort Benning, OSHA requirements and other applicable worker safety regulations must be followed. Appropriate measures would be taken to limit unauthorized persons from accessing the construction site.

3.7.7 Electrical Systems/Natural Gas

Electricity

Georgia Power furnishes electrical services to Fort Benning via a distribution system owned by Flint Electrical Membership Corporation (Flint EMC), whom will be incorporated into the distribution list of this EA. Transmission lines at the Installation have a carrying capacity of approximately 80 megawatts. Peak demand for electrical power usually occurs in July or August and averages about 53 megawatts. Future increases in electrical energy needs are considered to be well within the capacity of the existing system. In addition, approximately 49 emergency generators exist at the Installation (URS Group, Inc. [URS] 2003).

A transmission corridor owned by Flint EMC also runs northeast/southwest along the southern portion of the preferred alternative site. The corridor is approximately 20-feet wide and encompasses approximately 5 acres. Flint EMC owns the distribution system; however, the land is government-owned. It is not anticipated that the corridor would impact the construction of the proposed shopping center, however, the corridor may need to be moved to an alternate location. Relocation of this transmission corridor would be coordinated by Flint EMC and Installation personnel.

Natural Gas and Propane

Natural gas service is provided by United Cities Gas via a government-owned pipeline distribution system. Approximately 80 miles of gas distribution lines exist at the Installation. Fort Benning is currently consuming approximately 835,000 hundred cubic feet (hcf) of natural gas per year with approximately 110,000 hcf of natural gas per year remaining. Propane is used regularly at Fort Benning with deliveries being made year-round. Consumption of propane in 1999 accounted for approximately 669,000 gallons (URS 2003).

Energy Conservation

In 1994, the President, by EO 12902 (superceded by EO 13123), set a FY2005 energy reduction goal for DoD installations of 30% and a 35% reduction goal by FY2010. To establish an objective comparison of energy consumption patterns between installations, Training and Doctrine

Command (TRADOC) adopted the concept of stationary consumption. One thousand (1,000) British thermal units (MBTU) per thousand feet of building floor space are the units chosen for consumption of electricity and heating/cooling fuels. The EMC incorporates conservation components into new construction projects; retrofits older buildings and residences with energy efficient lighting, heating and insulation; and implements a public awareness program. The design of new facilities incorporates energy conservation features, such as building insulation, low-energy lighting, efficient heating and cooling systems, energy-saving water heaters and appliances, and optimum use of natural ventilation and lighting. Since the TRADOC energy reduction program began in FY1992, Fort Benning has achieved reductions in energy consumption equal to 12% below the most recent EO standard for the year 2000 goals (URS 2003).

3.8 Hazardous Materials and Wastes

The Installation maintains a Hazardous Waste Facility Permit (Resource Conservation and Recovery Act [RCRA] Part B) No. HW-021 (S)-2 and Facility ID No. GA3210020084). The Installation also maintains an Installation Hazardous Waste Management Plan (IHWMP) that establishes the implementation methods for the plan and identifies seven hazardous waste generating sources on the Installation. Each type of hazardous waste is identified with a plan for collection, storage, and disposal.

The Installation operates under the SPCC plan for all facilities where hazardous materials are stored. The SPCC delineates measures and practices that require implementation to prevent and/or minimize spill/release from storage and handling of hazardous materials to protect ground and waters surfaces. Basic best management practices (BMPs) for pollution prevention will include monitoring of storage areas, secondary containment, and loading/unloading areas to ensure that products are not spilled during the construction and operation of the facility. These measures will ensure the protection of soil and water resources.

No recognized environmental conditions were identified for the preferred alternative site based on a site reconnaissance, telephone interviews, review of historical aerial photographs; and review of regulatory agency database listings. In addition, there are no records of contamination being found in samples from a groundwater monitoring well previously installed at the Alternative 7 site. No hazardous materials are used, nor generated, at the preferred site.

3.9 Biological Resources

This chapter describes the existing biological features at Fort Benning and provides a description of biological resources on the preferred alternative site. The following discussion is based on a review of available literature, information provided by environmental personnel at Fort Benning. In addition, information on threatened and endangered flora and fauna was received from the GA DNR Natural Heritage Program (NHP).

3.9.1 Vegetation

Fort Benning is included within the broad, oak-hickory-pine forest area of the southeastern United States. Changes in agriculture and forestry practices and land ownership over the past 150 years have contributed significantly to a change to a predominantly coniferous or coniferous/deciduous mixture. Fort Benning vegetation consists of approximately 16,000 acres of maintained lawn and grassed areas; 3,000 acres of open land and old fields (shrubs and herbaceous plants); and, approximately 161,000 acres of woodland. Loblolly (*Pinus taeda*) and longleaf pine (*Pinus palustris*) are the principal conifers on the reservation and comprise approximately 64,000 acres of woodlands. The remaining 97,000 acres of woodland are comprised of approximately 21,000 acres of mixed pine and hardwoods and 76,000 acres of hardwood forest.

A limited survey of habitats present on the preferred alternative site performed by an AAFES consultant concluded that the site is predominated by two vegetation communities. These communities include hardwood forest on the hillsides adjacent the intermittent streams and approximately 34 acres of pine and mixed pine stands greater than 30 years old near the central plateau.

The stand of widely spaced short-leaf pine (*Pinus echinata*) and loblolly pine that dominates the central plateau has an herbaceous understory maintained through the use of controlled burning. Common species observed in this community include bluestem (*Andropogon virginica*), barnyard grass (*Paspalum spp.*), panic grasses (*Panic sp.*), goldenrod (*Solidago sp.*), asters (*Astor sp.*), daisy fleabane (*Erigeron* sp.), lespedeza (*Lespedeza sp.*), and dewberry (*Rubus* sp.).

The slopes descending from the plateau to the intermittent streams are primarily middle-aged mesic oak-hickory forest. Common overstory species growing in this community include southern red oak (*Quercus falcata*), red oak (*Q. rubra*), white oak (*Q. alba*), water oak (*Q. nigra*), hickory (*Carya sp.*), flowering dogwood (*Cornus florida*), sugar maple (*Acer saccharum*), sourwood (*Oxydendrum arboreum*), and sweetgum (*Liquidambar styraciflua*). Minor components of the overstory are loblolly pine, blackcherry (*Prunus serotina*), American beech (*Fagus grandifola*), and near the summit, post

oak (*Q. stellata*). Understory species observed were blueberry (*Vaccinium sp*.), greenbrier (*Smilax rotundifolia*), muscadine (*Vitus rotundifolia*), and scattered grasses (*Chasmanthium sp*.).

3.9.2 Wildlife

Fort Benning is inhabited by approximately 345 species of wildlife (FEIS 2002). These species include 152 species of birds, 47 species of mammals, 47 species of reptiles, 24 species of amphibians, 67 species of fish, and 8 species of mussels (shellfish) (INRMP 2001).

State and/or Federal laws protect many species of wildlife. Harvest of game species, such as white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), bobwhite quail (*Colinus virginianus),* rabbits (*Sylvilagus sp*), catfish (*Ictalurus sp*.), and largemouth bass (*Micropterus salmoides*), is regulated by Installation personnel, GA DNR, Alabama Department of Conservation and Natural Resources, and the United States Fish and Wildlife Service (USFWS). Federal and state laws are addressed in United States Army Infantry Center (USAIC) Circular 200-3-1 "Hunting Seasons and Bag Limits" and USAIC Regulation 200-3-2 "Hunting and Fishing Regulation." Specific requirements for protection of some species of wildlife on Fort Benning (such as the red-cockaded woodpecker [RCW] and gopher tortoise) are contained in USAIC Regulation 210-4 "Range and Terrain Regulation."

The Alternative 7 (preferred) site provides cover and forage habitat to support various species of mammals, birds, reptiles, and amphibians common to Chattahoochee and adjacent counties. Due to the lack of permanent streams or other waterbodies on site, fish and mussels are not likely to inhabit the site. Common mammals that likely utilize the site are white-tailed deer, Eastern grey squirrel (*Sciurus carolinensis*), Eastern cottontail (*Sylvilagus floridanus*), bobcat (*Lynx rufus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and coyote (*Canis latrans*).

Bird species likely to inhabit or utilize the preferred site are American crow (*Corvus brachyrhynchos*), blue jay (*Cyanocitta cristata*), Carolina chickadee (*Parus carolinensis*), dark-eyed junco (*Junco hyemalis*), northern cardinal (*Cardinalis cardinalis*), northern flicker (*Colaptes auratus*), northern mockingbird (*Mimus polyglottos*), red-shouldered hawk (*Buteo lineatus*), woodpeckers (*Picoides* spp.), sparrows, and warblers. Game birds either observed directly or indirectly on site during November 2000 were mourning dove (*Zenaida macroura*) and Eastern wild turkey (*Meleagris gallopavo*).

Reptiles and amphibians likely to inhabit the site include the eastern garter snake (*Thamnophis sirtalis*), rat snakes (*Elaphe obsoleta*), eastern box turtle (*Terrapene carolina*), green anole (*Anolis carolinensis*), skinks (*Eumeces* spp.), and toads (*Bufo* spp.).

3.9.3 Threatened and Endangered Species

Ninety-six (96) species (four amphibians, eight birds, seven fishes, four mammals, four mussels, nine reptiles, and 60 plants) of conservation concern are located on Fort Benning. Army installations must be sensitive to those species that are listed as endangered or threatened under State law, but that are not Federally listed (AR 200-3). State-listed species are not protected under the Endangered Species Act (ESA); however, whenever feasible, the Installation cooperates with State authorities in an effort to identify and conserve state-listed species.

Five Federally listed, threatened, and endangered species occur on Fort Benning. These include the Red-cockaded woodpecker (E), Wood stork (E), Bald eagle (T), American alligator (T [S/A], in which S/A = due to similar appearance), and Relict trillium (E). The RCW is the only Federally protected species known to occur in the vicinity of the preferred alternative site.

Red-Cockaded Woodpecker

The RCW (*Picoides borealis*) was placed on the Federal list of endangered species in 1970. The reasons for its protected status included species rarity, documented declines in local populations and reductions in available nesting habitat. Although populations have become more fragmented and isolated, the RCW is rather widely distributed. The species is still found in all Southern and Southeastern Coastal States from eastern Texas into southern Virginia, and small interior populations are found in southeastern Oklahoma and southern Arkansas, and until recently, southeastern Kentucky. The largest populations are in the Coastal Plain forests of the Carolinas, Florida, Georgia, Alabama, Mississippi, Louisiana, eastern Texas, and in the Sandhills forests of the Carolinas (USFWS Biological Opinion, 1999).

As of August 2003, there are three active, three inactive, and one (planned) recruitment RCW cluster and 387.11 acres of suitable habitat in the vicinity (1/2 mile radius from range) of Alternative I, Hastings Range; nine active, three inactive, and seven recruitment RCW clusters and 1,946.75 acres of suitable habitat in the vicinity of Alternative II (Compartment K21); and seven active, three inactive, and five planned recruitment RCW clusters and 1,033 acres of suitable habitat in the vicinity of Alternative III (Compartment D13) (personal communication, Doresky, 2003). A recruitment cluster is created by the Installation personnel through the use of artificial inserts to attract RCWs into the area, with the hopes of establishing an active cluster. RCW surveys are updated annually and a supplemental survey would be required prior to any construction activities at either of the two action alternatives, Alternatives II and III.

The RCW is the most prominent Federally endangered species on the Installation. The RCW is known to coexist with humans and their activities and, through proper management, this species is compatible with the majority of the Installation's training and operations and maintenance activities. Fort Benning has one of the largest RCW populations in the southeastern United States. The RCWs are well dispersed over the entire Installation, except that no active clusters are located on the Alabama portion of the Installation. In September 1994, The United States Fish and Wildlife Service (USFWS) issued a (Jeopardy) Biological Opinion (JBO) against the Installation that determined the ongoing military training and related activities at Fort Benning jeopardized the continued existence of the Installation's RCW population. Since that time, intense efforts were implemented to enlarge the endangered species staff at Fort Benning and to greatly enhance management activities needed to remove the jeopardy status as outlined in the Reasonable and Prudent Alternatives section of the USFWS' 1994 Biological Opinion.

On September 27, 2002, the USFWS approved Fort Benning's Endangered Species Management Plan (ESMP) for the RCW and issued a Biological Opinion (BO) that included specific management activities. This relieved Fort Benning of the 1994 JBO and allowed the implementation of the "1996 Management Guidelines for the RCW on Army Installations." Fort Benning is also one of 13 primary core locations selected by the USFWS to manage for a RCW recovery population (451 clusters for Fort Benning). Presently, Fort Benning has a total of 311 manageable RCW clusters (251 active and 60 inactive, as of 2003). There is an additional estimate of 43 active and 1 inactive clusters in ordnance impact areas A20 and K15.

The Alternative 7 site is potential foraging habitat for the Federally endangered RCW. Fourteen (14) RCW trees associated with abandoned cluster AA-01 are present on the site; this site has been inactive for more than 10 years and was deleted from management in 1998 (Brent 2000). The area is not foraging habitat for any currently active clusters and is not in the foraging circle for any inactive clusters (the normal foraging range for RCW is 0.5 mile [USFWS 1989]). The nearest active cluster is approximately 1.5 miles southeast of the preferred site and the nearest inactive cluster is approximately 1 mile to the southwest. The nearest planned recruitment site is located approximately 1 mile southeast of the Alternative 7 site.

3.10 Cultural Resources

Historic properties are protected by a variety of laws and regulations, including the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), the American Indian Religious Freedom Act (AIRFA), and the Native American Graves Protection and Repatriation Act (NAGPRA). Section 106 of the NHPA and implementing regulations (36 CFR 800)

outline the procedures to be followed in the documentation, evaluation, and mitigation of impacts for historic properties. The Section 106 process applies to any Federal undertaking that has the potential to affect historic properties. Projects that require Federal funding or are subject to Federal regulation also are subject to the Section 106 process, and ensuring compliance with the process is the responsibility of the relevant Federal agency. Due to time and resource constraints, project proponents usually fund and contract for the actual work to be done, and the Federal agencies do the formal consulting required by the regulations.

The GA DNR Historic Preservation Division (GA HPD) and sometimes the Advisory Council on Historic Preservation (ACHP) must be consulted regarding impacts to cultural resources and means to mitigate the impact. Once resources have been identified, and impacts defined, mitigation measures are determined. Depending on the resources encountered, Federally recognized American Indian Tribes may also be consulted, with whom Fort Benning consults.

The area of potential effect (APE) is the geographical area or areas within which an undertaking may cause changes to the character or use of historic properties. Under Alternative 7 (the preferred alternative), the preliminary APE has been defined by AAFES as an approximate 18.25-acre parcel located north of the existing PX facility on Fort Benning.

The purpose of this assessment is to identify whether known archaeological sites and historic structures are within the APEs, and to assess the potential for unidentified cultural resources to exist in the APEs. The assessment included a site visit to confirm expectations with regard to environmental and cultural settings, review of archaeological survey reports completed for the area, and consultation with Dr. Chris Hamilton, Fort Benning Archaeologist, regarding known resources on the Installation. Coordination with the State Historic Preservation Officer (SHPO) has been completed. The SHPO concurred that the preferred alternative would not affect any resources eligible for listing on the National Register of Historic Places (NRHP; see Appendix B).

3.11 Land Use

Fort Benning is the site of training, administrative, and residential activities, as well as associated land management activities. Fort Benning's Land Use Plan establishes both current and future land use activities on the Installation. Fort Benning is divided into five land management units (LMUs): Main Post, Sand Hill, Kelly Hill, Harmony Church, and housing areas. These five LMUs are divided into 31 training areas. These training areas are further subdivided into training compartments, ranges, impact zones, drop zones, exclusion areas, cantonment areas, and recreation areas. Combined, the cantonment and family housing areas occupy approximately 8% of the Installation. A 1,095-acre recreation area is also located along Uchee Creek on the western bank of the Chattahoochee River.

Main Post, adjacent to South Columbus, is the largest and most developed of the cantonment areas, containing the Installation Headquarters, the Infantry School, and the barracks complex known as the Cuartels. Main Post includes Lawson Army Airfield, Martin Army Community Hospital, the Post Exchange, the Commissary and various family housing areas. Sand Hill contains barracks, dining facilities, classrooms, and other facilities for training. Kelley Hill, contains barracks and support facilities. Harmony Church contains semi-permanent barracks and support structures. An active program is underway to eliminate some of these structures for the reuse of formerly occupied areas for land reclamation (forestry) and other uses, such as Major Construction, Army (MCA) and other projects (URS 2003).

Field training activities occur on about 104,000 acres of the Installation. Activities include the movement of personnel through wooded and open areas on foot, movement of wheeled vehicles on dirt and gravel roads, and the establishment of bivouac sites. Activities conducted by the mechanized infantry and tank units at Fort Benning are limited by the amount of suitable terrain to support movement of heavy vehicles. Armor, artillery, and mortar firing occurs from established firing points at three major range areas on the Installation: the Alpha Range Complex, Malone Range Complex, and Oscar-Kilo Range Complex. Fire is directed toward controlled-impact areas covering approximately 59,000 acres. Other weapons fired at the ranges include miscellaneous rifles, pistols, anti-armor, and automatic weapons, as well as special training devices that electronically simulate the firing of weapons systems at targets. Other activities related to military training include training in the operation and maintenance of vehicles, academic military training, and physical training.

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4 Environmental Consequences

4.1 Introduction

This chapter presents an analysis of the potential environmental consequences of each alternative on potentially affected media. The analysis is separated into effects resulting from the construction of the shopping center at the preferred site (Alternative 7), as well as the analysis of the No Action/Status Quo (Alternative 8). Cumulative impacts are also addressed for the additional actions proposed at the Installation. Threshold level of significance criteria are used to evaluate potential impacts are discussed at the beginning of each resource area.

4.2 Socioeconomic Resources

The threshold level of significance used to analyze impacts to socioeconomic resources is the potential of the project to result in a substantial population increase, to displace residents, or result in a substantial change in employment.

4.2.1 Alternative 7: Preferred Alternative Site

Demographics

Under Alternative 7, demographic compositions are expected to remain the same. Although the customer base would likely increase by approximately 2,000 persons at the new shopping center, these increases would likely result in no compositional changes of gender, age, or race (Taylor 2000a). Therefore, implementation of Alternative 7 would result in no effect to demographics.

Economy, Employment, and Income

The construction of the proposed shopping facility at Fort Benning would result in a slight positive effect to the economy, employment, and income for the Installation and income for the Installation and the surrounding areas. The proposed facility would employ approximately 190

people: 80% military dependent; 15% civilian; and, 5% active military. Because of the convenience of the Alternative 7 site location combined with the sale of tax-free goods, the customer base is expected to increase by approximately 2,000 customers per day (Taylor 2000a). Since most competing grocery and department stores are located approximately 6 to 7 miles away in the northern portion of Columbus, no effect would be expected on the local economy (Carveza 2000).

4.2.2 Alternative 8: No-Action Alternative

The no-action alternative would have no effect on demographic compositions; however, economic activity at Fort Benning would potentially be adversely impacted. The existing PX facility is highly congested and too small to adequately service the customer base; upgrades are needed to food concepts, mechanical equipment, and parking facilities. Fort Benning would likely be unable to meet future demands and, therefore, customers would likely shop elsewhere resulting in a loss of revenue for AAFES and Fort Benning. Ultimately, potentially resulting in the closure of the PX facility and the loss of jobs for those employed at the existing PX facility.

4.3 Water Resources

The threshold level of significance for water resources is the potential of the project to cause substantial changes in wetlands functions, groundwater or surface water flows, increased risk of flooding, and the potential to violate an applicable water quality standard for protection of fish and wildlife, or degradation of a water body used as a potable water source.

4.3.1 Alternative 7: Preferred Alternative Site

Surface Water

Construction of the proposed action at the preferred alternative site would result in the loss of natural vegetation and trees on approximately 18.25 acres. Because of the vegetation loss during construction activities, highly erodible soils located at the Alternative 7 site would be exposed and the potential for soil erosion and sedimentation to the unnamed tributaries and Hamlet Creek would increase. During construction activities, the contractor would be required to implement strict erosion-control measures to prevent increased erosion and sedimentation during construction in accordance with the Georgia general permit (GAR 100001). The provisions of the general stormwater permit require the following: 1) submission of a Notice of Intent (NOI) to GA EPD; 2) development of an erosion, sedimentation and pollution control (ES&PC) plan that describes BMPs to be implemented at a site (vegetative and structural); 3) implementation of a comprehensive monitoring program (CMP), which includes rainfall and stormwater discharge turbidity monitoring. The ES&PC and CMP must

be submitted to GA EPD, as well as the turbidity monitoring reports and a Notice of Termination (NOT) when construction is completed.

All on-site activities would be accomplished in accordance with the SWPPP. Implementation of the proposed action at the Alternative 7 site would include measures similar to existing stormwater BMPs at the PX and measures recommended in the SWPPP and would include BMPs to control erosion from entering nearby creeks and waterways. Surface drainage from all paved and landscaped areas would be routed to two separate detention areas that would mitigate storm surcharges and would aid in removing non-point source pollutants generated from stormwater runoff at the site. Project design would also include BMPs for control of surface drainage that could contain hazardous materials, such as oil and grease in accordance with the IHWMP.

The contractor and AAFES would also be required to prepare and implement an SPCC Plan during the construction and operation of the facility. The SPCC will delineate measures and practices that would be implemented to prevent and/or minimize spill/release from hazardous materials into water surfaces. Basic BMPs for pollution prevention would include monitoring of storage areas exposed to the elements to ensure that pollutants are not discharged into storm drains during the construction and operation of the facility. These measures would ensure the protection of water resources. Additionally, under the new MS4 requirements, the same BMPs would address water pollution from storage areas. All facilities within the food court would meet requirements to ensure that any above ground storage tanks for oil/grease management are properly managed and that they do not discharge directly into the storm drains. MS4 requirements would address possible sewage overflows and back ups that could reach waterways. Measures would also need to be implemented to ensure that these products would not interfere with the sanitary sewer disposal to be established under the CWW system.

BMPs and conditions of the NPDES permit would limit potential adverse impacts to surface water to minor adverse effects.

Groundwater

Construction of the proposed action at the Alternative 7 (preferred) site would be within an aquifer recharge area. All onsite construction and operation activities would be required to be in accordance with the Fort Benning SWPPP. Hazardous materials would be stored and disposed of in accordance with all local, state, and Federal laws and regulations, and the IHWMP; SPCC Plan; and Installation Spill Contingency Plan (ISCP). Surface drainage from all paved and landscaped areas would be routed to two separate detention areas that would mitigate storm surcharges and would aid in removing non-point source pollutants generated from stormwater runoff at the site. Project design would also include BMPs for control of surface drainage that could contain hazardous materials, such

as oil and grease in accordance with the IHWMP. BMPs and conditions of the NPDES permit would limit potential adverse impacts to surface water to minor adverse effects.

Wetlands and Floodplains

The implementation of the proposed action at the Alternative 7 site would result in adverse impacts to approximately 0.01 acres of wetlands and 26 linear feet of intermittent stream with some perennial streams, permanently converting these areas to improved land (shopping center footprint). These streams are considered to be waters of the United States and are protected by the State of Georgia in accordance with the Georgia Erosion and Sediment Control Act. According to the Georgia Department of Environmental Protection, road crossings and drainage structures are exempt from stream buffer protection requirements (Chambers 2004).

Ecology & Environment, Inc. provided a wetlands delineation report to the USACE for review and approval. Based on the findings of this report, the USACE granted the use of Nationwide Permit #18 (Appendix C) and did not require a Section 404 permit.

The use of this permit is allowed if and only if AAFES adheres to the following permit conditions:

- The activity is conducted in accordance with the information provided and meets the conditions applicable to the Nationwide Permit as described in Part C of the excerpt of the 67 FR and the attached copy of the Savannah District Nationwide Permit Regional Conditions.
- AAFES obtain a stream buffer variance, if required.
- The attached permit sheet is signed and returned 30 days prior to completion of the activity authorized by this permit.

The Alternative 7 site is located in Zone X, outside the 100-year and 500-year floodplain (Natural Resources Conservation Service 2000). Areas most likely to be inundated during a 100-year flood event are located within the vicinity of Lawson Field to the east of the Chattahoochee River, and a large area near the mouth of Uchee Creek southward to the west of the river.

4.3.2 Alternative 8: No-Action Alternative

Implementation of the no-action alternative would require no new construction activities on the Installation. Because there would be no construction activities, there would be no effect to surface waters, groundwater, wetlands or floodplains. However, the operation of the existing PX facility would continue to be performed in accordance with the Fort Benning SWPPP. Hazardous materials would be stored and disposed of in accordance with all local, state, and Federal laws and regulations, and the IHWMP; SPCC Plan; and ISCP. In addition, under a new assessment in accordance with the CWW and future MS4 requirements, the implementation of new BMPs would

provide additional protection against pollutants entering into sewer lines (sanitary and storm water) and degrading will improve water quality.

4.4 Noise

The threshold level of significance for noise is the potential to annoy or interfere with activities occurring at locations with sensitive receptors.

4.4.1 Alternative 7: Preferred Alternative Site

Construction

Under Alternative 7, sensitive receptors would experience temporary increases in noise levels during construction activities. Standard construction equipment would be used, including log chippers and shredders, bulldozers, front end loaders, pans track hoes, backhoes, graders, dump trucks, vibrating compactors, sheepsfoot compactors, trenchers, cranes, equipment repair truck, ready-mix trucks, concrete pumping trucks, curb and gutter machines, pavers, forklifts, and building material and equipment delivery trucks. Short-term noise effects would continue for approximately 20 months from the commencement of site work to the end of construction activities at the preferred site. Also, vehicular traffic noise would increase due to workers driving to the site and because an average of ten (maximum of 20) construction vehicles per day would visit the site (Beachler 2000). Adverse effects would be minimized by limiting construction activity to daylight hours and by using properly maintained and muffled equipment. Noise associated with implementation of the proposed action at the preferred alternative site would be limited primarily to construction and would represent a localized short-term adverse effect.

Operation

Noise from operation of the proposed action on the Alternative 7 site would be limited primarily to an increase in the number of vehicles in the area, including delivery trucks and patron traffic. Deliveries from trucks would be expected to increase from 10 to 15 per day, and an extra 2,000 patrons in addition to the 4,300 existing patrons, would be expected to visit the new shopping center per day (Taylor 2000b). This increase in vehicular traffic would have a corresponding increase in noise levels. Facility operating hours would be from Monday through Saturday, 9:00 a.m. to 9:00 p.m. and Sunday, 10 a.m. to 7 p.m, with the exception of a few shops that may maintain variable operating hours. Noise associated with operational activities would be limited primarily to circulation of vehicles, including truck deliveries, during the hours of operation. Compared to existing noise levels, the

noise levels from increased traffic activity would be expected to add a minimal increase to existing ambient noise levels within the project area.

4.4.2 Alternative 8: No-Action Alternative

Under the no-action alternative, existing noise levels would remain the same. Because the *status quo* would be maintained, adverse effects to sensitive receptors at Fort Benning would not occur.

4.5 Air Quality

The threshold level of significance for air quality is the violation of applicable Federal or state laws and regulations, such as the CAA, and the the potential for the project to be considered a major source of emissions as defined in 40 CFR 52.21 (total emissions of any pollutant subject to regulation under the CAA is greater than 250 tons per year [tpy] for attainment areas).

4.5.1 Alternative 7: Preferred Alternative Site

Long-term effects to the immediate project area would occur from emissions due to an increase in deliveries and customer vehicular traffic. Because the location of the expanded facility on Fort Benning would increase shopping convenience to AAFES customers; it is anticipated that both the total number of trips and average distance to shopping would be reduced. Thereby resulting in a decrease in total emissions. The preferred alternative site is contained within the footprint of the chlorine gas release worst-case scenario; however, the site is located on the fringe of a 1.3-mile impact circle. No long-term effects would result from implementing the proposed action on the Alternative 7 site.

However, the operation of heavy equipment would have minor, temporary negative effects on air quality during the construction phase. These negative effects would be primarily in the form of increased exhaust pollutants that can be minimized by good vehicle maintenance. Windblown soil and dust could also occur during the construction phase as a result of equipment movement over exposed soil areas. Fugitive dust can be greatly minimized by appropriate dust control measures, such as wetting the surfaces and by re-vegetating disturbed areas as soon as possible. Therefore, the primary short-term air quality impacts resulting from the proposed action would be a temporary increase of air pollutants during construction, which would cease when the project was completed.

Construction would take approximately 20 months to complete, although 12 months of construction is evaluated to estimate annual emissions. The construction activities considered in this evaluation include the operation of construction equipment and vehicles, site preparation (for

particulate emissions), and paving operations (for VOC emissions). The number and type of equipment would vary depending upon the amount and type of work being completed at the Alternative 7 site. The operation of construction equipment has been generalized, assuming that at any given time, one of each type of equipment would be operating, 5 days a week, 8 hours a day. Total estimated annual construction emissions for implementing the proposed action at the preferred alternative site are listed below in Table 4-1. Following the removal of marketable timber, remaining slash and vegetation debris would be removed via trucks and other heavy equipment prior to construction, no burning would take place under this alternative. The construction equipment, activities, emission factors and calculations are detailed in Appendix D.

Table 4-1
Total Projected Annual Emissions from Construction Activities
Fort Benning PX: Alternative 7 (Preferred Alternative)

Activity	Emissions (pounds/year)				
	NOx	VOC	CO	SO_2	PM_{10}
Equipment Operation	45.59	4.84	30.11	0.00	2.41
Demolition	0.00	0.00	0.00	0.00	0.00
Site preparation	0.00	0.00	0.00	0.00	1.54
Paving	0.00	0.19	0.00	0.00	0.00
TOTAL	**45.59**	**5.03**	**30.11**	**0.00**	**3.95**

Key:
CO = Carbon monoxide.
NO_x = Nitrogen oxides.
PM_{10} = Particulate matter (10 microns or less).
SO_2 = Sulfur dioxide.
VOC = Volatile organic compound.

Since emissions of all criteria pollutants are below the 250-tpy threshold, this action would not be considered a major source. In addition, VOCs and NO_X are below the *de minimis* standards established by the Conformity Rule, and therefore these emissions would not impact ozone concentrations in the area.

4.5.2 Alternative 8: No-Action Alternative

Implementation of the no-action alternative would result in no new construction activities. However, the existing PX/Commissary facility would continue to operate and would result in the same amount of air effects that exist. Therefore, there would be no change in existing conditions.

4.6 Earth Resources

The threshold level for earth resources (i.e., soils and topography, and geology) is any ground disturbance or other activities that would violate applicable Federal or state laws and regulations, such

as the Georgia Erosion and Sediment Control Act (ESCA), and the potential for Notices of Violation (NOV) for the failure to receive applicable state permits, such as NPDES construction permit under the ESCA, prior to initiating the proposed action. Construction of the proposed action at the Alternative 7 site would have both short-term and long-term adverse impacts to earth resources at Fort Benning, while the implementation of Alternative 8 would have no effect on soils, topography or geology resources.

4.6.1 Alternative 7: Preferred Alternative Site

At the Alternative 7 site, project development would require the removal of a large amount of vegetative cover, as well as some extensive grading over approximately 18.25 acres. Efforts would be made to preserve vegetation during construction activities to minimize soil disturbance on the preferred site. Topography changes on this site would require the use of fill from other areas of the site. No fill would be required from other areas of the base. No geologic features would be effected by the proposed action.

Short-term adverse construction impacts may result in a increase in soil erosion. Any increased exposure of the Nankin soils could result in the formation of gullies and a potential increase in erosion. Efforts would be made to minimize excavation in order to control erosion and soil runoff. Long-term adverse effects would be dependent on the level of exposure of the Nankin soils. If the overlying sands were preserved and all structures were kept an adequate distance above the clays, minimal impacts would be expected. All exposed clay surfaces would require grading and erosion-control measures. Construction directly on the clay soil could result in future problems, such as heavy erosion.

Adherence to the Erosion, Sedimentation and Pollution Control Plan (ESPCP) and NPDES permit would be required and would include measures to minimize impacts to soils, topography, and geologic features. As part of the NPDES permit, AAFES would be required to prepare, certify, and submit an ESPCP. Components of the ESPCP would include: project description, soil information, changes to existing contours, existing drainage patterns, best management practices and locations, detailed drawings, and a timeline for the completion of construction activities. Erosion controls and structures for this permit would likely be extensive due to the quality of the soils present at the preferred site and would be designed and implemented in accordance with the *Manual for Erosion and Sediment Control in Georgia*. Additionally, under the NPDES permit, SPCC Plan measures are required during construction activities to prevent and/or minimize spill/release from hazardous materials into ground surfaces.

4.6.2 Alternative 8: No-Action Alternative

Implementation of the no-action alternative would require no new construction or land disturbance activities on the Installation; therefore, no topographic resources, geologic features, or soils would be effected. Existing SPCC practices would remain in effect at the existing location and protection of land resources would remain the same or possibly improve in the future.

4.7 Infrastructure/Utilities

The threshold level of significance for infrastructure and utilities is the potential for project-related changes to create a substantial increase in demand for utilities and the capacity of these utilities to supply the additional demand, adherence to OSHA requirements, and adequate management of unauthorized access to the construction site.

4.7.1 Alternative 7: Preferred Alternative Site

Stormwater Drainage

Construction of the proposed action at the Alternative 7 site would result in the loss of natural vegetation and trees on approximately 18.25 acres. Because of the vegetation loss during construction activities, highly erodible soils located at the preferred alternative site would be exposed and the potential for soil erosion and sedimentation to the unnamed tributaries and Hamlet Creek would increase. During construction activities, the contractor would be required to implement strict erosion-control measures to prevent increased erosion and sedimentation during construction in accordance with the Georgia general permit (GAR100001). BMPs and conditions of the NPDES permit would limit potential adverse effects to surface water to minor adverse effects.

Potable Water Wastewater and Water Reclamation

An estimated 50,000 gallons per day (gpd) of water would be used for the proposed action (Beachler 2000). There is no water strain with existing demand or with projected demands. Approximately two day's worth of reserves exists for the Installation (Wilkins 2000). An existing 20-inch water main located on the Alternative 7 site would provide adequate domestic and fire protection supplies exist for the proposed additional construction (Beachler 2000).

The existing sanitary sewer and wastewater treatment system has the capacity to accommodate the estimated amount of wastewater to be generated by implementing the proposed action at the preferred alternative site. During construction, demand is expected to be 100 gpd during site work, 40 gpd during construction, and 50,000 gpd during regular operation. The Installation's withdrawal permit allows the withdrawal of no more than 12 mgd per day (Wilkins 2000). The

implementation of the proposed action at the Alternative 7 site would not result in an adverse effect to the sanitary sewer and wastewater treatment facilities.

Solid Waste Management

Solid waste generation would not change substantially as a result of construction of the proposed action. Because of the increase in permanent employees, estimated 2,000 new customers, and an increase in overall deliveries, there would be an anticipated increase in overall solid waste generation. However, recyclable materials generated during the operation of the new facility such as cardboard and paper would be recycled through participation in the on-post recycling program. This material may be disposed of on the Installation or removed from the Installation as determined by the construction contract. This would result in a minor adverse effect.

Transportation Systems

The threshold level of significance for transportation s is the potential to impact existing traffic flow, traffic volumes and/or existing traffic levels of service.

Construction Traffic

Construction of the proposed action at the Alternative 7 site would increase the volume of traffic slightly in the project area due to on-road use by construction equipment, construction workforce vehicles, and vehicles delivering construction materials and fill material. Approximately 25 trips maximum would be required on a daily basis for construction. Concrete trucks, crane, and dump trucks would be the largest loads on the roads. The size of the construction workforce and number of daily truck trips would vary during construction activities.

To minimize the minor negative effect to the transportation system, the contractor would implement the following measures:

- Provide adequate off-street parking for all construction workers to avoid increased congestion near roadsides;
- Encourage construction workers to carpool to the site; and
- Schedule truck trips at intervals over the entire working day, thus avoiding peak-hour traffic times.

Operations Traffic

The Alternative 7 site is located along I-185, which accesses the main gate; therefore, many of the vehicles expected to visit the proposed site would likely be vehicles that currently drive past this site. The increase in traffic due to implementing the proposed action at the Alternative 7 site is expected to be a small percentage of the total volume of traffic currently present in the area and is not expected to affect the current levels of service for adjacent roadways and intersections.

Public Safety

Adequate emergency services for fire, security, and medical care are available and no effects would be expected to occur under any of the alternatives. Construction site safety measures would include limiting access to the construction site to authorized personnel and ensuring that all workers adhere to safety standards established by Fort Benning and OSHA.

Electrical Systems/Natural Gas

Under the preferred alternative, there would be no adverse impacts to utilities. The new construction would use modern construction materials and new fixtures, which are considered to be better insulated and more energy efficient than those in many of the existing facilities on the Installation.

4.7.2 Alternative 8: No-Action Alternative

Implementation of the no-action alternative would require no new construction activities on the Installation. There would be no change in utilities or infrastructure as a result of this alternative since activities would continue per the status quo.

4.8 Hazardous Materials and Wastes

The threshold level of significance for hazardous materials and wastes is the potential to affect human health, safety, or the environment.

4.8.1 Alternative 7: Preferred Alternative

A hazardous waste assessment was conducted by an AAFES contractor in accordance with The American Society for Testing and Materials (ASTM) “Practice E 1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” (ASTM Practice) at the Alternative 7 site. This assessment concluded that there is no known history or evidence of the use, storage, or dumping of hazardous or toxic materials at the Alternative 7 site.

Construction of the proposed action at the preferred alternative site would require the use of heavy machinery that would require maintenance and fuel. Although maintenance would most likely be performed off-site and within an authorized service shop, the use of construction machinery could potentially introduce small quantities of solvents, cleaning agents, greases, oils, hydraulic fluids, and fuel (e.g., gasoline and diesel). Paints and adhesives would also be used on the site during project construction. Hazardous materials would be stored and disposed of in accordance with all local, state, and Federal laws and regulations, and the IHWMP; SPCCP; and Installation spill contingency plan

(ISCP). Hazardous materials, including retail-sized containers of motor oil, paints and solvents, would likely be stored at the site during operation of the new shopping center. However, these materials would be stored solely for retail sale and individual, off-site use by military personnel and their families. No significant quantities of hazardous materials would be used or stored on-site.

Basic SPCC requirements at the Installation delineate measures and practices that should be implemented to prevent and/or minimize spill/release from the storage and handling of hazardous materials to protect soil and water. Basic BMPs for pollution prevention will include monitoring of storage areas, secondary containment and loading/unloading areas to ensure that products are not spilled during construction and operation of the proposed action.

4.8.2 Alternative 8: No-Action Alternative

The no-action alternative would not result in any construction activities on Fort Benning. Any hazardous materials located on the existing PX site would be stored and disposed of in accordance with all local, state, and Federal laws and regulations, and the IHWMP; SPCCP; and Installation spill contingency plan (ISCP). In addition, basic SPCC requirements at the Installation would be implemented to delineate measures and practices that would prevent and/or minimize spill/release from the storage and handling of hazardous materials to protect soil and water. BMPs for pollution prevention would include monitoring of storage areas, secondary containment and loading/unloading areas to ensure that products are not spilled during construction and operation of the proposed action.

4.9 Biological Resources

The threshold level of significance for biological resources would include the potential for removal of available reproductive, foraging, and migration habitat within the project footprint; alteration of other local wildlife populations; taking of species that may be Federally or state-listed as rare, threatened, endangered, or species otherwise protected by law; taking of species otherwise uncommon in the region; or the destruction of habitat that supports these species.

4.9.1 Alternative 7: Preferred Alternative Site

Vegetation

Construction of the proposed action at the Alternative 7 site would require the removal of trees and shrubs from approximately 18.25 acres for the building, parking areas, access drives, stormwater retention basins. The majority of the site has a history of disturbance from soil removal and grading and past timber harvesting activities on the hardwood slopes. Construction of the project

would not significantly contribute to fragmentation of the existing forest habitat because the Alternative 7 site is located within a predominantly urbanized area (e.g., paved roads, shopping center, bowling alley, hospital, etc.) that supports the Installation personnel and their families.

Project design would include green areas, adjacent parking areas, existing roadways, and other unpaved surfaces. It is anticipated that these areas would be cleared of their existing vegetation and would be landscaped with native shrub and tree species. Site clearing activities has the potential to create erosion and sedimentation problems. Following BMPs as discussed in Section 4.3 "Surface Water" would minimize the adverse effect.

Wildlife

Implementing the proposed action at the preferred alternative site would result in the permanent loss of approximately 18.25 acres of habitat. The majority of the species that currently use the area have adapted to living in urban areas and co-existing with human activity. Many of these same species are mobile generalists that utilize a variety of interspersed/fragmented habitats, range over wide areas for food and cover, and/or are migratory and would use the site seasonally. Therefore, it is anticipated that most wildlife species would avoid the disturbance by relocating to adjacent minimally disturbed areas. Clearing of vegetation and earth-moving activities would result in some unavoidable mortality to burrowing and less mobile fauna. Overall, the clearing of vegetation would result in the loss of habitat for these species; however, because the footprint of the facility has been reduced, habitat would remain adjacent to the shopping center. This loss of habitat would result in a minor adverse effect.

Threatened and Endangered Species

Based upon the limited field survey, review of available information, and appropriate agency inquiry, no Federal-listed or proposed threatened or endangered species or their critical habitat would be adversely affected by constructing the proposed facility on the Alternative 7 site. Consultation with the USFWS regarding impacts to the potential RCW foraging habitat on the Alternative 7 site has occurred and is documented by the coordination letter (Appendix B).

The preferred alternative site is located outside the 0.5-mile foraging range of the nearest proposed RCW recruitment cluster. It is unlikely that implementation of the proposed action at this site, including removal of fourteen RCW trees, would adversely affect the continued existence of the RCW on Fort Benning.

4.9.2 Alternative 8: No-Action Alternative

Implementation of the no-action alternative would require no new construction activities on the Installation. Therefore, there would be no land disturbance or land clearing activities resulting in no effect to vegetation, wildlife, or threatened and endangered species.

4.10 Cultural Resources

The threshold level of significance for cultural resources includes the potential to disturb properties that are listed or eligible for inclusion on the NRHP, and the potential to disturb an area of traditional or religious archaeological importance, as well as the potential to violate applicable Federal laws and regulations, such as the NHPA, Archaeological Resources Protection Act, and others.

4.10.1 Alternative 7: Preferred Alternative Site

Under Alternative 7, AAFES would construct a new PX facility on approximately 45 acres of undeveloped property north of the current PX facility. Based on the recent field visit, and past studies conducted within the APE and in the area, it is unlikely that cultural resources would be impacted within or near the APE. Once the proposed PX facility is completed, Soldiers' Support Services would be relocated to the vacated, existing PX facility (Holloway 2000). Soldiers' Support Services is currently located in a group of World War II-era structures within an older part of the Installation. Once Soldiers' Support Services moves, the old structures formerly used by Soldiers' Support Services would be demolished (Holloway 2000). Because the destruction of these potential historic buildings is a direct result of the proposed action, it should be considered an indirect adverse effect of the project. The SHPO concurs with the assessment that the implementation of the proposed action would not affect any resources eligible for listing on the NRHP. The concurrence letter is presented in Appendix B.

4.10.2 Alternative 8: No-Action Alternative

Implementation of the no-action alternative would require no new construction activities on the Installation. No adverse effects have been reported during the operation of the existing PX due to the use of established Installation policies and guidelines; therefore, no effect on cultural resources is anticipated. No mitigation is proposed.

4.11 Land Use

The threshold level of significance to for land use includes evaluating consistency with land use plans, and compatibility with existing and future surrounding land uses.

4.11.1 Alternative 7: Preferred Alternative Site

Under Alternative 7, land use would be altered. The preferred alternative site is primarily designated as "family housing," with approximately 5% frontage of the site along Marne Road being designated as "open space" (Holloway 2000). The Alternative 7 site is currently undeveloped and wooded with the majority of the woodlands to the north and east and urbanized areas to the south and west. Construction of the proposed PX facility would result in a change of land use designation to "community." Approximately all of the 18.25 acres on the site would be cleared of trees. Existing peripheral trees would be preserved (Beachler 2000). On-site development would occur as described in Section 1.2 "Description of the Proposed Action." The proposed action under Alternative 7 would be located entirely within Fort Benning and would not present any conflicts with local or state land-use or zoning designations.

No adverse effects are anticipated from this proposed action, and use of the preferred alternative site would be compatible with surrounding land uses.

4.11.2 Alternative 8: No-Action Alternative

Implementation of the no-action alternative would require no new construction activities on the Installation. Therefore, there would be no effect on existing land use or land use patterns. No mitigation is proposed.

4.12 Environmental Justice

EO 12898 requires that any Federally funded project take into consideration whether the project would have a disproportionate, adverse affect on minority and/or low-income populations. Fort Benning does not contain substantial low-income or minority populations. One neighborhood consisting of single-family residences is within 0.75 mile of the Alternative 7 project site; however, this area is not considered a low-income or minority housing area. Fort Benning also has an Equal Opportunity/Affirmative Action unit that coordinates efforts to maintain a non-discriminatory environment at the Installation. Therefore, no adverse impacts to these populations would occur as a result of any of the possible alternatives. The project complies with the provisions of the EO.

Protection of Children from Environmental Health Risks and Safety Risks

Potential environmental health and safety risks to children as a result of implementing the proposed action at the Alternative 7 site were evaluated in accordance with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. Implementation of the proposed action would not result in a disproportionate risk to children from environmental health risks or safety risks. The proposed action or alternative site locations would include the introduction of hazardous materials to the site that would present a disproportionate risk to children.

4.13 Summary of Potential Direct and Indirect Environmental Consequences and Associated Mitigation

Table 4-2 below summarizes the potential environmental effects of each alternative, along with a summary of proposed mitigation, as applicable.

Table 4-2
Summary of Environmental Consequences and Mitigation

Affected Environment	Potential Effect/ Consequences	Proposed Mitigation Measures
Vegetation	θ	Adherence to existing Installation management practices for NPDES and SPCC. No additional mitigation is proposed.
Water Resources	*θ	Adherence to existing Installation management practices for NPDES and SPCC. No additional mitigation is proposed.
Wetlands & Streambanks	θ - Wetlands θ - Streambanks	Utilization of erosion control BMPs along with the continued coordination with the USACE in accordance with the requirements of the Nationwide Permit. No additional mitigation is proposed.
Federally Protected Species – RCW	⊗	No additional mitigation is proposed.
Socioeconomics	⊗	No additional mitigation is proposed.
Land Use	⊗	No additional mitigation is proposed.
Cultural Resources	⊗	No additional mitigation is proposed.
Utilities	⊗	No additional mitigation is proposed.
Noise	θ	No additional mitigation is proposed.
Air Quality	θ	No additional mitigation is proposed.
Public Health & Safety	⊗	No additional mitigation is proposed.
Hazardous Materials & Wastes	⊗	Adherence to existing Installation SPCC requirements. No additional mitigation is proposed.
Transportation	⊗	No additional mitigation is proposed.

Key:

⊗ = No Effect
θ = Minor adverse
(* beside a symbol indicates temporary effect, e.g., *θ is temporary minor adverse)

5 Cumulative Impacts

The CEQ defines cumulative impacts as the "impact on the environment that results from the incremental impact of the action(s) when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (CEQ 1978). The actions proposed under the alternatives in this EA, in addition to proposed projects in the Columbus-Phenix City area, have the possibility to result in either negative or positive impacts in a cumulative manner. These projects all occur within a well-defined and specific geographical (spatial) region of influence (ROI), which is defined in the following subsection; in addition, the projects are limited on a temporal basis since they all have the potential to be implemented within a 20-year period as indicated by the planning documents obtained for the individual cities, and therefore may increase the potential for cumulative effects. Each medium (such as air, water, wildlife, etc.) has a specifically defined ROI that may potentially be affected by the proposed projects and is individually addressed in the following paragraphs.

The overall ROI for the purposes of this EA consists of the northern portion of the Installation and the cities of Fort Benning and Columbus, Georgia, and Phenix City, Alabama. Individual ROIs have also been established for each medium; these ROIs may be larger or smaller in size than the overall ROI and are defined in subsequent sections.

Reasonably foreseeable future actions in the ROI are separated by city and are discussed below. Review of the *Final Environmental Impact Statement for the Construction, Operation and Maintenance of a Digital Multi-Purpose Range Complex (DMPRC) at Fort Benning, Georgia* was completed to assist with the identification of projects associated with Fort Benning and the ROI.

5.1 Reasonably Foreseeable Future Actions in the Fort Benning Community

The cities of Columbus, GA, and Phenix City, AL, are the sites of numerous residential developments, commercial/retail facilities, industrial activities, and recreational opportunities. The

ongoing projects with the potential to impact the ROIs are discussed below; each project is also identified on Figure 47 by its associated number. Two years ago, Columbus and Fort Benning completed a "Land Exchange," swapping two parcels of land, known as the North Tract and the South Tract, for which an EIS and ROD were prepared. Columbus is currently developing the North Tract (24) land conveyed to it, a 2,470-acre parcel located adjacent to the Fort Benning northwestern boundary line. Development of the North Tract will be primarily industrial, mixed with recreational land use. In exchange, Fort Benning received the South Tract land (32), a 2,536-acre parcel located at the southernmost end of the Installation, which is currently being utilized by the Installation for training and land management (reforestation and habitat restoration) purposes; future use of the South Tract may also include land-navigation training.

The installation of Anti-Terrorist/Force Protection Measures (10-16) is a currently occurring project on Fort Benning and consists of the construction of an enhanced physical security perimeter barrier around the Installation's four cantonment areas to include either fence, guard rail, or utilization of existing natural barriers, such as streams and steep ridges, and construct permanent access control points (ACPs) at the Installation's seven entry points. Drainage for perimeter roads and erosion control measures will be required, in addition to protective lighting at the seven ACPs. An EA and FNSI were prepared for this project and are available for review at the EMD. Approximate size of the overall project area is 20-25 acres.

In Columbus, safety improvements to the Highway Interchange at I-185/US 280 (to the north of Fort Benning) (28) are currently underway and consist of reconstructing the interchange at I-185 and US 280. Safety improvements also include removing and replacing guardrails and possibly installing medians (29) along 10.5 miles of US 280. Approximate size of the overall project area is 5-10 acres.

5.2 Reasonably Foreseeable Future Actions Within the ROI

5.2.1 Fort Benning Community

There are several construction projects planned for implementation on Fort Benning proper during the same time frame as this EA. Some of the projects have been previously identified in the Installation's Master Plan and have been preliminarily assessed for environmental impacts via the REC process; however, each project is still pending final approval and subsequent compliance with NEPA, except as indicated below. The projects determined to have the potential to impact the ROIs

are listed below. Fiscal Year (FY) refers to the period between 1 October and 30 September of each year and is the time period the Army uses for budget phases.

- Barracks Replacement, Kelley Hill, Phase III (FY05) – Work would consist of the demolition of existing buildings (9043, 9046, 9047, 9053, 9054, 9055, 9057, 9058, and 9074), the construction of new facilities, and landscaping around the new facilities in the Kelley Hill area of Fort Benning. Approximate size of the overall project area is 10-15 acres.
- Army Transformation at Fort Benning (FY04) - The 3rd Infantry Division will undergo major reorganization to a future force (U.S. Army Transportation Roadmap, 2003, General Schoomaker). While implementation planning is in process and details are not yet known, it is expected that the Division's three Brigades would be divided into five smaller units. The timing of this transformation is not currently known. Updates on the Army Transformation effects on the 3rd Brigade will be provided when available and in future related documents. While no plans currently exist that would affect any of the other units at Fort Benning, the Installation must prepare for this contingency and comply separately with environmental planning requirements.
- Modularity Program (FY04 or 05) – Work will consist of the development of a Unit Action Complex on Fort Benning for the placement of modular buildings in support of additional personnel. The complex would include site development, construction, and utility connections and distribution. It is not known if this complex will be built at either Fort Benning or another Installation at this time; therefore, the tentative placement site of the Harmony Church cantonment area is not indicated on the map. However, preliminary analysis and siting is occurring in readiness for if/when Fort Benning is chosen to receive this construction and additional personnel. Approximate size of the overall project area is 30-35 acres.
- FY03 Barracks Project (starting in FY04) – Work will consist of the construction of a new barracks complex along Dixie Road, Main Post, Fort Benning, GA. The new barracks would be located across from the existing Easley and McAndrews ranges. The project would also include the demolition of six existing buildings. Approximate size of the overall project area is 30-35 acres.
- Barracks and Tactical Equipment Shop Projects (FY05-07) – Work would consist of the construction of additional barracks and tactical equipment shops across from existing ranges (beyond Easley and McAndrews ranges) along Dixie Road. These projects are currently in the design phase only. Approximate size of the overall project area is 15-20 acres.
- Receptee Barracks (FY07) – Work would consist of the construction of additional barracks, a dining facility, soldiers' community center, and physical training building with a running track at Sand Hill. The project would also include the demolition of the existing dining facility. Approximate size of the overall project area is 10-15 acres.
- Privatization of the Water and Wastewater Treatment System (FY04) – The wastewater treatment system at Fort Benning, which consists of three facilities and a network of underground piping, will be privatized within the next one to two years. The contract for the system would include the day-to-day upkeep of the system and would require the contractor to abide by all Federal, state, and Installation policies and guidelines. The process will include either the "mothballing" or demolition to slab of the existing water and wastewater treatment facilities and the construction of a series of new underground

utility transport lines, for the purpose of connecting the existing on-Post facilities to the new owner's off-Post facilities. During the construction of these connection lines (18-24 months), the new owner would utilize the on-Post facilities. Alternately, the new owners may continue operation at the existing facilities. Approximate size of the overall project area is 50-60 acres. An EA and FNSI were prepared for this action; in addition, a Supplemental EA is currently under preparation at the EMD.

- Infantry Squad Battle Course (ISBC) (FY04) – Work would consist of the conversion of an existing Fort Benning range, Galloway Range, into an Infantry Squad Battle Course and would include the removal/replacement and upgrading of existing targetry, the construction of associated support facilities, the demolition of currently existing temporary buildings on site, and associated utility placement. Approximate size of the overall project area is 180-190 acres. Fort Benning is currently preparing an EA for this action.
- Infantry Platoon Battle Course (IPBC) (FY06) – Work would consist of the construction of a new IPBC in the A12 portion of Fort Benning and would include tree clearing, grading, cut-and-fill, construction of the range and target firing area, and placement of targetry, in addition to the construction/emplacement of support facilities, access roads and trails, and associated utilities. Approximate size of the overall project area is 1,000 acres.
- Ammunition Supply Point (ASP) Expansion (FY05) – Work would consist of the construction of two aboveground general storage facilities, 11 earth-mounded ammunition storage igloos with associated loading platforms, two small quantity ammunition huts, and ammunition surveillance building, and forklift storage/recharge facilities at the existing ASP on Fort Benning. Work would also include the demolition of 19 structures currently existing within the ASP compound. Approximate size of the overall project area is 10-15 acres.
- Direct Support/General Support (DS/GS) Consolidated Maintenance Facility (FY07) – Work would consist of constructing an approximately 112,000 square foot equipment maintenance complex for DPW. Facility to be located in the southwest quadrant of US280/27 and First Division Road. Approximate size of the overall project area is 10-15 acres.
- Rehabilitation of North/South Maneuver Corridors (FY undetermined; pending funding approval) – Work will consist of the rehabilitation of two existing maneuver corridors in the north and three existing maneuver corridors in the south for training utilization by the 3rd Brigade/3rd Infantry of Fort Benning. The areas are contained within the Oscar 1-15 training compartments in the north and the D2-16, L3, E3-4, and J6-7 training compartments in the south (see Figure 6 for relevant training compartments). These are existing maneuver areas that will have erosion control and soil stabilization measures conducted, in addition to selective thinning, in order to more fully support maneuvers by the mechanized vehicles. Approximate size of the overall project area is 5,000 acres.
- Combined Club Facility (FY undetermined; pending funding approval) – Work would consist of the demolition of the existing Follow Me Golf Course Clubhouse, construction of a new clubhouse to contain the combined functions of the Golf Course Club and Officer's Club, and the redevelopment of the existing Follow Me Golf Course. Approximate size of the overall project area is 5-10 acres.
- New Post Exchange (AAFES) (FY undetermined – pending final decision by AAFES) – Work would consist of constructing a new AAFES on the land across the street from the

existing AAFES on Custer Road, Main Post, Fort Benning. The old AAFES would be abandoned and reutilized in another format; it is not scheduled for demolition at this time. Work would additionally consist of landscaping and parking lot construction. Approximate size of the overall project area is 10-15 acres.

- National Infantry Museum (FY undetermined – project in planning phase only) – Work would consist of constructing a new infantry museum on the land lying between South Lumpkin and Fort Benning roads on the Installation's border with the City of Columbus. The existing museum, located on Baltzell Avenue, Main Post, Fort Benning, would be reutilized in another manner, but would not be demolished. Approximate size of the overall project area is 20-30 acres.
- Digital Multi-Purpose Training Range (DMPTR, aka Hastings Range Upgrade) (FY06 - project in planning phase only) – work would consist of upgrading the existing Hastings Range to a DMPTR; would include removal/replacement and upgrading of existing targetry, expansion of the existing tank trails, the construction of associated support facilities, the demolition of currently existing temporary buildings on site, and associated utility placement. Approximate size of the overall project area is 100-150 acres.

A more thorough evaluation of the ASP Expansion, NIM, IPBC, Rehabilitation of Maneuver Corridors, and DMPTR will be conducted via separate EAs or other appropriate NEPA for each project; the other listed projects are in the preliminary planning phases only, but will undergo NEPA in future documents. Other actions on Fort Benning, such as road and Tank trail maintenance, range and building maintenance, building renovations, unit motor pool maintenance, troop training, and routine airfield activities, would continue in an ongoing manner on an annual basis. These projects/actions are assessed for potential environmental impacts on a case-by-case basis via the NEPA process.

5.2.2 Columbus-Buena Vista-Phenix City Community

The projects listed below are those determined to have the potential for moderate adverse impacts to resources within the ROI. Other projects were identified through these interviews and the review of relevant city planning documentation; however, they were analyzed and determined to not have the potential for incremental impacts or to contribute to cumulative impacts in the ROI. The projects identified, but not included for study in this document, may be viewed in the Columbus-Phenix City Transportation Improvement Plan, which is available for review at the DPW. Reviews of the planning documents for these cities and for the Georgia Department of Transportation (DOT) resulted in a comprehensive projected vision for the area, which is defined in further detail below.

- Oxbow Meadows and Marina, Lumpkin Road, Columbus, GA (FY undetermined; tentatively scheduled to begin within the next 2-3 years), – Work would consist of the further development of the Oxbow Meadows Environmental Learning Center by creating additional outdoor classrooms, a series of walking trails, a series of hiking trails, and pavilion, and the construction (to include dredge and fill) of a 350-slip capacity marina. Approximate size of the overall project area is 10-15 acres.

- Phenix City Riverwalk Phase II, Phenix City, AL (FY undetermined) – Work would consist of the construction of a hiking/biking trail between the 13th and 14th Street bridges in Phenix City. Approximate size of the overall project area is 5-10 acres.
- Alternative Transportation System, Phase II, North Riverwalk, Columbus, GA (FY undetermined; scope of work decision pending implementation of Chattahoochee River Restoration Project, below) – Work would consist of continuing to construct the hiking/biking trail (Riverwalk) northward along the Chattahoochee River from 12th Street to 14th Street. Approximate size of the overall project area is 5-10 acres.
- Widening/Improvements to Buena Vista Road, Columbus, GA (FY 07) – Work would consist of widening and reconstructing 1.15 miles of an existing two (2) and four (4) lane road to a four (4) through-lane system with turn lanes and medians, as required. Approximate size of the overall project area is 5-10 acres.
- Widening/Improvements to St. Mary's Road, Columbus, GA (FY 05) – Work would consist of widening 0.71 miles of a two (2) lane road to a three (3) and four (4) lane system, with intersection improvements as needed. Approximate size of the overall project area is 5-10 acres.
- Chattahoochee River Restoration (FY05) – work would consist of breaching the Eagle-Phenix Dam and the City Mills Dam along the Chattahoochee River, in order to restore the historic and natural flow of water along this portion of the river, which extends from just north of the City of Columbus and down to its most southern edge. Approximate size of the project area is 2 ½ miles (approximately 35 acres).

Another issue of concern with the potential to adversely affect the overall ROI is the Tri-State Water Compact, a disagreement between Georgia, Alabama, and Florida concerning withdrawals of water and public usage from the Chattahoochee-Flint-Appalachicola river systems. The Chattahoochee River originates in the Blue Ridge Mountains of the Appalachian Highlands of northeast Georgia, where it flows southwesterly for 120 miles before turning south and flowing approximately 200 miles along the Georgia and Alabama borders, and a small part of the Florida border. The Flint River includes Blackshear Dam and Lake, Flint River Dam, and Lake Worth. The river originates south of Atlanta, GA, in the Piedmont Province and flows southerly to the upper Coastal Plain, where it joins the Chattahoochee River in Lake Seminole to form the Appalachicola River. The Appalachicola River includes the Corps-operated Jim Woodruff Lock and Dam and Lake Seminole along its length. The river lies entirely within the Coastal Plan along the 180 miles of its length and flows south across northwest Florida from the Georgia to Appalachicola Bay in Florida. For additional information, refer to the following website: www.chattahoochee.org/TriState/ACFmap.shtml.

5.3 Alternative 8: The No-Action Alternative (*Status quo*)

Under Alternative 8, the no-action alternative (*status quo*), a new shopping facility would not be constructed on the Installation to serve the military and associated eligible shopping population.

The military community that shops at Fort Benning would continue to use the existing facility that is limited in space and offers an unsatisfactory range of services and merchandise. The no-action alternative would have the adverse effect in that the military community may be forced to shop for some goods and services at commercial establishments located off the Installation. This would be both inconvenient and inefficient for active military personnel, their families, and other shoppers eligible to shop at the PX.

5.4 Alternative 7: The Preferred Alternative

Alternative 7, the preferred site, includes construction of a new 218,000-square foot building for use by authorized individuals at Fort Benning. The proposed action would consist of construction and operation of a shopping center containing a main store and a food court with popular fast food establishments. Other services in the proposed facility would include a barbershop, beauty shop, laundry/dry cleaners, alterations shop, optometrist/eye care office, flower shop, one-hour photo store, trophy shop, watch repair, nutrition center, shoe store, and amusement arcade. This facility would satisfy the shopping needs of the Fort Benning community and the needs of other shoppers eligible to shop as this complex. It would eliminate the need for military personnel and their family from having to shop at commercial establishments off the Installation.

After evaluating the alternatives, Alternative 7 meets the environmental and siting criteria for the siting of the proposed action. Implementation of this alternative would require the long-term conversion of 18.25 acres of undeveloped land to a shopping mall facility. Short-term impacts associated with this conversion include localized noise impacts, potential increase in soil erosion, and also increased vehicular traffic associated with construction activities. Furthermore, recent wetland delineations concluded that 0.15 acres of wetlands exist on the preferred site of the proposed action, of which 0.01 acres would be impacted. Additionally, a total of 26 linear feet of intermittent stream would be impacted by the proposed action. The USACE provided approval for the use of NWP #18 for this project. The completion of this EA serves as a final action for this project and concludes with a FNSI.

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Appendix A

Wetlands Jurisdictional Delineation

United States Waters/Wetlands Identification Report
Construction of a Shopping Center
Fort Benning, Chattahoochee County, Georgia

June 2004

Prepared For:
Army Air Force Exchange Service (AAFES)

Prepared by:

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Table of Contents

List of Acronyms and Abbreviations

CFR	Code of Federal Regulations
CWD	coarse wood debris
DGPS	differential Global Positioning System
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GIS	Geographic Information Systems
GPS	Global Positioning System
I-185	Interstate 185
NWI	National Wetlands Inventory
OHW	ordinary high water
SCS	Soil Conservation Service
USACE	United States Army Corps of Engineers
USDA, NRCS	United States Department of Agriculture, Natural Resource Conservation Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

Ecology and Environment, Inc. (E & E) was retained by Fort Benning to conduct an identification of Waters of the United States, including wetlands, on a site proposed for shopping center construction. The project was tasked in order to locate all waters/wetlands in the potential area of impact to help plan the shopping center design layout for minimizing impacts.

The project is located in the northwestern portion of the U.S Army's Military Reservation at Fort Benning, Georgia. The site is east of U.S. Interstate 185 (I-185) at the 1-mile marker, and adjacent to the existing commissary facility (Attachment A, Figure 1). The site is approximately 50 acres in size; however, the project "footprint" will only impact 18.25 acres of the site. The surveyed area extends beyond the specified project boundaries to ensure that all jurisdictional areas within reasonable proximity to the project are assessed. In addition, the boundary extension will allow project engineers various options in minimizing the potential impacts to jurisdictional areas.

2.0 Project Area Description

The site is located on Fort Benning property within the limits of the main base area. The property has been disturbed by apparent past logging activities and utilities installation. Numerous logging roads and two utility line corridors cross the surveyed area. Access to the property is via an existing unimproved road from Marne Road, across the road from the existing commissary facility.

The site is situated atop a ridge running north/south, with significant variation in local elevation (Attachment A, Figure 2). According to United States Geological Survey (USGS) topographic elevations, the lowest elevation of the area surveyed is 250 feet, while the highest elevation is 368 feet. The site is nearly level along the ridge top. Conversely, ridge slopes range up to 30% grade. Numerous "logging" roads exist along ridge contours and atop the ridge.

2.1 Project Area Vegetation

The project site is located in northern Chattahoochee County within 1 mile of the Upatoi River. Vegetation differs between surveyed extents due to varying elevations across the site. Few areas have been altered from the natural land cover. Aside from two small cleared corridors, the site remains comprised of forested and herbaceous areas. The forested areas occur in the lower elevations and in areas not cleared by logging atop the ridge. Deciduous hardwoods occur in the lower elevations where sunlight is less plentiful. Higher topographic areas exhibit more evergreen pine and associated herbaceous vegetation.

Deciduous area tree species include red maple *(Acer rubrum)*, tupelo *(Nyssa* spp.*)*, sweetgum *(Liquidambar styraciflua)*, yellow poplar *(Liriodendron tulipifera)*, sweetbay magnolia *(Magnolia Virginiana)*, silver maple *(Acer saccharinum)*, sycamore *(Platanus occidentalis)*, umbrella magnolia *(Magnolia tripetala)*, bayberry *(Myrica cerifera)*, willow oak *(Quercus phellos)*, water oak *(Quercus nigra)*, white oak *(Quercus alba)*, Southern red oak *(Quercus falcata)*, sasafrass *(Sassafras albidum)*, American holly *(Ilex opaca)*, mountain laurel *(Kalmia latifolia)*, and river birch *(Betula nigra)*. Other non-tree species include Chinese privet *(Ligustrum sinense)*, common greenbriar *(Smilax rotundifolia)*, summer grape *(Vitis aestivalis)*, needle rush *(Juncus effuses)*, cinnamon fern *(Osmunda cinnamomea)*, signal grass *(Brachiaria platyphylla)*, Virginia creeper *(Parthenocissus quinquefolia)*, and poison ivy *(Toxicodendron radicans).*

The ridge top includes species such as loblolly pine *(Pinus taeda)*, shortleaf pine *(Pinus echinata)*, white oak, Southern red oak, red maple, rough-leaf dogwood *(Cornus asperifolia)*, cedar elm *(Ulmus crassifolia)*, pin oak *(Quercus palustris)*, and yellow hawthorn *(Crataegus flava)*. Groundcover species in this area include Southern dewberry *(Rubus trivialis)*, groundsel *(Senecio* spp.*)*, sagegrass *(Artemisia* spp.*)*, Bahia grass *(Paspalum nodatum)*, and annual ragweed (*Ambrosia artemisiifolia).*

2.2 Project Area Hydrology

The project area is located in a high-relief area typical of west-central Georgia. Slopes range from nearly flat to 30% on ridge slopes. Due to the relatively high relief, storm run-off is rapid and well drained.

The project lies within the Middle Chattahoochee-Walter F. George Rese Watershed. Water bodies within the watershed include the Chattahoochee River, Upatoi Creek, and Choctawhatchee River. All streams that lie within this watershed are considered non-tidally influenced. The relatively high watershed relief promotes rapid water movement. The United States Environmental Protection Agency (EPA) rates the watershed as having "Better Water Quality and low vulnerability" to pollutants (EPA 2003).

The ridge upon which the site is located drains into two unnamed intermittent streams located on the ridge's eastern and western sides. These are tributaries of intermittent Hamlet Creek. During the investigation, the two unnamed tributaries and Hamlet Creek had a definite perceivable flow. Hamlet Creek flows northwestward into Upatoi Creek, which eventually flows westward into the Chattahoochee River.

The two unnamed tributaries that are within the surveyed area are fed by direct precipitation, groundwater seepage, and return flow. During times of high evapotranspiration and low

precipitation, most flow comes from groundwater and return flow. The two streams have a small watershed themselves, due to the hilly nature and numerous divides within the region. For the remainder of this report, the unnamed stream to the ridge's east is referred to as 'Area A,' while the unnamed stream to the ridge's west is referred to as 'Area B.'

The upper extent of Area A exhibits no defined stream channel south of the utility corridor that traverses the survey area. Given no defined channel, the upper extents are broad and show signs of long periods of standing water. As Area A progresses down slope, a defined channel begins to form. The upper extent of Area B, within the surveyed area, has two defined stream channels with several return flow seepage points. Further down slope, Area B also exhibits a well-defined channel. Areas A and B are described in greater detail in Section 4.0.

Federal Emergency Management Agency (FEMA) Q3 Digital Flood Map, Chattahoochee County, Georgia (FEMA 2000), was used to assess the potential that any of the surveyed areas lay within the floodplain. The entire project site is located within Zone X, defined as "outside 100-year floodplain." No project components are located inside the mapped floodplains.

2.3 Project Area Soils

Soils in the northern half of the surveyed area fall in the general classification of Troup-Cowarts-Nankin. The predominant soil on site is Nankin sandy clay loam. The soil covering the southern half of the surveyed area is Ruston sand (United States Department of Agriculture, Natural Resource Conservation Service [USDA, NRCS 1999a]).

Nankin soils consist of very deep, well-drained, moderately slowly permeable soils that formed in stratified loamy and clayey marine sediments. On the proposed site, the soils are primarily highly plastic flint clay. These soils are heavily eroded with slopes of 18 to 25%. In some areas, erosion has removed the surface layer. These soils are found at depths of 10 to 20 feet on the proposed site with exposure on the western, northern, and eastern slopes.

Ruston series soils consist of very deep, well-drained, moderately permeable soils. On the proposed site, they are comprised of a surface layer of loose to firm, fine-to-medium sand overlaying a loose to very dense, fine-to-coarse sand. These sand layers are from 10 to 20 feet deep (Hill-Staton Engineers 1999). Groundwater depth in the area is from 11 to 14 feet below existing ground surface, atop the ridge plateau, as determined by soil borings (Hill-Staton Engineers 1999).

The northeastern quarter of the proposed site is classified by the Post Land Management Division as loamy Udorthents. These are upland soils that have been modified by cutting,

filling, and shaping in the construction of helicopter landing sites and firing ranges for small arms and light explosives (USDA 1997). An existing borrow pit is also located on the central plateau of the proposed action site.

Soil on the proposed project site is mapped by the Soil Conservation Service (SCS; now the NRCS) and interpreted into a digital format (STATSGO) by the EPA.

3.0 Wetlands Delineation Procedures

The wetland investigation involved identification and preliminary delineation of Waters of the United States, including wetlands, which are subject to United States Army Corps of Engineers (USACE) jurisdiction under Section 404 of the Clean Water Act. From April 29 through May 2, 2003, E & E performed field identification and a preliminary delineation survey at the site. Procedures followed the routine determination methodology established in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

3.1 Preliminary Data Gathering

Prior to on-site investigation, a preliminary review aided the field identification effort in locating and documenting potential jurisdictional waters. This review included:

- USGS 7.5-minute topographic quadrangle maps for Fort Benning and Columbus, Georgia (USGS 1974),
- FEMA Q3 Flood Data, Chattahoochee County, Georgia (FEMA 2000);
- EPA STATSGO Digital Soils Information, Chattahoochee County, Georgia; and
- National Wetlands Inventory (NWI) maps, Columbus and Fort Benning, Georgia (digital format; United States Fish and Wildlife Service [USFWS] 1980).

Potential jurisdictional areas were identified and preliminary delineations performed according to the USACE wetlands delineation manual "Section D - routine determination, Subsection 2 - onsite inspection necessary, areas greater than five acres in size" (Environmental Laboratory 1987). This method requires systematic transects to adequately characterize the site. Several baselines, which parallel the major watercourse of Hamlet Creek through the survey area and run east-west, were established. The southernmost transect was located approximately 400 feet south of the utility corridor, while the northernmost transect occurred on the south side of Hamlet Creek. Given the site's varying topography, transects were located in the lower elevations where jurisdictional criteria were more likely to occur. At each vegetative community change, an observation was made to assess whether the location exhibited the three criteria needed for wetlands determination (Environmental Laboratory 1987). Formal data evaluation sheets were not completed for those areas where wetland criteria were not evident.

3.2 Field Identification

The field identification included establishing discrete locations where the wetlands delineation procedures were conducted to determine if the three mandatory wetland criteria were met (i.e., hydrophytic vegetation, wetland hydrology and hydric soil). Four wetland locations were identified and subsequent routine wetland data forms were completed for each (Attachment A, Figures 3 & 4). These forms document site-specific information, as specified by the USACE's wetlands delineation manual (Environmental Laboratory 1987).

The indicator status of dominant and non-dominant plant species at each location was determined from the "National List of Plant Species That Occur in Wetlands: Southeast (Region 4)" (Reed 1988). This information was used to determine if the composition of the dominant plant community satisfied the hydrophytic vegetation parameter. Direct observations of inundation, saturation, and/or other field indicators of wetland hydrology (e.g., water marks, drift lines, oxidized rhizospheres, sediment deposits and drainage patterns in wetlands) were used to determine if the wetland hydrology parameter was satisfied.

Soil samples were obtained to depths generally extending to 14 inches. Observed soil profiles were described and compared with soil series descriptions mapped as occurring on the project site according to the NRCS. Soil color was determined using the Munsell Color Chart (Kollmorgen Instruments Corporation 1988) and compared to the soil survey description. These soils were then compared to a list of hydric soils of Chattahoochee County as determined by the SCS. Additionally, the observed profiles were examined for hydric soil field indicators (e.g., sulfidic odor, iron-manganese concretions, low-chroma matrix colors, mottling, etc.) to determine if the hydric soil indicator was satisfied. Each data form includes supporting rationales for decisions made relative to mandatory wetland parameters (Attachment B).

U.S. water/wetland boundaries were determined through combined observation of water source, drainage patterns, riparian vegetation, top of bank, and ordinary high water (OHW) mark. Wetland boundaries were marked with sequentially numbered Global Positioning System (GPS) positions, placed at the point where the wetland meets upland areas. Water boundaries at locations that exhibited highly incised streambeds were delineated at top of bank. Water boundaries were flagged at the OHW in instances where streambeds were not highly incised. OHW is determined by the presence of scours on banks, drift lines, stained areas on trees or posts in or near the water, and other factors. Subsequent to the marking of the identified water, each position location established within the project site was surveyed with a Trimble Pro XRS GPS receiver. The GPS receives real-time differential positional data from Earth-orbiting satellites provided by Trimble Omnistar DGPS (differential GPS) subscription service and real-time information from a nearby U.S. Coast Guard beacon in Macon, Georgia. This allows the GPS to locate a position on Earth at sub-meter accuracy.

GPS coordinates were downloaded into ArcView Geographic Information Systems (GIS) software for creating maps of delineated stream boundaries. The receiver provided locations and accurate calculations for each identified location.

4.0 Results of Investigation

The following section describes the results of the field survey to determine Waters of the United States, including wetlands. Following guidelines outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), four waters/wetland areas were identified within the surveyed areas described in Section 2.0 (Attachment A, Figure 2).

4.1 Area A

Area A is located on the eastern side of the ridge proposed for development (Attachment A, Figure 2). This jurisdictional feature is 1.42 acres in size; however, only 0.01 acres, which include 26 feet of linear stream, are predicted to be impacted by development activities. Other than one small crossing, project engineers have preserved a 25-foot or greater buffer between all project-related activities and Area A (Attachment A, Figure 5).

Area A is a linear, unnamed intermittent feature that flows north into Hamlet Creek. The feature varies in width, depth, and bed characteristics throughout its course. The headwaters of Area A have no defined stream channel, but show signs of prolonged inundation. Buttressed tupelo and watermarks are some of the hydrologic indicators present in the headwater area. A weir, which is present but not functional, is located approximately 550 feet north of Area A's southern terminus. This weir ponded water in the upper extents, contributing the hydrologic indicators previously mentioned. Northward of the weir, a well-defined channel is present. At specific locations, the channel measures 50 feet wide and 15 feet deep; however, the average channel width and depth range from 15 to 20 feet and 3 to 4 feet, respectively.

Typical vegetation found within Area A include, but is not limited to, red maple, tupelo, sweetgum, yellow poplar, sweetbay magnolia, willow oak, sasafrass, American holly, mountain laurel, summer grape, needle rush, cinnamon fern, and signal grass.

This area is located outside the 100-year floodplain and is not found on NWI resources. Nankin sandy clay loam and Ruston sand underlie the area, which are not considered hydric by the NRCS. *In-situ* soil observations are not confirmed with map type. A description of vegetation, soils, and hydrology of various locations is provided in Attachment B, Datasheets 1-7.

4.2 Area B

Area B is located on the western side of the ridge proposed for development. This jurisdictional feature covers 1.93 acres; however, this feature will not be impacted by development activities. Project engineers have preserved a 25-foot or greater buffer between all project-related activities and Area B.

This feature is a linear, unnamed intermittent feature that flows north into Hamlet Creek. The feature varies in width, depth, and bed characteristics throughout its course. The headwaters of Area B have two moderately defined stream channels, along with many seepage areas. The two channels meet to form one defined channel south of a utility corridor that traverses the surveyed area. North of the corridor, Area B becomes a braided stream with several defined channels meandering through a 100-foot-wide swath. Approximately 300 feet north of the corridor, the channel braids combine to form one well-defined channel. Area B's channel width does not exhibit the large span that Area A does; the approximate channel width is 15 to 20 feet. However, Area B is highly incised with depths from 20 to 25 feet. The dramatic depths are more frequent in Area B compared to Area A. Average channel depths in Area B range from 5 to 8 feet.

Typical vegetation found within Area B include red maple, tupelo, sweetgum, yellow poplar, sweetbay magnolia, silver maple, sycamore, umbrella magnolia, bayberry, willow oak, river birch, Chinese privet, needle rush, cinnamon fern, signal grass, and poison ivy.

Area B is located outside the 100-year floodplain and was not indicated on NWI resource maps. Nakin sandy clay loam and Ruston sand underlie the area, which are not considered hydric by the NRCS. *In-situ* soil observations are not confirmed with map type. A description of vegetation, soils, and hydrology of various locations are provided in Attachment B, Datasheets 8-13.

4.3 Area C

Area C lies in the surveyed area's extreme northern extents. This jurisdictional feature is 0.08 acres in size; however, this feature will not be impacted by development activities. In addition, a 25-foot or greater buffer separates all project related activities and Area C.

This is an unmapped feature connected to Hamlet Creek between Areas A and B. The feature is highly eroded, and during the investigation no perceivable flow was observed. Channel width and depth near Hamlet Creek are 20 feet and 15 feet, respectively. The upper extent of Area C is inundated due to the presence of several inches of coarse wood debris (CWD), which impounds water, and has allowed for the propagation of hydrophytic herbaceous species in the upper extents of Area C. Area C's vegetation is typical of that in Areas A and

B. This feature lies outside the 100-year floodplain. Descriptions of wetland criteria observations are provided in Attachment B, Datasheet 14.

4.4 Area D

Area D is a small seepage area approximately 2 feet wide and 200 feet long. The area is approximately 0.01 acres and will not be impacted by proposed development activities. In addition, a 25-foot or greater buffer separates all project related activities and Area D.

Although a small amount of water was found, no perceivable flow was observed during the investigation. The course of Area D is not easily discernable as the feature progresses downgradient; however, it is included in this delineation because it does meet the definition of a headwater and is directly connected to Area A. The area is not large enough to promote any hydrophytic species other than in the herbaceous strata. These species include needle rush and inland rush. Nakin sandy clay loam underlies the area, which is not considered hydric by the NRCS.

5.0 Conclusion

Results of the identification and delineation of Waters of the United States, including wetlands, at the project site in Chattahoochee County, Georgia, shows that the proposed project survey area contains waters/wetlands subject to USACE jurisdiction. These jurisdictional areas consist of palustrine marsh, bottomland forest, and defined stream networks associated with the Middle Chattahoochee-Walter F. George Rese Watershed. These areas meet the definition of Waters of the United States as defined in 33 Code of Federal Regulations (CFR) §328.3. Four areas totaling 3.44 acres traverse the surveyed area. Design engineers have planned activities during construction and operation to minimize the impact on wetland areas and stream crossings within the proposed project area. Subsequently, only 0.01 acres of jurisdictional waters and 26 feet of linear stream will be impacted by development activities.

Under Nationwide Permit 39 “Residential, Commercial, and Institutional Developments” activities may not exceed a total of 0.5 acres loss of Waters of the United States, including 300 feet of linear stream channel. The activities proposed at the Fort Benning shopping center project site will impact 0.01 acres of jurisdictional waters and 26 feet of linear stream of the United States; therefore, it is requested that requirements for USACE permitting for this project fall under Nationwide Permit 39 unless directed otherwise by the USACE.

The USACE jurisdictional determination of the Waters of the United States will be required and will directly influence activities of construction and operation, which are planned to minimize impact on wetland areas and stream crossings. Subsequently, final permitting

requirements and potential mitigation will be established upon final determination by USACE.

6.0 References

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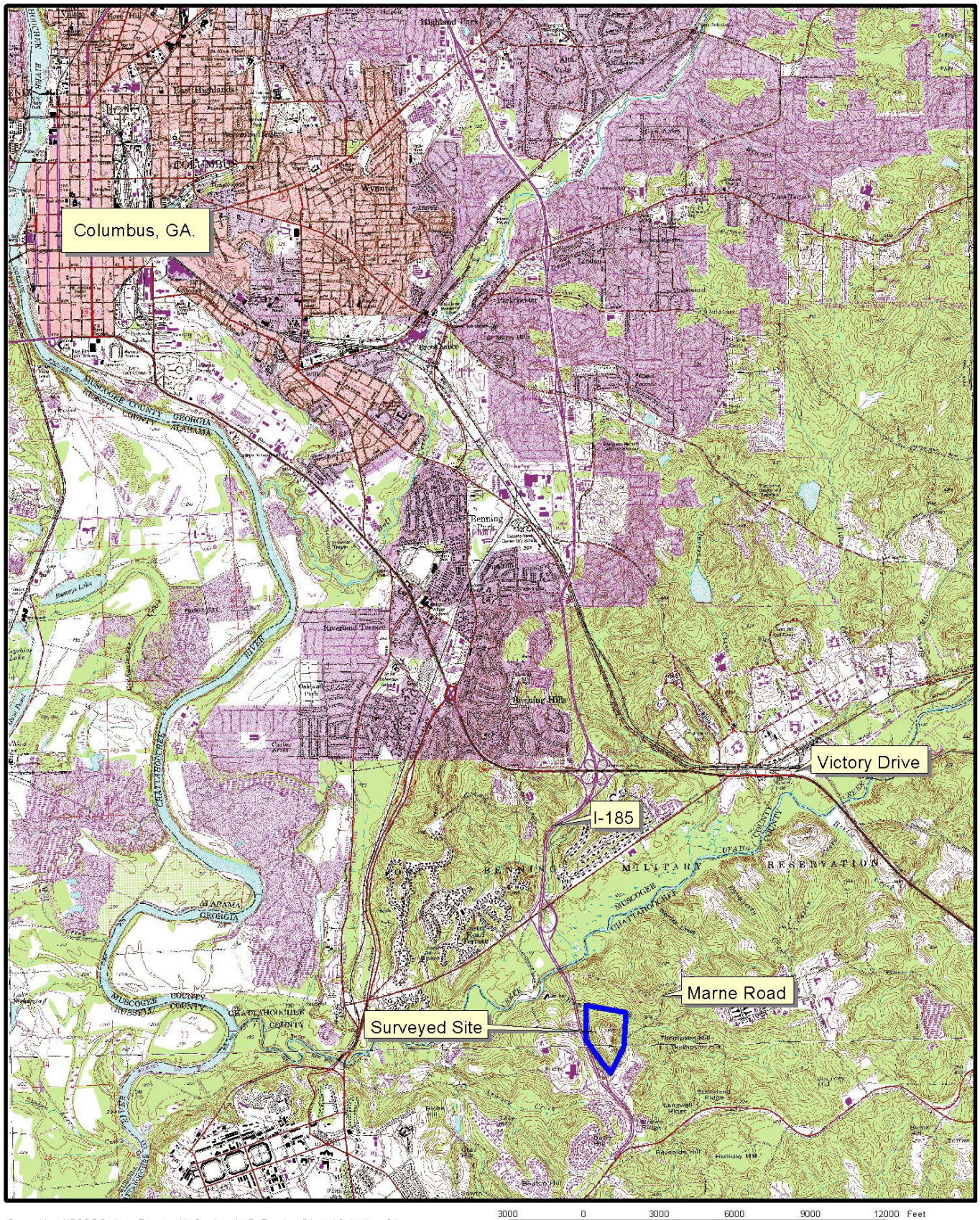
United States Geological Survey (USGS), 1974, 7.5-Minute Topographic Quadrangle Map, Columbus and Fort Benning, Georgia.

Attachment A

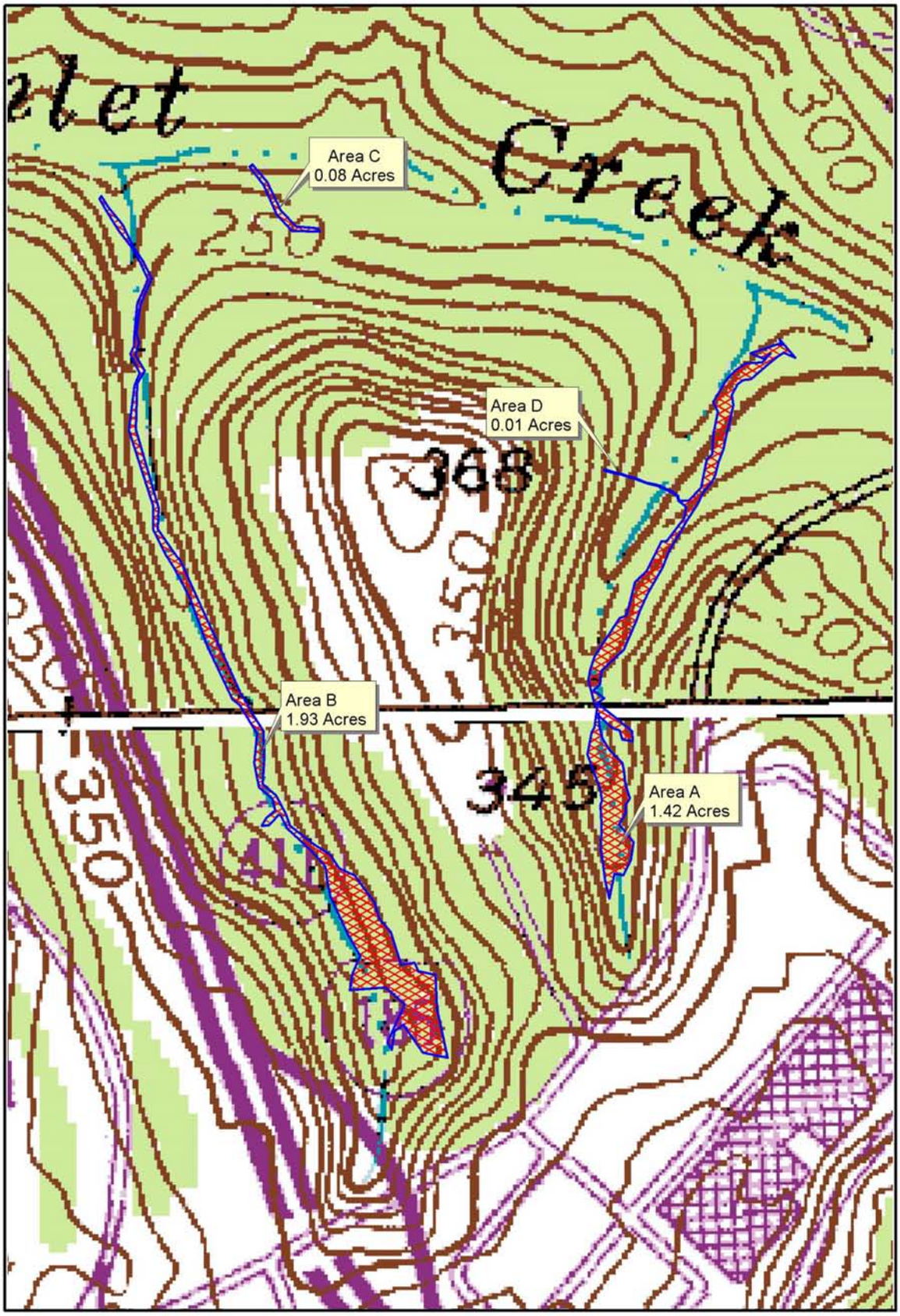
Figures



Source Map: USGS 7.5-minute Topographic Quadrangle, Ft. Benning, GA. and Columbus, GA.

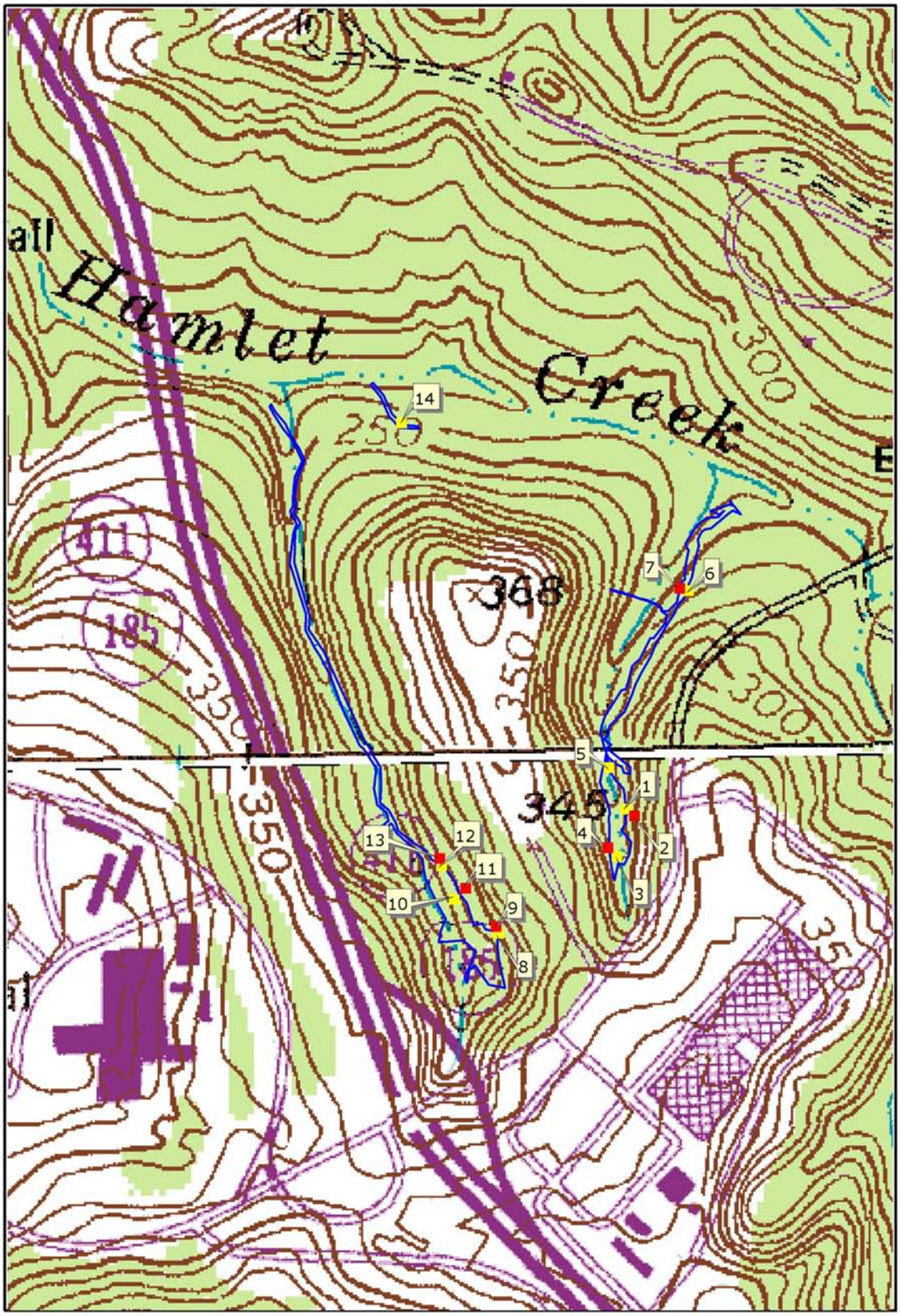
Proposed Project Area Location
Ft. Benning, Georgia

Figure 1



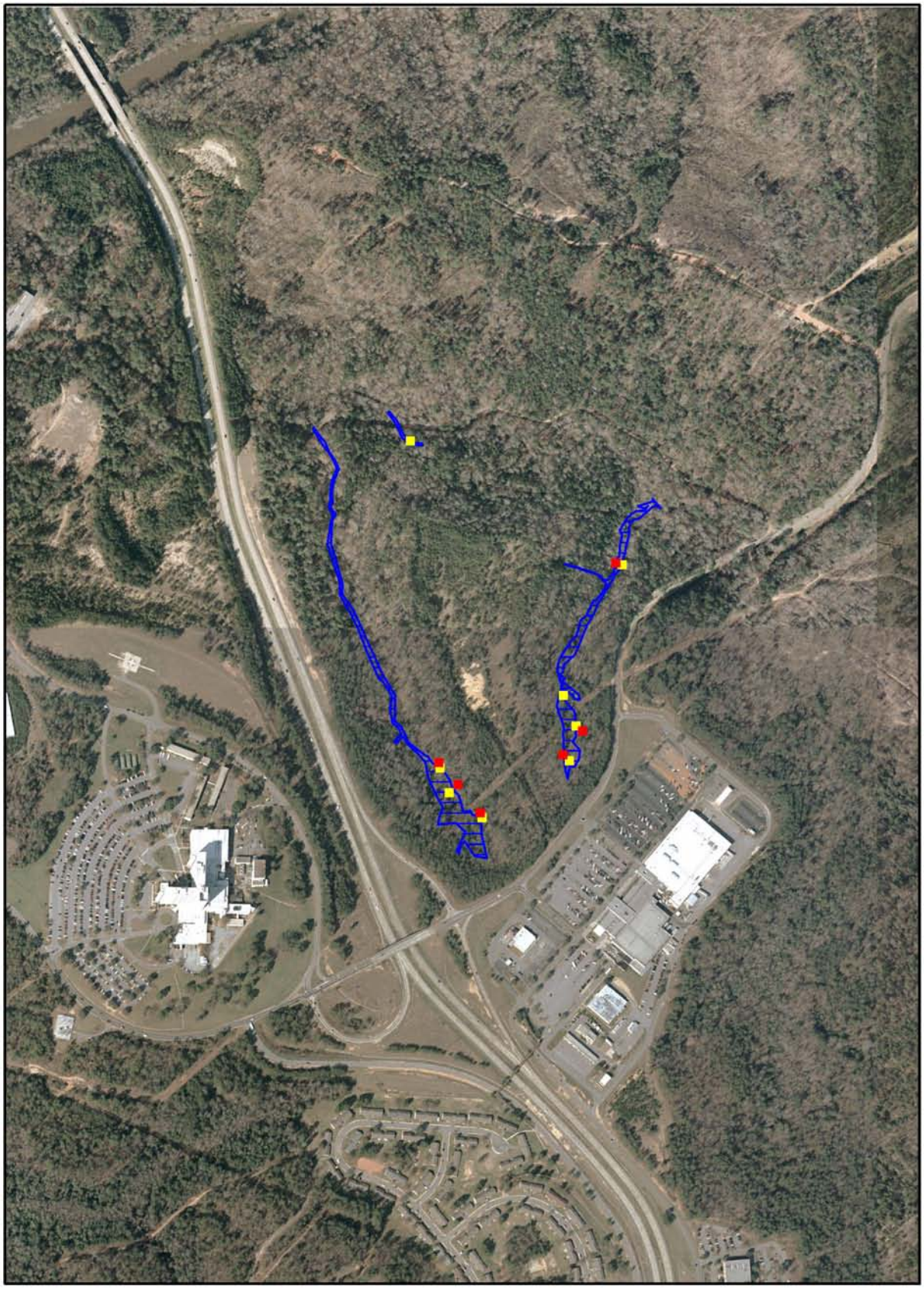
Jurisdictional Waters
Ft. Benning, Georgia

Figure 2



Observation Point Locations
Ft. Benning, Georgia

Figure 3
Observation Numbers Correspond with Attachment B Datasheet Numbers



Aerial Overview
Ft. Benning, Georgia

Figure 4

Legend

Impacted Wetland and Stream

Non-Impacted Jurisdictional Wetlands

Figure 5
Potential Wetland Impacts
Ft. Benning, Georgia

N

200 100 0 200 Feet

Attachment B

Dataforms

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 4-30-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Wetland Transect ID: Plot ID: Ob. Pt. 1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Nyssa sylvatica*	Tree	OBL	9. *Liquidambar styraciflua*	Tree	FAC+
2. *Carex spp.*	Herb	FAC+	10.		
3. *Osmunda cinnamomea*	Herb	FACW+	11.		
4. *Magnolia virginiana*	Tree	FACW+	12.		
5. *Acer rubrum*	Tree	FAC	13.		
6. *Acer rubrum*	SS	FAC	14.		
7. *Ilex opaca*	SS	FAC-	15.		
8. *Kalmia latifolia*	SS	FACU	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 6/8 = 75%

Remarks:
Dominant vegetation at this location is hydrophytic. Very little ground cover exists, mostly very large trees.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: 10 (in.)

Depth to Saturated Soil: 5 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☒ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. Secondary indicator other indicated the presence of buttressed tress, which can be an indicator of past inundation.

SOILS (Observation Point #1)

Map Unit Name (Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations Confirm Mapped Type? Yes ☐ No ☒

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-2		Humus Layer			Leaf Litter
2-9		10YR 4/4	10YR 5/6	Few/Fine/Distinct	Sandy Clay Loam, Dark Yellowish Brown
9-16		7.5YR 2.5/1			Clay Loam, Black

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions in upper layer while low chroma in deeper layers.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is located at a low point in elevation which is consistent with this portion of the wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 4-30-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Upland Transect ID: Plot ID: Ob. Pt. 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Vitis aestivalis*	WV	FAC-	9.		
2. *Smilax smallii*	WV	FACU	10.		
3. *Pinus taeda*	Tree	FAC	11.		
4. *Acer rubrum*	Tree	FAC	12.		
5. *Acer rubrum*	SS	FAC	13.		
6. *Ilex opaca*	SS	FAC-	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/6 = 50%

Remarks:
Dominant vegetation at this location is hydrophytic. The vegetation is noticeably more upland variety than the point within the wetland.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: NA (in.)

Depth to Saturated Soil: NA (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:
Wetland hydrology was not met at this location. This location does not lie within the apparent wetland area.

SOILS (Observation Point #2)

Map Unit Name
(Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes ☐ No ☒

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-2		Humus Layer			Leaf Litter
2-14		10YR 5/8			Sandy, Yellowish Brown
14-16		10YR 3/2			Sandy, Very Dark Grayish Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are not considered hydric. Soils are very sandy with no organic streaking.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒
Hydric Soils Present?	Yes ☐	No ☒

Is this Sampling Point Within a Wetland? Yes ☐ No ☒

Remarks:
All three wetland criteria are not present at this location. This area is located approximately 2 feet above Ob Pt. 1 on the side slope of the ridge.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 4-30-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Wetland Transect ID: Plot ID: Ob. Pt. 3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Nyssa sylvatica*	Tree	OBL	9. *Liquidambar styraciflua*	Tree	FAC+
2. *Carex spp.*	Herb	FAC+	10. *Brachiaria platyphylla*	Herb	FAC+
3. *Osmunda cinnamomea*	Herb	FACW+	11.		
4. *Magnolia virginiana*	Tree	FACW+	12.		
5. *Acer rubrum*	Tree	FAC	13.		
6. *Acer rubrum*	SS	FAC	14.		
7. *Ilex opaca*	SS	FAC-	15.		
8. *Smilax smallii*	WV	FAC	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 9/10 = 90%

Remarks:
Dominant vegetation at this location is hydrophytic. Very little ground cover exists, mostly very large trees.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: 2 (in.)

Depth to Saturated Soil: 10 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☒ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. Secondary indicator other indicated the presence of buttressed tress, which can be an indicator of past inundation.

SOILS (Observation Point #3)

Map Unit Name
(Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes ☐ No ☒

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-2		Humus Layer			Leaf Litter
2-4		10YR 3/2	10YR 5/4	Common/Medium/Distinct	Clayey Sand, Very Dark Gravish Brown
4-10		10YR 6/6			Sandy, Brownish Yellow
10-14		10YR 3/1			Clayey Sand, Very Dark Gray

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☒ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions in upper layer while low chroma in deeper layers. Dark organic streaks are present in the middle sandy layer.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is located at a low point in elevation at the headwater area of the wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 4-30-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Upland Transect ID: Plot ID: Ob. Pt. 4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Vitis aestivalis*	WV	FAC-	9.		
2. *Smilax smallii*	WV	FACU	10.		
3. *Pinus taeda*	Tree	FAC	11.		
4. *Acer rubrum*	Tree	FAC	12.		
5. *Cornus florida*	Tree	FACU	13.		
6. *Ilex opaca*	SS	FAC-	14.		
7. *Quercus falcata*	Tree	FACU-	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/7 = 29%

Remarks:
Dominant vegetation at this location is not hydrophytic. The vegetation is noticeably more upland and occur past the headwater of area of this wetland.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: NA (in.)

Depth to Saturated Soil: NA (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:
Wetland hydrology was not met at this location. This location lies beyond the headwater area of this wetland.

SOILS (Observation Point #4)

Map Unit Name
(Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes ☐ No ☒

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-3		10YR 4/3			Sandy, Brown
3-14		10YR 6/4			Sandy, Light Yellowish Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are not considered hydric. Soils are very sandy with no organic streaking.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒
Hydric Soils Present?	Yes ☐	No ☒

Is this Sampling Point Within a Wetland? Yes ☐ No ☒

Remarks:
All three wetland criteria are not present at this location. This area is located approximately 2 feet above Ob Pt. 3 on the back slope a the ridge. Just down gradient from this point Area A begins.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 4-30-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Wetland Transect ID: Plot ID: Ob. Pt. 5

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Nyssa sylvatica*	Tree	OBL	9. *Liquidambar styraciflua*	Tree	FAC+
2. *Brachiaria platyphylla*	Herb	FAC+	10.		
3. *Osmunda cinnamomea*	Herb	FACW+	11.		
4. *Magnolia virginiana*	Tree	FACW+	12.		
5. *Pinus taeda*	Tree	FAC	13.		
6. *Acer rubrum*	SS	FAC	14.		
7. *Ilex opaca*	SS	FAC-	15.		
8. *Quercus phellos*	SS	FACW-	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 8/9 = 88%

Remarks:
Dominant vegetation at this location is hydrophytic. Very little ground cover exists, mostly very large trees.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: 6 (in.)

Depth to Saturated Soil: 6 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☒ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. Secondary indicator other indicated the presence of buttressed tress, which can be an indicator of past inundation. Also, very close proximity to well defined flowing stream.

SOILS (Observation Point #5)

Map Unit Name
(Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes ☐ No ☒

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-2		Humus Layer			Leaf Litter
2-14		10YR 2/1	10YR 5/6	Few/Fine/Distinct	Sandy Clay, Black
			10YR 3/6	Few/Medium/Distinct	

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions throughout entire sampled profile.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is located north of the utility corridor and is part of the outwash plain of the nearby streambed.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 4-30-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Wetland Transect ID: Plot ID: Ob. Pt. 6

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Quercus phellos*	SS	FACW-	9. *Callicarpa americana*	SS	FACU-
2. *Brachiaria platyphylla*	Herb	FAC+	10.		
3. *Liquidambar styraciflua*	Tree	FAC+	11.		
4. *Vitis aestivalis*	WV	FAC-	12.		
5. *Smilax smallii*	WV	FACU	13.		
6. *Juncus effusus*	Herb	OBL	14.		
7. *Quercus nigra*	SS	FAC	15.		
8. *Acer saccharum*	Tree	FACW	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 6/9 = 67%

Remarks:
Dominant vegetation at this location is hydrophytic. Species are influenced by apparent outwash area in which this location exists.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: 6 (in.)

Depth to Saturated Soil: 6 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☒ Drift Lines
- ☐ Sediment Deposits
- ☒ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. Very close proximity to well defined flowing stream. This location is on the outwash plain of a well defined stream.

SOILS (Observation Point #6)

Map Unit Name (Series and Phase): Troup sandy loam

Drainage Class: Somewhat Excessively Drained

Taxonomy (Subgroup): thermic Grossarenic Kandiudults

Field Observations Confirm Mapped Type? Yes ☒ No ☐

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-14		10YR 5/2	10YR 5/8	Few/Fine/Distinct	Sandy, Grayish Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions throughout entire sampled profile. Soils are not mapped as hydric by the NRCS but do exhibit hydric characteristics.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is located north of the utility corridor and is part of the outwash plain of the nearby streambed.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 4-30-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Upland Transect ID: Plot ID: Ob. Pt. 7

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Vitis aestivalis*	WV	FAC-	9.		
2. *Smilax smallii*	WV	FACU	10.		
3. *Cornus florida*	Tree	FACU	11.		
4. *Acer rubrum*	Tree	FAC	12.		
5. *Liquidambar styraciflua*	Tree	FAC+	13.		
6. *Ilex opaca*	SS	FAC-	14.		
7. *Quercus phellos*	Tree	FACW-	15.		
8. *Ulmus americana*	Tree	FACW	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/8 = 50%

Remarks:
Dominant vegetation at this location is hydrophytic. The vegetation is noticeably more upland than point 6 but is still considered dominant hydrophytic.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: NA (in.)

Depth to Saturated Soil: NA (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:
Wetland hydrology was not met at this location. This location lies approximately 3 feet above the outwash plain located near the sreambed.

SOILS (Observation Point #7)

Map Unit Name (Series and Phase): Troup loamy sand

Drainage Class: Somewhat excessively drained

Taxonomy (Subgroup): thermic Grossarenic Kandiudults

Field Observations Confirm Mapped Type? Yes ☐ No ☒

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-2		Humus Layer			Leaf Litter
2-10		10YR 4/4			Sandy Clay, Dark Yellowish Brown
10-14		10YR 7/4			Clay, Very Pale Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are not considered hydric. Soils are very different than other locations, being they are mostly clay at this point. Nevertheless other hydric indicators were present. Soils could not be confirmed with map type.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒
Hydric Soils Present?	Yes ☐	No ☒

Is this Sampling Point Within a Wetland? Yes ☐ No ☒

Remarks:
All three wetland criteria are not present at this location. This area is located approximately 3 feet above Ob Pt. 6 on the slope above the outwash area of Area A.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center
Applicant/Owner: U.S Army Military Reservation, Ft. Benning
Investigator: Michael Gartman (E&E,Inc.)

Date: 5-1-03
County: Chattahoochee
State: Georgia

Do Normal Circumstances exist on the site? Yes ☒ No ☐
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒
Is the area a potential Problem Area? Yes ☐ No ☒
(if needed, explain on reverse.)

Community ID: Wetland
Transect ID:
Plot ID: Ob. Pt. 8

VEGETATION

Dominant Plant Species	Stratum	Indicator *
1. *Nyssa sylvatica*	Tree	OBL
2. *Carex spp.*	Herb	FAC+
3. *Osmunda cinnamomea*	Herb	FACW+
4. *Magnolia virgiiana*	Tree	FACW+
5. *Acer rubrum*	Tree	FAC
6. *Acer rubrum*	SS	FAC
7. *Cornus florida*	Tree	FACU
8. *Vitis aestivalis*	WV	FAC-
9. *Myrica cerifera*	SS	FAC+
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 7/9 = 77%

Remarks:
Dominant vegetation at this location is hydrophytic. Very little ground cover exists, mostly very large trees.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: 8 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☒ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. Secondary indicator other indicated the presence of buttressed tress, which can be an indicator of past inundation. This area is also located next to a seepage area that contributes to hydrologic indicators.

SOILS (Observation Point #8)

Map Unit Name (Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Taxonomy (Subgroup): _____

Field Observations Confirm Mapped Type? Yes ☐ No ☒

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-14		10YR 3/2	10YR 5/6	Few/Fine/Distinct	Clayey Sand, Very Dark Gravish Brown
			10YR 4/4	Few/Medium/Distinct	

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions and gleyed chroma throughout the soil profile.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is located at a low point in elevation which is consistent with this portion of the wetland Area B. It is very similar to the headwater area of Area A.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center Applicant/Owner: U.S Army Military Reservation, Ft. Benning Investigator: Michael Gartman (E&E,Inc.)	Date: 5-1-03 County: Chattahoochee State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐ Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Is the area a potential Problem Area? Yes ☐ No ☒ (if needed, explain on reverse.)	Community ID: Upland Transect ID: Plot ID: Ob. Pt. 9

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Vitis aestivalis*	WV	FAC-	9. *Callicarpa americana*	SS	FACU-
2. *Smilax smallii*	WV	FACU	10. *Liquidambar styraciflua*	Tree	FAC+
3. *Pinus taeda*	Tree	FAC	11. *Sassafras albidum*	Tree	FACU
4. *Acer rubrum*	Tree	FAC	12.		
5. *Acer rubrum*	SS	FAC	13.		
6. *Ilex opaca*	SS	FAC-	14.		
7. *Myrica cerifera*	SS	FAC+	15.		
8. *Cornus florida*	Tree	FACU	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/11 = 45%

Remarks:
Dominant vegetation at this location is not hydrophytic. The vegetation is noticeably more upland variety than the point within the wetland because it does not occur in the seepage area.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: NA (in.)

Depth to Saturated Soil: NA (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:
Wetland hydrology was not met at this location. This location does not lie within the seepage area present that feeds the lower elevations of Area B.

SOILS (Observation Point #9)

Map Unit Name (Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations Confirm Mapped Type? Yes ☐ No ☒

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-4		10YR 4/3			Sandy, Brown
4-14		10YR 4/6			Sandy, Dark Yellowish Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are not considered hydric. Soils are very sandy with no organic streaking. The soils are not under the influence of the present seepage area located a few feet to the south.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒
Hydric Soils Present?	Yes ☐	No ☒

Is this Sampling Point Within a Wetland? Yes ☐ No ☒

Remarks:
All three wetland criteria are not present at this location. This area is located approximately 10 feet north on the same topographic elevation as point 8.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center
Applicant/Owner: U.S Army Military Reservation, Ft. Benning
Investigator: Michael Gartman (E&E,Inc.)

Date: 5-1-03
County: Chattahoochee
State: Georgia

Do Normal Circumstances exist on the site? Yes ☒ No ☐
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒
Is the area a potential Problem Area? Yes ☐ No ☒
(if needed, explain on reverse.)

Community ID: Wetland
Transect ID:
Plot ID: Ob. Pt. 10

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. *Nyssa sylvatica*	Tree	OBL
2. *Carex spp.*	Herb	FAC+
3. *Liquidambar styraciflua*	Tree	FAC+
4. *Magnolia virginiana*	Tree	FACW+
5. *Acer rubrum*	Tree	FAC
6. *Myrica cerifera*	SS	FAC+
7. *Ilex opaca*	SS	FAC-
8. *Betula nigra*	Tree	FACW
9. *Juncus effuses*	Herb	OBL
10. *Toxicodendron radicans*	Herb	FAC
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 9/10 = 90%

Remarks:
Dominant vegetation at this location is hydrophytic. Many smaller species exist at this location because of the extremely wet conditions.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: 8 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☒ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☒ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. This location is in very close proximity to the streambed and occurs on an island within the braided stream network.

SOILS (Observation Point #10)

Map Unit Name (Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Taxonomy (Subgroup): _____

Field Observations Confirm Mapped Type? Yes ☐ No ☒

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-3		10YR 3/4			Sandy, Dark Yellowish Brown
3-10		10YR 7/6			Sandy, Yellow
10-14		7.5YR 4/6	10YR 5/5	Common/Medium/Distinct	Sandy, Strong Brown
			10YR 7/6	Few/Fine/Prominent	

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☒ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions and have streaking in sandy soils. The Strong brown of the bottom layer is the same color present within the streambed.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is located on an island between the braided stream network.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center	Date: 5-1-03
Applicant/Owner: U.S Army Military Reservation, Ft. Benning	County: Chattahoochee
Investigator: Michael Gartman (E&E,Inc.)	State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐	Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒	Transect ID:
Is the area a potential Problem Area? Yes ☐ No ☒	Plot ID: Ob. Pt. 11
(if needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Vitis aestivalis*	WV	FAC-	9.		
2. *Smilax smallii*	WV	FACU	10.		
3. *Cornus florida*	Tree	FACU	11.		
4. *Acer rubrum*	Tree	FAC	12.		
5. *Pinus taeda*	Tree	FAC	13.		
6. *Quercus nigra*	Tree	FAC	14.		
7. *Quercus phellos*	Tree	FACW-	15.		
8. *Quercus falcata*	Tree	FACU-	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/8 = 50%

Remarks:
Dominant vegetation at this location is hydrophytic. The vegetation is noticeably more upland than point 10, but is still considered dominant hydrophytic.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: NA (in.)

Depth to Saturated Soil: NA (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:
Wetland hydrology was not met at this location. This location lies approximately 3 feet above the braided stream network located to the west.

SOILS (Observation Point #11)

Map Unit Name (Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Taxonomy (Subgroup): _____

Field Observations Confirm Mapped Type? Yes ☐ No ☒

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-4		10YR 4/2			Sandy, Dark Grayish Brown
4-14		10YR 5/6			Clayey Sand, Yellowish Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are not considered hydric. No low chroma colors or reducing conditions were found at this location.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒
Hydric Soils Present?	Yes ☐	No ☒

Is this Sampling Point Within a Wetland? Yes ☐ No ☒

Remarks:
All three wetland criteria are not present at this location. This location is on the east slope of the ridge approximately 2 feet above the stream network.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center	Date: 5-1-03
Applicant/Owner: U.S Army Military Reservation, Ft. Benning	County: Chattahoochee
Investigator: Michael Gartman (E&E,Inc.)	State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐	Community ID: Wetland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒	Transect ID:
Is the area a potential Problem Area? Yes ☐ No ☒	Plot ID: Ob. Pt. 12
(if needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Nyssa sylvatica*	Tree	OBL	9.		
2. *Carex spp.*	Herb	FAC+	10.		
3. *Betula nigra*	Tree	FACW	11.		
4. *Magnolia virginiana*	Tree	FACW+	12.		
5. *Ilex opaca*	SS	FAC-	13.		
6. *Myrica cerifera*	SS	FAC+	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83%

Remarks:
Dominant vegetation at this location is hydrophytic. Many smaller species exist at this location because of the extremely wet conditions associated with a seepage area and the stream network.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: 8 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☒ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☒ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. This location is in very close proximity to the streambed and a seepage area on an island within the braided stream network.

SOILS (Observation Point #12)

Map Unit Name (Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations

Taxonomy (Subgroup): _____

Confirm Mapped Type? Yes ☐ No ☒

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-11		10YR 7/6	7.5YR 4/6	Few/Medium/Prominent	Clayey Sand, Yellow
11-14		10YR 3/2	7.5YR 4/6	Few/Medium/Prominent	Clayey Sand, Very Dark Grayish Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☒ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions and have streaking in sandy soils. The Strong brown color of mottles is the same color present within the streambed.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is located on an island between the braided stream network and a seepage area north of Area's 10 and 11.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center	Date: 5-1-03
Applicant/Owner: U.S Army Military Reservation, Ft. Benning	County: Chattahoochee
Investigator: Michael Gartman (E&E,Inc.)	State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐	Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒	Transect ID:
Is the area a potential Problem Area? Yes ☐ No ☒	Plot ID: Ob. Pt. 13
(if needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Vitis aestivalis*	WV	FAC-	9.		
2. *Smilax smallii*	WV	FACU	10.		
3. *Quercus falcata*	Tree	FACU-	11.		
4. *Acer rubrum*	Tree	FAC	12.		
5. *Pinus taeda*	Tree	FAC	13.		
6. *Quercus nigra*	Tree	FAC	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/6 = 50%

Remarks:
Dominant vegetation at this location is hydrophytic. The vegetation is noticeably more upland than point 12 but is still considered dominant hydrophytic.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: NA (in.)

Depth of Free Water in Pit: NA (in.)

Depth to Saturated Soil: NA (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks:
Wetland hydrology was not met at this location. This location lies approximately 2 feet above the braided stream network located to the west.

SOILS (Observation Point #13)

Map Unit Name
(Series and Phase): SOILS NOT MAPPED

Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes ☐ No ☒

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-1		Humus Layer			Leaf Litter
1-4		10YR 4/2			Sandy, Dark Grayish Brown
4-14		10YR 5/6			Clayey Sand, Yellowish Brown

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are not considered hydric. No low chroma colors or reducing conditions were found at this location. The soils at this location are identical to those of point 11, which is geographically the same distance and elevation from Area B as this location.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒
Hydric Soils Present?	Yes ☐	No ☒

Is this Sampling Point Within a Wetland? Yes ☐ No ☒

Remarks:
All three wetland criteria are not present at this location. This location is on the east slope of the ridge to be developed approximately 2 feet above the stream network and seepage promoting hydrophytic vegetation..

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ft. Benning Shopping Center	Date: 5-1-03
Applicant/Owner: U.S Army Military Reservation, Ft. Benning	County: Chattahoochee
Investigator: Michael Gartman (E&E,Inc.)	State: Georgia
Do Normal Circumstances exist on the site? Yes ☒ No ☐	Community ID: Wetland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒	Transect ID:
Is the area a potential Problem Area? Yes ☐ No ☒	Plot ID: Ob. Pt. 14
(if needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juncus effusus*	Herb	OBL	9.		
2. *Carex spp.*	Herb	FAC+	10.		
3. *Betula nigra*	Tree	FACW	11.		
4. *Magnolia virginiana*	Tree	FACW+	12.		
5. *Ilex opaca*	SS	FAC-	13.		
6. *Myrica cerifera*	SS	FAC+	14.		
7. *Juncus marginatus*	Herb	FACW	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 6/7 = 86%

Remarks:
Dominant vegetation at this location is hydrophytic. Many smaller species exist at this location because of the extremely wet conditions associated with a seepage area and blockage by CWD.

HYDROLOGY

☒ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other – USGS Topographic Map

☐ No Recorded Data Available

Field Observations:

Depth of Surface Water: 4 (in.)

Depth of Free Water in Pit: NA (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☒ Inundated
- ☒ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Remarks:
Wetland hydrology was met at this location. This location is impounded by CWD from clearing activities.

SOILS (Observation Point #14)

Map Unit Name (Series and Phase): Nakin sandy clay loam

Drainage Class: Well drained

Taxonomy (Subgroup): thermic Typic Kanhapludults

Field Observations Confirm Mapped Type? Yes ☒ No ☐

Profile Description:

Depth (inches)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture Concretions, Structure, etc.
0-14		10YR 5/3	7.5YR 4/6	Few/Medium/Prominent	Clayey Sand, Brown
			10YR 6/8	Common/Fine/Distinct	

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks:
Soils at this location are considered hydric. Soils exhibit reducing conditions.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks:
All three wetland criteria are present at this location. This area is a large drainage into Hamlet Creek. It exists because of a seepage area at the headwater. Standing water is the result of woody debris blocking natural flow.

Attachment C

Site Photographs

Photo1. Looking north at pine forested area on ridge plateau.

Photo 2. Looking west at utility line corridor from the ridge plateau on the surveyed area's southern portion.

Photo 3. Looking north at ridge slopes and cleared areas.

Photo 4. Looking north at past inundated area behind weir of Area A.

Photo 5. Looking north at sandy stream bed and associated outwash wetland within Area A.

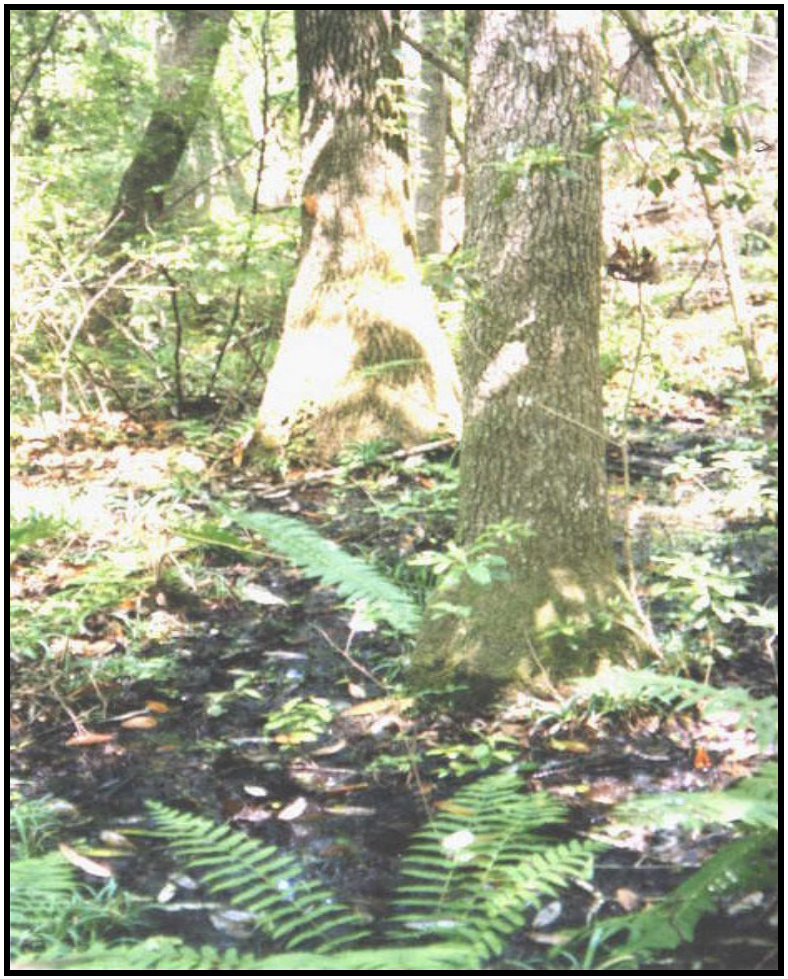


Photo 6. Looking east at buttressed trees along seepage area within Area B.

Photo 7. Looking west at sandy stream bed and adjacent ridge slope in Area A.

Photo 8. Looking south at braided stream network in the upper extents of Area B

Photo 9. Looking north at highly incised stream channel within Area B.

Photo 10. Looking north at clay bottom stream bed within Area B.

Appendix B

Cultural Resources and Protected Species Information

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY INFANTRY CENTER
FORT BENNING, GEORGIA 31905-5000

REPLY TO
ATTENTION OF

MAR 20 2000

Natural Resources
Management Branch

Mr. Lee Andrews
Acting Field Supervisor
U.S. Fish and Wildlife Service
Building 5887
Fort Benning, GA 31907

Dear Mr. Andrews:

Fort Benning is proposing to build a new shopping mall in the area indicated on the enclosed map (enclosure 1). This action will invlove the removal of approximately 14 Red-cockaded woodpecker (RCW) trees. These trees are associated with abandoned cluster AA-01. This site has been inactive for over 8 years and was deleted from management in 1998. The area is not foraging habaitat for any currently active clusters and is not in the foragaing circle for any inactive cluster. We believe that the removal of these trees/cluster will not adversely affect the continued existence of the RCW at Fort Benning.

We request your review and concurrence with this action. If you have any further questions, please contact Mr. Michael Barron, (706) 544-7080/7319.

Sincerely,

John J. Brent
Chief, Environmental
Management Division

Enclosure

1414 copy

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY INFANTRY CENTER
FORT BENNING, GEORGIA 31905-5000

REPLY TO
ATTENTION OF

Conservation Branch

JAN 16 2001

Mr. Steve Parris
Supervisory Biologist
U.S. Fish and Wildlife Service
Bldg 5887
Fort Benning, GA 31905

RECEIVED
JAN 18 2001

FWS-01-0592

Dear Mr. Parris:

Fort Benning is proposing to construct a new Post Exchange (PX) building in Training Compartment (AA) near the current PX facility. The building footprint is 228,400 square feet. The total area of disturbance is ± 45 acres. The general location is bound by Marne Road to the south, I-185 to the west, and undeveloped forested areas and Hamlet Creek to the north and east (enclosure 1).

To date, we have had initial meetings with the contractor (URS Corporation) awarded the environmental assessment portion of the project (enclosure 2). We believe this project can be implemented, however, the proposed build out will eliminate 33.957 acres of suitable red-cockaded woodpecker (RCW) foraging habitat (pine and mixed pine stands ≥ 30 years). Consequently, this disturbance may provide for some type of low level mitigation/exchange opportunity. At this time we believe this initiative will not adversely affect the continued existence of the RCW on Fort Benning.

Please find a comprehensive package of materials that describes this project (enclosure 3). We request your review and consultation for this action.

U. S. Fish and Wildlife Service
247 S. Milledge Ave., Athens, Georgia 30605
Phone: (706) 613-9493 Fax: (706) 613-6059

FWS Log No. 01-0592

The Service has reviewed the plans for this proposed project. Based on the information you provided, no further action is required under Section 7(a)(2) of the Endangered Species Act. However, if new information or changes in the project involve federally listed species, further consultation with the Service will be required.

for Stephen D. Ferris
Sandra S. Tucker, Field Supervisor

6-12-02
Date

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY INFANTRY CENTER
FORT BENNING, GEORGIA 31905-5000

REPLY TO
ATTENTION OF

Conservation Branch

JAN 16 2001

Mr. Steve Parris
Supervisory Biologist
U.S. Fish and Wildlife Service
Bldg 5887
Fort Benning, GA 31905

Dear Mr. Parris:

Fort Benning is proposing to construct a new Post Exchange (PX) building in Training Compartment (AA) near the current PX facility. The building footprint is 228,400 square feet. The total area of disturbance is ± 45 acres. The general location is bound by Marne Road to the south, I-185 to the west, and undeveloped forested areas and Hamlet Creek to the north and east (enclosure 1).

To date, we have had initial meetings with the contractor (URS Corporation) awarded the environmental assessment portion of the project (enclosure 2). We believe this project can be implemented, however, the proposed build out will eliminate 33.957 acres of suitable red-cockaded woodpecker (RCW) foraging habitat (pine and mixed pine stands ≥ 30 years). Consequently, this disturbance may provide for some type of low level mitigation/exchange opportunity. At this time we believe this initiative will not adversely affect the continued existence of the RCW on Fort Benning.

Please find a comprehensive package of materials that describes this project (enclosure 3). We request your review and consultation for this action.

If you have any further questions, please contact Mr. Pete Swiderek or Mr. John Doresky at (706) 544-7077 or 7069, respectively.

Sincerely,

John J. Brent
Chief, Environmental Management Division

Enclosures

Copies Furnished:

Michael Barron
Patrick Chauvey
John Doresky
Melissa Kendrick
Bob Larimore
Pete Swiderek

Georgia Department of Natural Resources
Wildlife Resources Division

LONICE C. BARRETT, COMMISSIONER
DAVID WALLER, DIVISION DIRECTOR

Georgia Natural Heritage Program
2117 U.S. Hwy. 278 S.E., Social Circle, Georgia 30025-4714
(770) 918-6411, (706) 557-3032

November 17, 2000

David Pearce
Senior Biologist
URS Corporation
5900 Windward Parkway, Suite 400
Alpharetta, Ga 30005

Subject: **Known or Potential Occurrences of Special Concern Plant and Animal Species on or near Proposed Project Site, Chattahoochee County, Georgia**

Dear Mr. Pearce:

This is in response to your request of October 24, 2000. According to our records, within a three mile radius of the project site, there are occurrences of the following:

Croomia pauciflora (Croomia) approx. 2.0 mi. NE of site
Macroclemys temminckii (Alligator Snapping Turtle) approx. 3.0 mi. W of site
Panax quinquefolius (American Ginseng) approx. 0.5 mi. N of site
Panax quinquefolius (American Ginseng) approx. 2.0 mi. NE of site
Rhus michauxii (Dwarf Sumac), an imprecise location, approx. 2.5 mi. NW of site

Enclosed are lists that should aid in assessing the potential for rare species occurrences within the area of concern.

Please keep in mind the limitations of our database. The data collected by the Georgia Natural Heritage Program comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Georgia Natural Heritage Program can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.

If you know the location of populations of special concern species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (http://www.dnr.state.ga.us/dnr/wild/natural.html) or by contacting our office. If I can be of further assistance, please let me know.

Sincerely,

Greg Krakow
Data Manager

enclosures

UR 7959

Edition date: 9/03/99

GEORGIA NATURAL HERITAGE PROGRAM
EXPLANATION OF RARITY RANKS AND LEGAL STATUSES

The "State Rank" and "Global Rank" codes indicate relative rarity of species statewide and range-wide, respectively. An explanation of these codes follows.

STATE [GLOBAL] RANK

S1[G1] = Critically imperiled in state [globally] because of extreme rarity (5 or fewer occurrences).

S2[G2] = Imperiled in state [globally] because of rarity (6 to 20 occurrences).

S3[G3] = Rare or uncommon in state [rare and local throughout range or in a special habitat or narrowly endemic] (on the order of 21 to 100 occurrences).

S4[G4] = Apparently secure in state [globally] (of no immediate conservation concern).

S5[G5] = Demonstrably secure in state [globally].

SA = Accidental in state, including migratory or wide-ranging species recorded only once or twice or at very great intervals.

SN = Regularly occurring, usually migratory and typically nonbreeding species.

SR = Reported from the state, but without persuasive documentation (no precise site records and no verification of taxonomy).

SU[GU] = Possibly in peril in state [range-wide] but status uncertain; need more information on threats or distribution.

SX[GX] = Apparently extirpated from state [extinct throughout range]. GXC is known only in cultivation/captivity.

SE = An exotic established in state; may be native elsewhere in North America; sometimes difficult to determine if native (SE?).

SH[GH] = Of historical occurrence in the state [throughout its range], perhaps not verified in the past 20 years, but suspected to be still extant.

[T] = Taxonomic subdivision (trinomial, either a subspecies or variety), used in a global rank, for example "G2T2."

Q = Denotes a taxonomic question - either the taxon is not generally recognized as valid, or there is reasonable concern about its validity or identity globally or at the state level.

? = Denotes questionable rank; best guess given whenever possible (e.g. S3?).

FEDERAL STATUS (US Fish and Wildlife Service, USFWS)

The following abbreviations are used to indicate the legal status of federally-protected plants and animals or those proposed for listing.

LE = Listed endangered. The most critically imperiled species. A species that may become extinct or disappear from a significant part of its range if not immediately protected.

LT = Listed threatened. The next most critical level of threatened species. A species that may become endangered if not protected.

PE or PT = Candidate species currently proposed for listing as endangered or threatened.

C = Candidate species presently under status review for federal listing for which adequate information exists on biological vulnerability and threats to list the taxa as endangered or threatened.

*NL = Status varies for different populations or parts of range with at least one part not listed (e.g., a species with part of its range assigned by USFWS as threatened, would be recorded as "LTNL").

STATE STATUS (Georgia Department of Natural Resources, GA-DNR)

The following abbreviations are used to indicate the status of state-protected plants and animals or those proposed for state-protection in Georgia.

E = Listed as endangered.

T = Listed as threatened.

R = Listed as rare.

U = Listed as unusual (and thus deserving of special consideration). For example plants subject to commercial exploitation would have this status.

NOTE:
This is a working list and is constantly revised. For the latest changes, acknowledgment of numerous sources, interpretation of data, or other information connected with this list, please contact:

Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Highway 278 S.E.
Social Circle, Georgia 30025-4714
Phone: 770-918-6411 or 706-557-3032
Fax: 706-557-3033
E-mail: greg_krakow@mail.dnr.state.ga.us

The proper citation for this list is:

Georgia Natural Heritage Program. [Edition date from top right corner]. [Title from top center]. Georgia Department of Natural Resources, Social Circle.

Report Generated 4 November 1999

Special Concern Plants Potentially Occurring in Muscogee County

98 Taxa

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Aesculus parviflora BOTTLEBRUSH BUCKEYE	G2G3	S2S3			Mesic bluff and ravine forests
Agrimonia incisa CUTLEAF AGRIMONY; CUTLEAF HARVEST LICE	G3	S3			Mixed oak-hickory forests, pine savannas, mesic hardwood forests
Amorpha schwerinii SCHWERIN INDIGO-BUSH	G3	S2			Rocky upland woods
Amphianthus pusillus POOL SPRITE, SNORKELWORT	G2	S2	LT	T	Vernal pools on granite outcrops
Anemone berlandieri GLADE WINDFLOWER	G4?	S1S2			Granite outcrop ecotones; openings over basic rock
Arabis georgiana GEORGIA ROCKCRESS	G2	S1		T	Rocky or sandy river bluffs and banks, in circumneutral soil
Asclepias purpurascens PURPLE MILKWEED	G4G5	S1			Upland oak-hickory-pine forests
Aster georgianus GEORGIA ASTER	G2G3	S2			Upland oak-hickory-pine forests; especially with Echinaceae laevigata
Baptisia megacarpa BIGPOD WILD INDIGO	G2	S1			Floodplain forests
Berberis canadensis AMERICAN BARBERRY	G3	S1			Cherty, thinly wooded slopes
Brickellia cordifolia FLYR'S NEMESIS	G2G3	S1			Mesic hardwood forests
Buchnera americana BLUEHEARTS	G5?	S1			Wet meadows; seasonally moist barrens and limestone glades
Campylopus carolinae SANDHILL AWNED MOSS	G1G2	S2?Q			Fall line sandhills; Altamaha Grit outcrops in partial shade of mesic oak forests
Carex collinsii NARROW-FRUIT SWAMP SEDGE	G4	S2			Seepage bogs; Atlantic whitecedar swamps; other habitats?
Carex lonchocarpa SEDGE	G5	S3			Clearwater creek swamps
Carex prasina DROOPING SEDGE	G4	S3			Forested seepage slopes
Carex stricta SEDGE	G5	S1			Sag ponds and other seasonal ponds
Carex torta TWISTED SEDGE	G5	S1?			Rocky streambeds
Carex venusta SEDGE	G4	SU			Bogs and low woods
Castanea dentata AMERICAN CHESTNUT (NUT-BEARING ONLY)	G4	S3			Upland mixed oak or oak-hickory forests
Chamaecrista deeringiana FLORIDA SENNA	G1G2	S1?			Sandhill scrub; longleaf pine-wiregrass savannas
Chamaecyparis thyoides ATLANTIC WHITE CEDAR	G4	S2		R	Clearwater stream swamps in fall line sandhills

Report Generated 4 November 1999

Special Concern Plants Potentially Occurring in Muscogee County — 98 Taxa

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Chrysoma pauciflosculosa WOODY GOLDENROD	G4G5	S3			Ohoopee dunes; sandridges
Cirsium virginianum VIRGINIA THISTLE	G3G4	S2?			Moist pinelands; moist longleaf pine/wiregrass savannas
Collinsonia tuberosa STONEROOT	G3G4	S3			Mesic woods over basic rock
Corydalis flavula YELLOW CORYDALIS	G5	S1?			Rocky floodplain forests; hardwood ravines over amphibolite or limestone
Crataegus ravenelii BIGFRUIT HAWTHORN	G?	SUQ			Open hardwood forests
Croomia pauciflora CROOMIA	G3	S1		T	Mesic hardwood forests
Cyperus refractus FLATSEDGE	G5	SU			Sandy rocky woods
Desmodium sessilifolium SESSILE-LEAF TICK-TREFOIL	G5	S1?			Sandhills in oak forest openings; perhaps prairie relict areas?
Dodecatheon meadia SHOOTING-STAR	G5	S3			Mesic hardwood forests over basic soils
Eleocharis tenuis SPIKERUSH	G5	SU			Swamps
Fothergilla gardenii DWARF WITCH-ALDER	G4	S2		T	Openings in low woods; swamps
Gymnopogon brevifolius BROAD-LEAVED BEARDGRASS	G5	S1			Calcareous glades and prairies
Helenium brevifolium BOG SNEEZEWEED	G3G4	S1			Seepage bogs, sometimes with Sarracenia rubra near the Fall Line
Helianthemum canadense CANDADIAN FROSTWEED	G5	S1?			Dry, sandy scrub in fire-suppressed longleaf pine forest
Helianthus smithii SMITH SUNFLOWER	G2Q	S1			Dry open woods and thickets
Hexastylis shuttleworthii var. harperi HARPER HEARTLEAF	G4T3	S2?		U	Low terraces in floodplain forests; edges of bogs
Hymenocallis coronaria SHOALS SPIDERLILY	G2Q	S2		E	Rocky shoals of broad, open rivers
Ipomopsis rubra STANDING CYPRESS	G4G5	S3			Granite outcrops; sandridges
Iris brevicaulis LAMANCE IRIS	G4	S1			Bogs, seeps, marshy shores and floodplains; often hidden in taller vegetation due to its low stature
Isoetes melanopoda BLACK-FOOTED QUILLWORT	G5	S1?			Clayey soils in low woods; sandstone or granite outcrop seeps
Listera australis SOUTHERN TWAYBLADE	G4	S2			Poorly drained circumneutral soils
Lonicera flava YELLOW HONEYSUCKLE	G5?	S3?			Rocky, upland forests and thickets
Macbridea caroliniana CAROLINA BOGMINT	G2G3	S1?			Bogs; marshes; alluvial woods

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Special Concern Plants Potentially Occurring in Muscogee County — 98 Taxa

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Matelea alabamensis ALABAMA MILKVINE	G1G2	S1		T	Open bluff forests; mesic margins of longleaf pine sandridges
Matelea flavidula YELLOW MILKVINE	G3?	S3?			Open bluff forests; floodplain forests
Melanthium latifolium BROADLEAF BUNCHFLOWER	G5	S2?			Mesic deciduous hardwood forests
Melanthium woodii OZARK BUNCHFLOWER	G5	S2			Mesic hardwood forests over basic soils
Mirabilis albida PALE UMBRELLA-WORT	G5	S1?			Sandhills of SW Georgia with Warea sessiliflora
Myriophyllum laxum LAX WATER-MILFOIL	G3	S2		T	Bluehole spring runs; shallow, sandy, swift-flowing creeks; clear, cool ponds
Nestronia umbellula INDIAN OLIVE	G4	S2		T	Mixed with dwarf shrubby heaths in oak-hickory-pine woods; often in transition areas between flatwoo
Oldenlandia boscii BLUETS	G5	S1?			Cypress pond margins; exposed pond bottoms
Pachysandra procumbens ALLEGHENY-SPURGE	G4G5	S1S2			Mesic hardwood forests over basic soils
Panax quinquefolius AMERICAN GINSENG	G4	S3			Mesic hardwood forests; cove hardwood forests
Parietaria pensylvanica PENNSYLVANIA PELLITORY, HAMMERWORT	G5	S1?			Dry, open, calcareous soil
Paronychia rugelii var. interior RUGEL NAILWORT	G2?T2?Q	S2?			Longleaf pine-turkey oak scrub, mostly Alapaha River drainage
Phaseolus polystachios var. sinuatus TRAILING BEAN-VINE	G4T3?	S2?			Sandhills; dry pinelands and hammocks
Pilularia americana AMERICAN PILLWORT	G5	S2			Granite outcrops; seasonally exposed muddy shores
Pinguicula primuliflora CLEARWATER BUTTERWORT	G4	S1		T	In shallow, sandy, clearwater streams and seeps; Atlantic whitecedar swamps
Pityopsis pinifolia SANDHILL GOLDEN-ASTER	G4	S2		T	Sandhills near fall line
Platanthera integra YELLOW FRINGELESS ORCHID	G3G4	S2			Wet savannas, pitcherplant bogs
Platanthera nivea SNOWY ORCHID	G5	S3			Wet savannas, pitcherplant bogs
Ponthieva racemosa SHADOW-WITCH ORCHID	G4G5	S2?			Calcareous swamps; marly outcrops
Quercus arkansana ARKANSAS OAK	G3	S2S3			Sandy upper ravine slopes
Quercus austrina BLUFF WHITE OAK	G5	S3?			Bluff forests; floodplain hammocks
Quercus georgiana GEORGIA OAK	G4	S3			Granite outcrops; quartzite and gneiss ridgetops

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Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Quercus prinoides DWARF CHINKAPIN OAK	G5	S2			Upland oak-hickory-pine forests; usually over basic soils
Rhododendron flammeum OCONEE AZALEA	G3	S3			Bluff forests and mesic woods
Rhododendron prunifolium PLUMLEAF AZALEA	G3	S3		T	Mesic hardwood forests in ravines and on sandy, seepy streambanks
Rhus michauxii DWARF SUMAC	G2	S1	LE	E	Open forests over ultramafic rock
Rhynchospora scirpoides LONG-BEAK BALDRUSH	G4	S2?			Floating mats in ponds; pond margins
Rudbeckia heliopsidis LITTLE RIVER BLACK-EYED SUSAN	G2	S1			Limestone or sandstone barrens and streamsides
Sarracenia rubra SWEET PITCHERPLANT	G3	S2		E	Atlantic white cedar swamps; wet meadows
Schisandra glabra BAY STARVINE	G3	S2		T	Stream terraces
Schwalbea americana CHAFFSEED	G2	S1	LE	E	Ponds margins and wet savannas; upland ridge forests
Scirpus etuberculatus CLUB-RUSH	G3G4	S1S2?			Marshes; shallow ponds; peaty swamps, as Okefenokee Swamp and Atlantic whitecedar swamps
Sedum nevii NEVIUS STONECROP	G3	S1		T	Gneiss ledges on river bluffs
Sedum pusillum DWARF GRANITE STONECROP	G3	S3		T	Granite outcrops
Silene ovata MOUNTAIN CATCHFLY	G2	S1			Mesic deciduous forests over limestone; high elevation oak forests
Silene polypetala FRINGED CAMPION	G2	S2	LE	E	Mesic deciduous forests
Smilax leptanthera CATBRIER	GHQ	SH			Deciduous forests
Solanum carolinense var. hirsutum HORSE-NETTLE	G5T1	SH			Thickets; calcareous barrens
Spiranthes ovalis OVAL LADIES-TRESSES	G5	S3?			Moist hammocks; swamp margins; wet thickets over basic soils
Stewartia malacodendron SILKY CAMELLIA	G4	S2		R	Steepheads, bayheads; edges of swamps
Stylisma pickeringii var. pickeringii PICKERING MORNING-GLORY	G4T2T3	S2		T	Open, dry, oak scrub of sandhills
Tragia cordata HEARTLEAF NETTLE VINE	G4	S2?			Dry, usually rocky, calcareous woods; also relict prairie openings on the Fort Valley Plateau
Trepocarpus aethusae TREPOCARPUS	G4G5	S2?			Floodplain forests
Triadenum tubulosum BROADLEAF MARSH ST. JOHNSWORT	G4?	S1S3?			Swamps

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Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Tridens carolinianus CAROLINA REDTOP	G3?	S1?			Dry pine forests
Trillium decipiens MIMIC TRILLIUM	G3	S3?			Mesic hardwood forests; limesink forests
Trillium lancifolium LANCELEAF TRILLIUM	G3	S2S3			Floodplain forests; also lower rocky slopes over basic soils
Trillium reliquum RELICT TRILLIUM	G2	S2	LE	E	Mesic hardwood forests; limesink forests
Uvularia floridana FLORIDA BELLWORT	G3?	S3?			Mixed oak-hickory forests; mesic hardwoods or magnolia-beech bluff forests
Warea sessilifolia SANDHILL-CRESS	G2G4	S1			Sandhills scrub
Xyris chapmanii CHAPMAN YELLOW-EYED GRASS	G3	S1?			Streamhead seepage bogs in deep muck with numerous other xyrids and graminoids
Xyris scabrifolia HARPER YELLOW-EYED GRASS	G3	S1			Sedge bogs; pitcherplant bogs; pine flatwoods
Zigadenus leimanthoides DEATH-CAMUS	G4Q	S1			Sandhill bogs; pine flatwoods

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Special Concern Animals Potentially Occurring in Muscogee County, Georgia

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Aimophila aestivalis BACHMAN'S SPARROW	G3	S3		R	Open pine or oak woods; old fields; brushy areas
Alosa chrysochloris SKIPJACK HERRING	G5	S2			Midwater of medium-sized streams to large rivers
Ameiurus serracanthus SPOTTED BULLHEAD	G3	S2		R	Large streams and rivers with moderate current and rock-sand substrate
Ammodramus henslowii HENSLOW'S SPARROW	G4	S3			Wet shrubby fields and weedy meadows
Botaurus lentiginosus AMERICAN BITTERN	G4	S3?			Marshes; lakes
Cyprinella callitaenia BLUESTRIPE SHINER	G2G3	S2		T	Flowing areas in large creeks and medium-sized rivers over rocky substrates
Elimia albanyensis BLACK-CREST ELIMIA	G5	SH			Slackwater habitats in medium-sized rivers
Elimia boykiniana FLAXEN ELIMIA	G3	SH			Gravel or cobble shoals with moderate current
Elliptio nigella WINGED SPIKE	GH	SX			Spring influenced streams with substrate of sand and limestone rock
Elliptoideus sloatianus PURPLE BANKCLIMBER	G2	S2	LT	T	Small to large rivers with moderate current and substrate of sand, fine gravel, or muddy sand
Etheostoma edwini BROWN DARTER	G5	S3			Small to moderate sized flowing streams in root masses or aquatic vegetation
Etheostoma parvipinne GOLDSTRIPE DARTER	G4G5	S2		R	Small sluggish streams and spring seepage areas in woody debris, leaf material, mud, and silt
Etheostoma swaini GULF DARTER	G5	S3			Small to medium streams with moderate current over substrates of sand and detritus
Eumeces anthracinus COAL SKINK	G5	S2			Moist woods near streams, springs or bogs
Eumeces egregius MOLE SKINK	G4	S3	(PS)		Coastal dunes; longleaf pine-turkey oak woods; dry hammocks
Gopherus polyphemus GOPHER TORTOISE	G3	S3	(PS:LT)	T	Sandhills; dry hammocks; longleaf pine-turkey oak woods
Graptemys barbouri BARBOUR'S MAP TURTLE	G2	S2		T	Rivers & creeks Apalachicola River drainage
Haliaeetus leucocephalus BALD EAGLE	G4	S2	(PS:LT,	E	Edges of lakes & large rivers; seacoasts
Heterodon simus SOUTHERN HOGNOSE SNAKE	G2	S2			Open, sandy woods; fields; floodplains
Ichthyomyzon gagei SOUTHERN BROOK LAMPREY	G5	S3			Creeks to small rivers with sand or sand and gravel substrate
Lampropeltis triangulum triangulum EASTERN MILK SNAKE	G5T5	S2			Open woods; fields; forests

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Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Lampsilis binominata LINED POCKETBOOK	GH	SX			Large creeks and rivers in stabilized shoals in moderate to swift current
Lampsilis subangulata SHINYRAYED POCKETBOOK	G2	S2	LE	E	Sandy/rocky medium-sized rivers & creeks
Lanius ludovicianus migrans MIGRANT LOGGERHEAD SHRIKE	G5T3Q	S?			Open woods; field edges
Lythrurus atrapiculus BLACKTIP SHINER	G4	S2			Pools and backwater areas in small to medium-sized creeks over sandy substrate
Macroclemys temminckii ALLIGATOR SNAPPING TURTLE	G3G4	S3		T	Rivers; lakes; large ponds near streams; swamps
Medionidus penicillatus GULF MOCCASINSHELL	G2	S2	LE	E	Sandy/rocky medium-sized rivers & creeks
Micropterus cataractae SHOAL BASS	G3	S3?			Shoals and riffles of large streams to rivers
Myotis austroriparius SOUTHEASTERN MYOTIS	G3G4	S3			Caves & buildings near water
Necturus sp. cf. beyeri GULF COAST WATERDOG	G4	S3			Habitat data is not available
Notropis harperi REDEYE CHUB	G4	S2		R	Springs and spring influenced creeks over sand or rocky substrates
Notropis hypsilepis HIGHSCALE SHINER	G3	S3		T	Flowing areas of small to large streams over sand or bedrock substrates
Nyctanassa violacea YELLOW-CROWNED NIGHT-HERON	G5	S3S4			River swamps; marshes; cypress/gum ponds
Nycticorax nycticorax BLACK-CROWNED NIGHT-HERON	G5	S3S4			River swamps; marshes; cypress/gum ponds
Ophisaurus attenuatus SLENDER GLASS LIZARD	G5	S3			Open woods; savannas; old fields; edges of streams & ponds; sandhills
Picoides borealis RED-COCKADED WOODPECKER	G3	S2	LE	E	Open pine woods; pine savannas
Pituophis melanoleucus mugitus FLORIDA PINE SNAKE	G4T3?	S3			Upland forests; grasslands; floodplains; old field
Plethodon websteri WEBSTER'S SALAMANDER	G3	S1			Moist forests near rocky streams
Pleurobema pyriforme OVAL PIGTOE	G2	S2	LE	E	Sandy, medium-sized rivers & creeks
Pteronotropis euryzonus BROADSTRIPE SHINER	G3	S1		R	Flowing areas of medium sized streams associated with sandy substrate and woody debris or vegetation
Pteronotropis hypselopterus SAILFIN SHINER	G5	S3			Flowing areas of small clear streams over sand substrate; often associated with woody debris or vege
Quincuncina infucata SCULPTURED PIGTOE	G4	S3			Main channels of rivers and large streams with moderate current in sand and limestone rock substrate

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Special Concern Animals Potentially Occurring in Muscogee County, Georgia

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Scartomyzon lachneri GREATER JUMPROCK	G4	S3			Small to large streams in swift current over rocky substrate
Strophitus subvexus SOUTHERN CREEKMUSSEL	G3	S2			Sand to sandy mud in slow or no current in small to large creeks

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Special Concern Animals Potentially Occurring in Chattahoochee County, Georgia

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Aimophila aestivalis BACHMAN'S SPARROW	G3	S3		R	Open pine or oak woods; old fields; brushy areas
Alosa chrysochloris SKIPJACK HERRING	G5	S2			Midwater of medium-sized streams to large rivers
Ameiurus serracanthus SPOTTED BULLHEAD	G3	S2		R	Large streams and rivers with moderate current and rock-sand substrate
Ammodramus henslowii HENSLOW'S SPARROW	G4	S3			Wet shrubby fields and weedy meadows
Botaurus lentiginosus AMERICAN BITTERN	G4	S3?			Marshes; lakes
Cyprinella callitaenia BLUESTRIPE SHINER	G2G3	S2		T	Flowing areas in large creeks and medium-sized rivers over rocky substrates
Elliptio nigella WINGED SPIKE	GH	SX			Spring influenced streams with substrate of sand and limestone rock
Elliptoideus sloatianus PURPLE BANKCLIMBER	G2	S2	LT	T	Small to large rivers with moderate current and substrate of sand, fine gravel, or muddy sand
Etheostoma edwini BROWN DARTER	G5	S3			Small to moderate sized flowing streams in root masses or aquatic vegetation
Etheostoma parvipinne GOLDSTRIPE DARTER	G4G5	S2		R	Small sluggish streams and spring seepage areas in woody debris, leaf material, mud, and silt
Etheostoma swaini GULF DARTER	G5	S3			Small to medium streams with moderate current over substrates of sand and detritus
Eumeces anthracinus COAL SKINK	G5	S2			Moist woods near streams, springs or bogs
Eumeces egregius MOLE SKINK	G4	S3	(PS)		Coastal dunes; longleaf pine-turkey oak woods; dry hammocks
Gopherus polyphemus GOPHER TORTOISE	G3	S3	(PS:LT)	T	Sandhills; dry hammocks; longleaf pine-turkey oak woods
Graptemys barbouri BARBOUR'S MAP TURTLE	G2	S2		T	Rivers & creeks Apalachicola River drainage
Haliaeetus leucocephalus BALD EAGLE	G4	S2	(PS:LT,	E	Edges of lakes & large rivers; seacoasts
Heterodon simus SOUTHERN HOGNOSE SNAKE	G2	S2			Open, sandy woods; fields; floodplains
Ichthyomyzon gagei SOUTHERN BROOK LAMPREY	G5	S3			Creeks to small rivers with sand or sand and gravel substrate
Lampropeltis triangulum triangulum EASTERN MILK SNAKE	G5T5	S2			Open woods; fields; forests
Lampsilis binominata LINED POCKETBOOK	GH	SX			Large creeks and rivers in stabilized shoals in moderate to swift current
Lampsilis subangulata SHINYRAYED POCKETBOOK	G2	S2	LE	E	Sandy/rocky medium-sized rivers & creeks

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Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Lanius ludovicianus migrans MIGRANT LOGGERHEAD SHRIKE	G5T3Q	S?			Open woods; field edges
Lythrurus atrapiculus BLACKTIP SHINER	G4	S2			Pools and backwater areas in small to medium-sized creeks over sandy substrate
Macroclemys temminckii ALLIGATOR SNAPPING TURTLE	G3G4	S3		T	Rivers; lakes; large ponds near streams; swamps
Medionidus penicillatus GULF MOCCASINSHELL	G2	S2	LE	E	Sandy/rocky medium-sized rivers & creeks
Micropterus cataractae SHOAL BASS	G3	S3?			Shoals and riffles of large streams to rivers
Myotis austroriparius SOUTHEASTERN MYOTIS	G3G4	S3			Caves & buildings near water
Necturus sp. cf. beyeri GULF COAST WATERDOG	G4	S3			Habitat data is not available
Notropis harperi REDEYE CHUB	G4	S2		R	Springs and spring influenced creeks over sand or rocky substrates
Notropis hypsilepis HIGHSCALE SHINER	G3	S3		T	Flowing areas of small to large streams over sand or bedrock substrates
Nyctanassa violacea YELLOW-CROWNED NIGHT-HERON	G5	S3S4			River swamps; marshes; cypress/gum ponds
Nycticorax nycticorax BLACK-CROWNED NIGHT-HERON	G5	S3S4			River swamps; marshes; cypress/gum ponds
Ophisaurus attenuatus SLENDER GLASS LIZARD	G5	S3			Open woods; savannas; old fields; edges of streams & ponds; sandhills
Picoides borealis RED-COCKADED WOODPECKER	G3	S2	LE	E	Open pine woods; pine savannas
Pituophis melanoleucus mugitus FLORIDA PINE SNAKE	G4T3?	S3			Upland forests; grasslands; floodplains; old field
Pleurobema pyriforme OVAL PIGTOE	G2	S2	LE	E	Sandy, medium-sized rivers & creeks
Pteronotropis euryzonus BROADSTRIPE SHINER	G3	S1		R	Flowing areas of medium sized streams associated with sandy substrate and woody debris or vegetation
Pteronotropis hypselopterus SAILFIN SHINER	G5	S3			Flowing areas of small clear streams over sand substrate; often associated with woody debris or vege
Rana capito GOPHER FROG	G3G4	S3	(PS)		Floodplains; wet meadows; pastures; ponds
Scartomyzon lachneri GREATER JUMPROCK	G4	S3			Small to large streams in swift current over rocky substrate
Strophitus subvexus SOUTHERN CREEKMUSSEL	G3	S2			Sand to sandy mud in slow or no current in small to large creeks
Utterbackia peggyae FLORIDA FLOATER	G3	S2			Sluggish streams or ponds in sandy to muddy substrate

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Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Villosa villosa DOWNY RAINBOW	G3	S3			Sand, muddy, and silty substrates from spring-fed streams to muddy slow moving waters

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Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Aesculus parviflora BOTTLEBRUSH BUCKEYE	G2G3	S2S3			Mesic bluff and ravine forests
Agrimonia incisa CUTLEAF AGRIMONY; CUTLEAF HARVEST LICE	G3	S3			Mixed oak-hickory forests, pine savannas, mesic hardwood forests
Anemone berlandieri GLADE WINDFLOWER	G4?	S1S2			Granite outcrop ecotones; openings over basic rock
Anemone caroliniana CAROLINA WINDFLOWER	G5	S1?			Upland seepage swamp openings over Iredell soils; wet meadows
Arabis georgiana GEORGIA ROCKCRESS	G2	S1		T	Rocky or sandy river bluffs and banks, in circumneutral soil
Arnoglossum sulcatum GROOVED-STEM INDIAN-PLANTAIN	G3G4	S1			Bottomland forests
Asclepias pedicellata SAVANNA MILKWEED	G3?	S2?			Longleaf pine flatwoods; sandy pinelands with longleaf pine-saw palmetto-myrtle oak (Sapelo Island)
Asclepias rubra RED MILKWEED	G4G5	SH			Bogs, wet savannas
Aster georgianus GEORGIA ASTER	G2G3	S2			Upland oak-hickory-pine forests; especially with Echinaceae laevigata
Baptisia megacarpa BIGPOD WILD INDIGO	G2	S1			Floodplain forests
Brickellia cordifolia FLYR'S NEMESIS	G2G3	S1			Mesic hardwood forests
Buchnera americana BLUEHEARTS	G5?	S1			Wet meadows; seasonally moist barrens and limestone glades
Campylopus carolinae SANDHILL AWNED MOSS	G1G2	S2?Q			Fall line sandhills; Altamaha Grit outcrops in partial shade of mesic oak forests
Carex collinsii NARROW-FRUIT SWAMP SEDGE	G4	S2			Seepage bogs; Atlantic whitecedar swamps; other habitats?
Carex dasycarpa VELVET SEDGE	G4?	S3		R	Evergreen hammocks; mesic hardwood forests
Carex lonchocarpa SEDGE	G5	S3			Clearwater creek swamps
Carex stricta SEDGE	G5	S1			Sag ponds
Castanea dentata AMERICAN CHESTNUT (NUT-BEARING ONLY)	G4	S3			Upland mixed oak or oak-hickory forests
Chamaecrista deeringiana FLORIDA SENNA	G1G2	S1?			Sandhill scrub; longleaf pine-wiregrass savannas
Chrysoma pauciflosculosa WOODY GOLDENROD	G4G5	S3			Ohoopee dunes; sandridges
Cirsium virginianum VIRGINIA THISTLE	G3G4	S2?			Moist pinelands; moist longleaf pine/wiregrass savannas
Collinsonia tuberosa STONEROOT	G3G4	S3			Mesic woods over basic rock

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Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Corydalis flavula YELLOW CORYDALIS	G5	S1?			Rocky floodplain forests; hardwood ravines over amphibolite or limestone
Croomia pauciflora CROOMIA	G3	S1		T	Mesic hardwood forests
Desmodium sessilifolium SESSILE-LEAF TICK-TREFOIL	G5	S1?			Sandhills in oak forest openings; perhaps prairie relict areas?
Dodecatheon meadia SHOOTING-STAR	G5	S3			Mesic hardwood forests over basic soils
Eleocharis atropurpurea SPIKERUSH	G4G5	S1?			Limesink pond margins
Eleocharis melanocarpa BLACKFRUIT SPIKERUSH	G4	SU			Limesink pond margins
Eleocharis montana var. nodulosa SPIKERUSH	G5T?	SH			Limesink ponds and sloughs
Eleocharis robbinsii SPIKERUSH	G4G5	SU			Pine savanna ponds
Elyonurus tripsacoides PAN-AMERICAN BALSAMSCALE	G5?	SH			Pine savannas
Fimbristylis decipiens SOUTHERN FIMBRY	G4	S3?			Wet pine savannas; sandy seeps on Altamaha grit outcrops
Fothergilla gardenii DWARF WITCH-ALDER	G4	S2		T	Openings in low woods; swamps
Gymnopogon brevifolius BROAD-LEAVED BEARDGRASS	G5	S1			Prairies with Silphium pinnatifidum; known only from Murray Co.
Helenium brevifolium BOG SNEEZEWEED	G3G4	S1			Seepage bogs, sometimes with Sarracenia rubra near the Fall Line
Helianthemum canadense CANDADIAN FROSTWEED	G5	S1?			Dry, sandy scrub in fire-suppressed longleaf pine forest
Helianthus agrestis SOUTHEASTERN SUNFLOWER	G4?	SH			Mucky, wet soils in open flatwoods
Helianthus heterophyllus WETLAND SUNFLOWER	G4	S1			Bogs; wet pine savannas
Helianthus smithii SMITH SUNFLOWER	G2Q	S1			Dry open woods and thickets
Hexastylis shuttleworthii var. harperi HARPER HEARTLEAF	G4T3	S2?		U	Low terraces in floodplain forests; edges of bogs
Hygrophila lacustris HYGROPHILA	G5?	S1?			Shallow water of marshy shores
Hymenocallis coronaria SHOALS SPIDERLILY	G2Q	S2		E	Rocky shoals of broad, open rivers
Hypericum adpressum BOG ST. JOHNSWORT	G2G3	S2?			Swamps
Ilex amelanchier SERVICEBERRY HOLLY	G4	S2			Wet, sandy thickets; cypress-gum swamps
Iris brevicaulis LAMANCE IRIS	G4	S1			Bogs, seeps, marshy shores and floodplains; often hidden in taller vegetation due to its low stature

Report Generated 4 November 1999

Special Concern Plants Potentially Occurring in Chattahoochee County 130 Taxa

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Isoetes melanopoda BLACK-FOOTED QUILLWORT	G5	S1?			Clayey soils in low woods; sandstone or granite outcrop seeps
Krameria lanceolata SANDBUR	G5	S3?			Longleaf pine-wiregrass sandridges
Liatris chapmanii CHAPMAN GAY-FEATHER	G5	SH			Scrub
Linum sulcatum var. harperi HARPER GROOVED FLAX	G5TU	SH			Dry pinelands
Listera australis SOUTHERN TWAYBLADE	G4	S2			Poorly drained circumneutral soils
Macbridea caroliniana CAROLINA BOGMINT	G2G3	S1?			Bogs; marshes; alluvial woods
Magnolia pyramidata PYRAMID MAGNOLIA	G4	S3			Bluff and ravine forests
Matelea alabamensis ALABAMA MILKVINE	G1G2	S1		T	Open bluff forests; mesic margins of longleaf pine sandridges
Matelea flavidula YELLOW MILKVINE	G3?	S3?			Open bluff forests; floodplain forests
Melanthium latifolium BROADLEAF BUNCHFLOWER	G5	S2?			Mesic deciduous hardwood forests
Melanthium woodii OZARK BUNCHFLOWER	G5	S2			Mesic hardwood forests over basic soils
Mirabilis albida PALE UMBRELLA-WORT	G5	S1?			Sandhills of SW Georgia with Warea sessiliflora
Muhlenbergia torreyana TORREY DROPSEED	G3	SH			Seasonally inundated pond shores, swales and savannas
Myrica inodora ODORLESS BAYBERRY	G4	S2?			Bayheads, titi swamps
Myriophyllum laxum LAX WATER-MILFOIL	G3	S2		T	Bluehole spring runs; shallow, sandy, swift-flowing creeks; clear, cool ponds
Najas filifolia NARROWLEAF NAIAD	G1	S1			Lakes
Nestronia umbellula INDIAN OLIVE	G4	S2		T	Mixed with dwarf shrubby heaths in oak-hickory-pine woods; often in transition areas between flatwoo
Oldenlandia boscii BLUETS	G5	S1?			Cypress pond margins; exposed pond bottoms
Pachysandra procumbens ALLEGHENY-SPURGE	G4G5	S1S2			Mesic hardwood forests over basic soils
Panax quinquefolius AMERICAN GINSENG	G4	S3			Mesic hardwood forests; cove hardwood forests
Parietaria pensylvanica PENNSYLVANIA PELLITORY, HAMMERWORT	G5	S1?			Dry, open, calcareous soil
Paronychia rugelii var. interior RUGEL NAILWORT	G2?T2?Q	S2?			Longleaf pine-turkey oak scrub, mostly Alapaha River drainage
Pentodon pentandrus PENTODON	G5?	S1?			Wet meadows; pond edges

Report Generated 4 November 1999

Special Concern Plants Potentially Occurring in Chattahoochee County · 130 Taxa

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Phaseolus polystachios var. sinuatus TRAILING BEAN-VINE	G4T3?	S2?			Sandhills; dry pinelands and hammocks
Pinguicula primuliflora CLEARWATER BUTTERWORT	G4	S1		T	In shallow, sandy, clearwater streams and seeps; Atlantic whitecedar swamps
Pityopsis pinifolia SANDHILL GOLDEN-ASTER	G4	S2		T	Sandhills near fall line
Platanthera integra YELLOW FRINGELESS ORCHID	G3G4	S2			Wet savannas, pitcherplant bogs
Platanthera nivea SNOWY ORCHID	G5	S3			Wet savannas, pitcherplant bogs
Polygala balduinii WHITE MILKWORT	G4	S1?			Wet pine savannas
Polygala boykinii BOYKIN MILKWORT	G4	S3			Openings in calcareous soil
Ponthieva racemosa SHADOW-WITCH ORCHID	G4G5	S2?			Calcareous swamps; marly outcrops
Quercus arkansana ARKANSAS OAK	G3	S2S3			Sandy upper ravine slopes
Quercus austrina BLUFF WHITE OAK	G5	S3?			Bluff forests; floodplain hammocks
Quercus breviloba SHALLOW-LOBED OAK	G5T5	SR			Upland scrub
Quercus prinoides DWARF CHINKAPIN OAK	G5	S2			Upland oak-hickory-pine forests; usually over basic soils
Quercus sinuata BASTARD OAK, DURAND OAK	G5	S1S2?			Bluff forests
Rhododendron austrinum FLORIDA AZALEA	G3	S3			Hardwood-spruce pine forests; low woods
Rhododendron flammeum OCONEE AZALEA	G3	S3			Bluff forests and mesic woods
Rhododendron prunifolium PLUMLEAF AZALEA	G3	S3		T	Mesic hardwood forests in ravines and on sandy, seepy streambanks
Rhus michauxii DWARF SUMAC	G2	S1	LE	E	Open forests over ultramafic rock
Rhynchospora culixa GEORGIA BEAKSEDGE	G1	SH			Pine savannas; flatwoods
Rhynchospora decurrens SWAMP-FOREST BEAKSEDGE	G3G4	S1?			Swamps
Rhynchospora harperi HARPER'S BEAKSEDGE	G4?	S1S2?			Cypress pond margins and wet savannas; limesink depression ponds (dolines)
Rhynchospora macra SOUTHERN WHITE BEAKSEDGE	G3	S1?			Peaty, sandhill seepage slopes; streamhead pocosins
Rhynchospora oligantha FEATHER-BRISTLE BEAKSEDGE	G4	S1?			Bogs; sea-level fens; wet savannas
Rhynchospora pleiantha COASTAL BEAKSEDGE	G3	SH			Margins of limesink depression ponds (dolines)

Report Generated 4 November 1999

Special Concern Plants Potentially Occurring in Chattahoochee County 130 Taxa

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

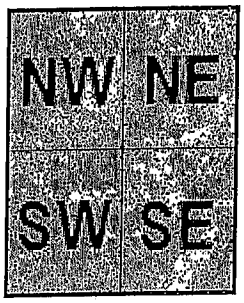
Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Rhynchospora punctata PINELAND BEAKSEDGE	G1?	S1?			Wet savannas, pitcherplant bogs
Rhynchospora scirpoides LONG-BEAK BALDRUSH	G4	S2?			Floating mats in ponds; pond margins
Rhynchospora stenophylla LITTLELEAF BEAKRUSH	G4	S2			Wet, sandy, peaty depressions
Rhynchospora torreyana TORREY BEAKRUSH	G4	S1?			Bogs; wet savannas
Rudbeckia heliopsidis LITTLE RIVER BLACK-EYED SUSAN	G2	S1			Limestone or sandstone barrens and streamsides
Rudbeckia nitida var. nitida YELLOW CONEFLOWER	G3?T2T3	S3?			Wet savannas, pitcherplant bogs; cypress ponds
Sarracenia rubra SWEET PITCHERPLANT	G3	S2		E	Atlantic white cedar swamps; wet meadows
Schisandra glabra BAY STARVINE	G3	S2		T	Stream terraces
Schizachyrium stoloniferum BLUESTEM	G3G4Q	S2S3?			Longleaf pine-wiregrass savannas
Schwalbea americana CHAFFSEED	G2	S1	LE	E	Ponds margins and wet savannas; upland ridge forests
Scirpus erismanae BULRUSH	G?	S1?			Pond shores in peaty sands
Scirpus etuberculatus CLUB-RUSH	G3G4	S1S2?			Marshes; shallow ponds; peaty swamps, as Okefenokee Swamp and Atlantic whitecedar swamps
Scirpus hallii HALL BULRUSH	G2	SH			Pond shores in peaty sands
Silene ovata MOUNTAIN CATCHFLY	G2	S1			Mesic deciduous forests over limestone; high elevation oak forests
Smilax lasioneuron CARRION-FLOWER	G5	S2?			Pine-oak-hickory forests; bluff forests
Solanum carolinense var. hirsutum HORSE-NETTLE	G5T1	SH			Thickets; calcareous barrens
Solidago tarda GOLDENROD	G4?Q	SU			Sandy upland forests
Spiranthes ovalis OVAL LADIES-TRESSES	G5	S3?			Moist hammocks; swamp margins; wet thickets over basic soils
Stewartia malacodendron SILKY CAMELLIA	G4	S2		R	Steepheads, bayheads; edges of swamps
Stylisma pickeringii var. pickeringii PICKERING MORNING-GLORY	G4T2T3	S2		T	Open, dry, oak scrub of sandhills
Tephrosia mohrii DWARF GOATS RUE	G2Q	S1?			Scrub; longleaf pine-wiregrass savannas
Thelypteris ovata OVATE MAIDEN FERN	G3G5	S2S3?			Calcareous hammocks; limesinks; mesic hardwood forests

Report Generated 4 November 1999

Special Concern Plants Potentially Occurring in Chattahoochee County 130 Taxa

Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30025, (770) 918-6411

Species Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat
Tragia cordata HEARTLEAF NETTLE VINE	G4	S2?			Dry, usually rocky, calcareous woods; also relict prairie openings on the Fort Valley Plateau
Trepocarpus aethusae TREPOCARPUS	G4G5	S2?			Floodplain forests
Triadenum tubulosum BROADLEAF MARSH ST. JOHNSWORT	G4?	S1S3?			Swamps
Tridens carolinianus CAROLINA REDTOP	G3?	S1?			Dry pine forests
Trillium decipiens MIMIC TRILLIUM	G3	S3?			Mesic hardwood forests; limesink forests
Trillium lancifolium LANCELEAF TRILLIUM	G3	S2S3			Floodplain forests; also lower rocky slopes over basic soils
Trillium reliquum RELICT TRILLIUM	G2	S2	LE	E	Mesic hardwood forests; limesink forests
Trillium underwoodii DWARF MIMIC TRILLIUM	G4?	S3?			Mesic hardwood forests
Utricularia olivacea LEAFLESS DWARF BLADDERWORT	G4	S1?			Shallow ponds, especially limesink ponds or dolines of Southwest Georgia
Uvularia floridana FLORIDA BELLWORT	G3?	S3?			Mixed oak-hickory forests; mesic hardwoods or magnolia-beech bluff forests
Vitis palmata CATBIRD GRAPE	G4	SH			Floodplain forests; river banks
Vitis rotundifolia var. munsoniana MUNSON GRAPE	G5T4?	S1			Floodplain forests; blackwater streamsides
Warea sessilifolia SANDHILL-CRESS	G2G4	S1			Sandhills scrub
Xyris chapmanii CHAPMAN YELLOW-EYED GRASS	G3	S1?			Streamhead seepage bogs in deep muck with numerous other xyrids and graminoids
Xyris scabrifolia HARPER YELLOW-EYED GRASS	G3	S1			Sedge bogs; pitcherplant bogs; pine flatwoods
Zephyranthes simpsonii SIMPSON RAIN LILY	G2G3	S1			Pine flatwoods; edges of sloughs on southcentral coastal plain
Zigadenus leimanthoides DEATH-CAMUS	G4Q	S1			Sandhill bogs; pine flatwoods



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Georgia Natural Heritage Program Database System

Element Occurrences by Quarter Quad

Index of Quarter Quads
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

"US*" indicates both U.S. protected and Georgia protected species
"GA*" indicates Georgia protected species

List generated on: Wednesday May 31, 2000

Faceville (NE)

- *Chamaecrista deeringiana* Florida Senna

US* *Haliaeetus leucocephalus* Bald Eagle

- *Melanthium woodii* Ozark Bunchflower
- *Villosa villosa* Downy Rainbow

Faceville (NW)

- *Aster praealtus* Willow-leaf Aster

US* *Drymarchon couperi* Eastern Indigo Snake

- *Elliptio arctata* Delicate Spike

GA* *Graptemys barbouri* Barbour's Map Turtle

US* *Picoides borealis* Red-cockaded Woodpecker

- *Pteroglossaspis ecristata* Wild Coco

Faceville (SE)

US* *Amblema neislerii* Fat Threeridge

GA* *Carex dasycarpa* Velvet Sedge

- *Carex decomposita* Cypress-knee Sedge
- *Chamaecrista deeringiana* Florida Senna
- *Elliptio arctata* Delicate Spike

GA* *Epidendrum conopseum* Green-fly Orchid

- *Melanthium woodii* Ozark Bunchflower

GA• *Notophthalmus perstriatus* Striped Newt
- *Pituophis melanoleucus mugitus* Florida Pine Snake
- *Tephrosia chrysophylla* Sprawling Goats Rue

Fort Benning (NE)

GA• *Macroclemys temminckii* Alligator Snapping Turtle
US• *Rhus michauxii* Dwarf Sumac

Fort Benning (NW)

GA• *Macroclemys temminckii* Alligator Snapping Turtle
US• *Rhus michauxii* Dwarf Sumac

Fort Benning (SE)

GA• *Graptemys barbouri* Barbour's Map Turtle
- *Gymnopogon brevifolius* Broad-leaved Beardgrass
- *Iris brevicaulis* Lamance Iris
- *Lampropeltis triangulum triangulum* Eastern Milk Snake

GA• *Macroclemys temminckii* Alligator Snapping Turtle
- *Phaseolus polystachios var. sinuatus* Trailing Bean-vine
- *Tragia cordata* Heartleaf Nettle Vine
- *Trepocarpus aethusae* Trepocarpus

Fort Benning (SW)

GA• *Arabis georgiana* Georgia Rockcress
- *Iris brevicaulis* Lamance Iris

GA• *Macroclemys temminckii* Alligator Snapping Turtle
- *Trepocarpus aethusae* Trepocarpus

Fort Gaines NE (SE)

US• *Gopherus polyphemus* Gopher Tortoise
- *Melanthium woodii* Ozark Bunchflower

Fort Gaines NE (SW)

GA• *Cuscuta harperi* Harper Dodder
GA• *Cyprinella callitaenia* Bluestripe Shiner
US• *Isoetes melanospora* Black-spored Quillwort
GA• *Notropis hypsilepis* Highscale Shiner

Frolona (SW)

GA• *Notropis hypsilepis* Highscale Shiner

Index of Quarter Quads
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Georgia Natural Heritage Program
Nongame Wildlife & Natural Heritage Section
2117 US Hwy 278 SE
Social Circle, GA 30025
(770) 918-6411

Georgia Natural Heritage Home Page

Notes:

- The absence of a quarter quad in this list indicates no rare element occurences for that quarter quad in Georgia Natural Heritage Program's databases.
- Please send questions concerning this data to: greg_krakow@mail.dnr.state.ga.us

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LISTED SPECIES IN CHATTAHOOCHEE COUNTY

FEDERAL ENDANGERED AND THREATENED SPECIES[1]

Animals

Bald eagle (T,SE)	Haliaeetus leucocephalus	Inland waterways and estuarine areas throughout Georgia. Active eagle nests were located in Chattahoochee County 1994-1999.
Wood stork (E,SE)	Mycteria americana	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps
Red-cockaded woodpecker (E,SE)	Picoides borealis	Nest in mature pine with low understory vegetation (<1.5m); forage in pine and pine hardwood stands ≥30 years of age, preferably ≥10" dbh
Purple bankclimber mussel (T,ST)	Elliptoideus sloatianus	Main channels of ACF basin rivers in moderate currents over sand, sand mixed with mud, or gravel substrates
Shiny-rayed pocketbook mussel (E,SE)	Lampsilis subangulata	Medium creeks to the mainstems of rivers with slow to moderate currents over sandy substrates and associated with rock or clay
Gulf moccasinshell mussel (E,SE)	Medionidus penicillatus	Medium streams to large rivers with slight to moderate current over sand and gravel substrates; may be associated with muddy sand substrates around tree roots
Oval pigtoe mussel (E,SE)	Pleurobema pyriforme	River tributaries and main channels in slow to moderate currents over silty sand, muddy sand, sand, and gravel substrates

SPECIES OF MANAGEMENT CONCERN[1]: The Fish and Wildlife Service is evaluating population trends and threats to the following Species of Management Concern. Please contact us at 247 S. Milledge Ave., Athens, GA, 706-613-9493, if you locate these species during site surveys or have other information on the species' distributions in Georgia.

Animals

Appalachian Bewick's wren (SR)	Thyromanes bewickii altus	Dense undergrowth, overgrown fields, thickets, and brush in open or semi-open habitat; feed primarily on insects
Gopher tortoise (ST)	Gopherus polyphemus	Well drained, sandy soils in forest and grassy areas; associated with pine overstory, open understory with grass and forb groundcover, and sunny areas for nesting
Florida pine snake	Pituophis melanoleucus mugitus	Arid pinelands, sandy areas, and dry mountain ridges
Alligator snapping turtle (ST)	Macroclemys temminckii	Rivers, lakes, and large ponds near stream swamps
Carolina gopher frog	Rana areolata capito	
Bluestripe shiner (ST)	Cyprinella callitaenia	Brownwater streams
Broadstripe shiner (SR)	Pteronotropis euryzonus	Gravelly streams

Plants

Pickering's morning-glory (ST)	Stylisma pickeringii var. pickeringii	Coarse white sands on sandhills near the Fall Line and on a few ancient dunes along the Flint and Ohoopee Rivers

STATE OF GEORGIA ENDANGERED AND THREATENED SPECIES[1]: The following species, as well as the Species of Management Concern marked above (SE, ST, SR), are protected by the State. For information on State listed species, contact the GA Department of Natural Resources, GA Natural Heritage Program, 2117 US HWY 278 SE, Social Circle, GA 30279 (706-557-3032).

Plants

Croomia (ST)	Croomia pauciflora	Rich moist deciduous woodlands, ravines, and river bluffs, often with ginseng
Plumleaf azalea (ST)	Rhododendron prunifolium	Moist soils of rich hardwood ravines
Bay star-vine (ST)	Schisandra glabra	Twining on subcanopy and understory trees/shrubs in rich alluvial woods

[1] Key to notations: E = endangered, T = threatened, and R = rare. The SE, ST, and SR indicate species also listed by the State of Georgia as endangered, threatened, and rare, respectively.

Pickering's morning-glory (ST)	Stylisma pickeringii var. pickeringii	Chattahoochee River Coarse white sands on sandhills near the Fall Line and on a few ancient dunes along the Flint and Ohoopee Rivers

STATE OF GEORGIA ENDANGERED AND THREATENED SPECIES[1]: The following species, as well as the Species of Management Concern marked above (SE, ST, SR), are protected by the State. For information on State listed species, contact the GA Department of Natural Resources, GA Natural Heritage Program, 2117 US HWY 278 SE, Social Circle, GA 30279 (706-557-3032).

Plants

Croomia (ST)	Croomia pauciflora	Rich moist deciduous woodlands, ravines, and river bluffs, often with ginseng
Indian olive (ST)	Nestronia umbellula	Dry open upland forests of mixed hardwood and pine
Sweet pitcher-plant (SE)	Sarracenia rubra	Acid soils of open bogs, sandhill seeps, Atlantic white-cedar swamps, wet savannahs, low areas in pine flatwoods, and along sloughs and ditches
Granite rock stonecrop (ST)	Sedum pusillum	Granite outcrops among mosses in partial shade under red cedar trees

[1] Key to notations: E = endangered, T = threatened, and R = rare. The SE, ST, and SR indicate species also listed by the State of Georgia as endangered, threatened, and rare, respectively.

Updated February 2000

LISTED SPECIES IN MUSCOGEE COUNTY

FEDERAL ENDANGERED AND THREATENED SPECIES[1]

Animals

Bald eagle (T,SE)	Haliaeetus leucocephalus	Inland waterways and estuarine areas in Georgia
Wood stork (E,SE)	Mycteria americana	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps
Red-cockaded woodpecker (E,SE)	Picoides borealis	Nest in mature pine with low understory vegetation (<1.5m); forage in pine and pine hardwood stands ≥30 years of age, preferably ≥10" dbh
Purple bankclimber mussel (T,ST)	Elliptoideus sloatianus	Main channels of ACF basin rivers in moderate currents over sand, sand mixed with mud, or gravel substrates
Shiny-rayed pocketbook mussel (E,SE)	Lampsilis subangulata	Medium creeks to the mainstems of rivers with slow to moderate currents over sandy substrates and associated with rock or clay
Gulf moccasinshell mussel (E,SE)	Medionidus penicillatus	Medium streams to large rivers with slight to moderate current over sand and gravel substrates; may be associated with muddy sand substrates around tree roots
Oval pigtoe mussel (E,SE)	Pleurobema pyriforme	River tributaries and main channels in slow to moderate currents over silty sand, muddy sand, sand, and gravel substrates

Plants

Michaux's sumac (E,SE)	Rhus michauxii	Sandy or rocky open woods, usually on ridges with a disturbance history (periodic fire, prior agricultural use, maintained right-of-ways); the known population of this species in Muscogee County has been extirpated
Relict trillium (E,SE)	Trillium reliquum	Hardwood forests; in the Piedmont, found in either in rich ravines or adjacent alluvial terraces with other spring-flowering herbs

SPECIES OF MANAGEMENT CONCERN[1]: The Fish and Wildlife Service is evaluating population trends and threats to the following Species of Management Concern. Please contact us at 247 S. Milledge Ave., Athens, GA, 706-613-9493, if you locate these species during site surveys or have other information on the species' distributions in Georgia.

Animals

Bachman's sparrow (SR)	Aimophila aestivalis	Abandoned fields with scattered shrubs, pines, or oaks
Appalachian Bewick's wren (SR)	Thyromanes bewickii altus	Dense undergrowth, overgrown fields, thickets, and brush in open or semi-open habitat; feed primarily on insects
Bluestripe shiner (ST)	Cyprinella callitaenia	Brownwater streams
Gopher tortoise (ST)	Gopherus polyphemus	Well drained, sandy soils in forest and grassy areas; associated with pine overstory, open understory with grass and forb groundcover, and sunny areas for nesting
Northern pine snake	Pituophis m. melanoleucus	
Alligator snapping turtle (ST)	Macroclemys temminckii	Rivers, lakes, and large ponds near stream swamps
Winged spike mussel	Elliptio nigella	Main channels of Flint and Chattahoochee Rivers among rocks and muddy sand
Lined pocketbook mussel	Lampsilis binominata	Main channels of Flint and Chattahoochee Rivers in stabilized sand and shoals with good current

Plants

Georgia rock-cress (ST)	Arabis georgiana	Rocky (limestone, shale, granite-gneiss) bluffs and slopes along watercourses; also alsong sandy, eroding riverbanks
Shoals spider-lily (SE)	Hymenocallis coronaria	Major streams and rivers in rocky shoals and in cracks of exposed bedrock; plants can be completely submerged during flooding
Nevius' stonecrop (ST)	Sedum nevii	Shallow soil over granitic gneis son steep bluffs along the

Lonice C. Barrett, Commissioner

Georgia Department of Natural Resources

Historic Preservation Division

W. Ray Luce, Division Director and Deputy State Historic Preservation Officer
156 Trinity Avenue, S.W., Suite 101, Atlanta, Georgia 30303-3600
Telephone (404) 656-2840 Fax (404) 657-1040 http://www.gashpo.org

January 5, 2001

Sally Kistler, Cultural Resource Specialist
URS Corporation
5900 Windward Parkway, Suite 400
Alpharetta, Georgia 30005

RE: Fort Benning: Construct New/Expand Existing Post Exchange Facility
Muscogee County, Georgia
HP001120-001

Dear Ms. Kistler:

The Historic Preservation Division has reviewed the information submitted concerning the proposed project to construct a new Post Exchange facility or expand the existing facility at Fort Benning, Muscogee County, Georgia. Our comments are offered to assist the Department of the Army and the Air Force Exchange Services in complying with the provisions of Section 106 of the National Historic Preservation Act.

Based on the information provided by URS Corporation, HPD concurs with the determination that no historic structural or archaeological resources eligible for or listed in the National Register of Historic Places will be affected by this undertaking.

If we may be of further assistance, please contact Serena G. Bellew, Environmental Review Coordinator, at (404) 651-6624.

Sincerely,

Richard Cloues

Richard Cloues
Deputy State Historic Preservation Officer

RC:kec

cc: Allison Slocum, Lower Chattahoochee RDC

Appendix C

USACE Nationwide Permit

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
1104 North Westover BLVD, Unit 9
ALBANY, GEORGIA 31707

REPLY TO
ATTENTION OF:
Regulatory Branch
200409330

July 6, 2004

Ecology and Environment, Inc.
Attention: Michael Gartman
220 West Garden St., Suite 404
Pensacola, Florida 32501

Dear Mr. Gartman:

I refer to your request on behalf of Fort Benning for Department of the Army authorization to impact 0.01 acre of wetlands to construct a new shopping center on Fort Benning, Chattahoochee County, Georgia. This project has been assigned number 200409330. Please refer to this number in any future correspondence.

The subject property contains waters of the United States, which are considered to be within the jurisdiction of Section 404 of the Clean Water Act (33 U.S.C. 1344). The placement of dredged or fill material into any waterways and/or their adjacent wetlands including material re-deposited during mechanized land clearing or excavation of those wetlands would require prior Department of the Army authorization.

Based on our review of the information you furnished, I have determined that the proposed activity is authorized under Nationwide Permit No. 18 as described in Part B (18) of our Nationwide Permit Program which was published in the January 15, 2002, Federal Register, Vol. 67, No. 10, Pages 2020-2095 (67 FR), as amended on February 13 and 25, 2002. Your use of this Nationwide Permit is valid only if:

a. The activity is conducted in accordance with the information submitted and meets the conditions applicable to the Nationwide Permit, as described at Part C of the excerpt from 67 FR and the enclosed copy of the Savannah District Nationwide Permit Regional Conditions.

b. You obtain a stream buffer variance, if required. Variances are issued by the Director of the Georgia Environmental Protection Division, as defined in the Georgia Erosion and Sedimentation Control Act of 1975, as amended.

c. You fill out and sign the enclosed certification and return it to our office within 30 days of completion of the activity authorized by this permit.

This proposal was reviewed in accordance with Section 7 of the Endangered Species Act. Based on the information we have available, we have determined that the project would have no effect on any threatened or endangered species nor any critical habitat for such species. Authorization of an activity by a Nationwide Permit does not authorize the "take" of threatened or endangered species.

This verification will be valid for a period of two years from the date of this letter, or until the Nationwide Permit is modified, reissued, or revoked, whichever occurs first. All of the Nationwide Permits are scheduled to expire on March 18, 2007. It is incumbent upon you to remain informed of changes to the Nationwide Permits. If you commence or are under contract to commence this activity before the date the Nationwide Permit is modified or revoked, you will have twelve months from the date of the modification or revocation to complete the activity under the present terms and conditions of this Nationwide Permit.

This authorization should not be construed to mean that any future projects requiring Department of the Army authorization would necessarily be authorized. Any new proposal, whether associated with this project or not, would be evaluated on a case-by-case basis. Any prior approvals would not be a determining factor in making a decision on any future request.

Revisions to your proposal may invalidate this authorization. In the event changes to this project are contemplated, I recommend that you coordinate with us prior to proceeding with the work.

This communication does not relieve you of any obligation or responsibility for complying with the provisions of any other laws or regulations of other federal, state, or local authorities. It does not affect your liability for any damages or claims that may arise as a result of the work. It does not convey any property rights, either in real estate or material, or any exclusive privileges. It also does not affect your liability for any interference with existing or proposed federal projects.

Should you have any questions concerning this matter, you may call me at (229) 430-8566.

Sincerely,

Thomas C. Fischer

Thomas C. Fischer
Senior Project Manager
Albany Field Office

CERTIFICATION OF COMPLIANCE
WITH
DEPARTMENT OF THE ARMY
NATIONWIDE PERMIT (18)

PERMIT FILE NUMBER (if applicable): 200409330

PERMITTEE: Fort Benning

ADDRESS: Ecology and Environment, Inc.
Attention: Michael Gartman
220 West Garden St., Suite 404
Pensacola, Florida 32501

LOCATION OF WORK: Located near Upatoi Creek in Chattahoochee County, Georgia.

PROJECT DESCRIPTION: To construct a shopping center.

ACRES OF WATERS OF THE US IMPACTED: 0.01

I understand that the permitted activity is subject to a US Army Corps of Engineers' Compliance Inspection. If I fail to comply with the permit conditions at Part C of the Nationwide Permit Program, published in the January 15, 2002, Federal Register, Vol. 67, No. 10, Pages 2020-2095, as amended on February 13 and 25, 2002, it may be subject to suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit as well as any required mitigation (if applicable) has been completed in accordance with the terms and conditions of the said permit.

_____

Signature of Permittee/Date

Appendix D

Air Quality Analysis Tables

Table D-1
Fort Benning: Construction of new PX

Preferred Alternative (Alternative 7)	
New Construction (square feet)	218,000
New Paved Area (acres)	14.2
New Parking Spaces	1,101
Impact Area (acres)	22
Total Building (sq ft)	**218,000**
Total paved areas (sq ft)	**618,552**
Total Impact Area (Acres)	**22**
Construction: 20 months = 1.67 years	
250	work days per year
417.5	total days

Table D-2
Mobile Equipment Exhaust Emissions
Preferred Alternative (Alternative 7)

Activity	Equipment List	Equipment quantity	Days Used	Emission Factors (lbs/day)[a] NOx	VOC	CO	SO_2[b]	PM_{10}		Emissions (lbs/year) NOx	VOC	CO	SO_2	PM_{10}
Demolition	Loader	1	250	11.80	1.35	9.27	n/a	0.64		2950.00	337.50	2317.50	0.00	160.00
	Haul Truck	1	250	33.55	3.60	22.67	n/a	1.78		8387.50	900.00	5667.50	0.00	445.00
Backhoe Excavation	Backhoe Loader	1	250	6.66	0.65	3.56	n/a	0.34		1665.00	162.50	890.00	0.00	85.00
	Haul Truck	1	250	33.55	3.60	22.67	n/a	1.78		8387.50	900.00	5667.50	0.00	445.00
Cut and fill	Scraper	1	250	35.39	3.64	21.58	n/a	1.85		8847.50	910.00	5395.00	0.00	462.50
	Bulldozer	1	250	37.45	3.66	20.03	n/a	1.93		9362.50	915.00	5007.50	0.00	482.50
	Water Truck	1	250	33.55	3.60	22.67	n/a	1.78		8387.50	900.00	5667.50	0.00	445.00
Trenching	Trencher	1	250	8.31	1.00	7.26	n/a	0.45		2077.50	250.00	1815.00	0.00	112.50
	Track loader	1	250	6.66	0.65	3.56	n/a	0.34		1665.00	162.50	890.00	0.00	85.00
Grading	Grader	1	250	16.42	1.76	11.09	n/a	0.87		4105.00	440.00	2772.50	0.00	217.50
	Bulldozer	1	250	37.45	3.66	20.03	n/a	1.93		9362.50	915.00	5007.50	0.00	482.50
	Water Truck	1	250	33.55	3.60	22.67	n/a	1.78		8387.50	900.00	5667.50	0.00	445.00
Concrete Slab pouring	Cement Truck	1	250	33.55	3.60	22.67	n/a	1.78		8387.50	900.00	5667.50	0.00	445.00
Portable Equipment	Generator	1	250	8.31	1.00	7.26	n/a	0.45		2077.50	250.00	1815.00	0.00	112.50
	Air Compressor	1	250	8.31	1.00	7.26	n/a	0.45		2077.50	250.00	1815.00	0.00	112.50
Paving	Paving Machine Roller	1	250	11.91	1.37	9.36	n/a	0.64		2977.50	342.50	2340.00	0.00	160.00
Architectural Coatings	Air Compressor	1	250	8.31	1.00	7.26	n/a	0.45		2077.50	250.00	1815.00	0.00	112.50
		Emissions lbs/day		**364.7**	**38.7**	**240.9**	**0.0**	**19.2**	**Annual Emissions lbs/year**	**91182.5**	**9685.0**	**60217.5**	**0.0**	**4810.0**
		Emissions tons/day		**0.18**	**0.02**	**0.12**	**0.00**	**0.01**	**Annual Emissions TPY**	**45.6**	**4.8**	**30.1**	**0.0**	**2.4**

Notes:
Total equipment in use per day: 17
[a] El Dorado APCD 2002.
[b] SO_2 emission factor not available.

Key:
CO = Carbon monoxide.
lbs = pounds.
NO_x = Nitrogen oxides.
PM_{10} = Particulate matter (10 microns or less).
SO_2 = Sulfur dioxide.
TPY = Tons per year.
VOC = Volatile organic compound.

Table D-3
Annual Site Preparation Particulate Emissions for Construction
Preferred Alternative (Alternative 7)

Acres Impacted	Activity Days	Bulldozing (lbs)[a]	Pan Scraping Soil Removal (lbs)[b]	Pan Scraping Earth Moving (lbs)[c]	Emissions[d]	
					lbs/year	TPY
22	418	2508	352	222	3082	1.54

Notes:

[a] Bulldozing dust emissions based on 8-hour/activity day times (x) Emissions Factor (EPA 1992)

[b] Soil removal dust emissions based on vehicle miles traveled (VMT)/acre times (X) acres times (X) Emissions Factor (EPA 1992)

[c] Earthmoving dust emissions based on soil removal miles times (X) 3 (BEE) times (X) Emissions Factor.

[d] U.S. Environmental Protection Agency (EPA) 1992 Fugitive Dust Background document (EPA-450/2-92-004) used as data reference.

Key:
lbs = pounds.
TPY = tons per year.

Table D-4
Annual Volatile Organic Compound (VOC) Emissions from Paving[a]
Preferred Alternative (Alternative 7)

	Acres Paved	Emission Factor (lbs/acre/day)	EMISSIONS lbs/year[b]	TPY
Total	**14.20**	**2.62**	**372.04**	**0.186**

Source: El Dorado APCD 2002.

Notes:
[a] Emission Factor = 2.62 lbs per acre per day.
[b] assumes paving will take place for 10 days.

Key:
lbs = pounds.
TPY = tons per year.

Appendix E

Draft FNSI

Draft FINDING OF NO SIGNIFICANT IMPACT (FNSI)

1. Description of the Proposed Action: The Army and Air Force Exchange Service (AAFES) proposes to construct a new shopping center for use by authorized individuals at Fort Benning. The proposed action would consist of construction and operation of a shopping center containing a main store, MCSS and a food court including an Anthony's Pizza, Robin Hood Deli, Burger King, Taco Bell, Church's Chicken, Manchu Wok, Charley's Grilled Subs, A & W, and Baskin Robbins. Services would include a barber shop, beauty shop, laundry/dry cleaners, alterations shop, optometrist/eyecare office, flower shop, one-hour photo store, nutrition center, shoe store, amusement arcade, beauty supply, collectibles, roving concessions, category enhancer, and local artisan.

New construction would consist of reinforced concrete slab/foundation with masonry/metal stud exterior walls, steel structure and built-up partitions, AAFES-provided shelving, suspended ceilings and recessed energy-efficient lighting. Exterior support would include required utilities, communications, paving, walks, curbs, storm drainage, site improvements, electrical, mechanical, and fire protection for a complete and usable facility. Only AAFES-authorized patrons would use the facility. These patrons are primarily active duty and retired military personnel, their family members, and certain categories of reserve military personnel.

2. Finding of No Significant Impact (FNSI): the EA titled "Environmental Assessment for the Proposed Construction of a Shopping Center, Fort Benning, Georgia," was prepared and evaluated pursuant to the National Environmental Policy Act (Public law 91-190, 42 USC. 4321 et seq.). This EA concluded that the proposed action does not constitute a "major Federal action significantly affecting the quality of the natural and human environment" when considered individually or cumulatively in the context of the referenced Act, including both direct and indirect impacts. Therefore, the preparation of a more detailed environmental document, an Environmental Impact Statement, was not required.

3. Summary of Potential Environmental Effects and Proposed Mitigation for Revised Alternative III:

RESOURCE	POTENTIAL EFFECT	MITIGATION
Soils	Minor adverse effects	Adherence to ESPCP, NPDES Permit, and SPCC Plan required; no additional mitigation proposed.
Vegetation	Minor adverse effects	Adherence to ESPCP and NPDES Permit required; no additional mitigation proposed.
Water Resources	Minor adverse effects	Adherence to ESPCP, NPDES Permit, and SPCC Plan required; no additional mitigation proposed.
Wetlands	Minor adverse effects	USACE Nationwide Permit and coordination; no additional mitigation proposed.
Species of Conservation Concern	No effect	None proposed.

RESOURCE	POTENTIAL EFFECT	MITIGATION
Air Quality	Minor adverse effects	Adherence to applicable air permits and regulations; no additional mitigation proposed.
Noise	Minor adverse effect	Adverse effects would be minimized by limiting construction activity to daylight hours and by using properly maintained and muffled equipment. Noise associated with implementation of the proposed action at the preferred alternative site would be limited primarily to construction and would represent a localized short-term adverse effect; no additional mitigation is proposed.
Hazardous Materials and Waste	No effect	None proposed.
Cultural Resources	No effect	None proposed.
Socioeconomics	No effect	None proposed.
Utilities	No effect	None proposed.

4. Public Comments:

a. The EA and draft FNSI for the proposed action are available to the public for a review period of 30 days starting from the first day of publication in "The Columbus Ledger-Enquirer," in accordance with part 1501.4 (e)(1) of Title 40 of the Code of Federal Regulations and Army Regulation 200-2. These documents are available at the W.C. Bradley Memorial Library, South Lumpkin Library, Fort Benning Main Post Library, and at the Installation website: www.benning.army.mil/EMD/Legal&PublicNotices.htm. A notice of availability (NOA) of the EA and draft FNSI has been mailed to all agencies/individuals/organizations on the distribution (mailing) list for the proposed action.

b. Summary of Public Comments: reserved until completion of the public review and comment period.

FINDING OF NO SIGNIFICANT IMPACT
REVIEWED AND APPROVED BY:

_____
Date

_____
Ricardo R. Riera
Colonel, IN
Garrison Commander

Appendix F

Public and Stakeholder Involvement Plan

Environmental Assessment for the Proposed Construction of a Shopping Center Fort Benning, Georgia

Public and Stakeholder Involvement Plan (PIP)

14 December 2004

1. PURPOSE.

1.1 Need for Project. The proposed action is to better serve the needs of the military community through the improvement of shopping facilities on Fort Benning. The Post Exchange (PX) facility was built in 1973 and is part of the PX and commissary complex, which is 95,000 square feet and includes a gas station, parking lots, and other services. The PX and commissary complex facility is located on a site bounded by Marne Road to the north, I-185 to the west, Hamlet Creek to the north, and undeveloped property to the east and south (Figure 2-2).

Currently, the Post Exchange (PX) is located in a confined space adjacent to the commissary, is highly congested, and too small to adequately serve the customer base. All AAFES food stores require substantial upgrades to meet the current retail standards AAFES requires at its newer facilities. Mechanical equipment is antiquated and the roof routinely leaks. To meet current AAFES retail standards, AAFES proposes to construct a new shopping center to solve the sizing, overcrowding, and maintenance problems, while maintaining easy access and locating the facility near the existing commissary and other associated services.

1.2 Need for Public and Stakeholder Involvement Plan. The construction and operation of the AAFES shopping center on Fort Benning involves legally mandated public comment and document review periods, as well as an opportunity to proactively identify and address any related community concerns. In addition to the general public, stakeholders must be identified and invited to participate, as well as regulator involvement as appropriate. This Plan presents a comprehensive means of satisfying legal requirements while enhancing community knowledge and participation in completing the proposed action. Throughout this Plan, "public" is used to broadly describe individuals that are in communities near the proposed project site or that may be interested or affected by the proposed action. "Stakeholder" is used to identify those entities that have an additional relationship to Fort Benning environmental resources or regulatory or governmental duties. Stakeholders include the *Federally recognized American Indian* Tribes *associated with the Fort Benning area*; Federal, state and local governmental agencies with regulatory authority over Fort Benning (e.g. United States Fish and Wildlife Service, and Georgia State Historic Preservation Office); and others.

1.2.1 Public involvement required by environmental laws and regulations.

1.2.1.1 National Environmental Policy Act (NEPA). The primary law that drives public involvement is the National Environmental Policy Act (NEPA). NEPA requires Federal agencies, such as the Army at Fort Benning, to prepare an environmental analysis of the proposed action and alternatives. Potential environmental impacts, both direct and indirect, are identified for the proposal and each alternative, and possible mitigation for any negative impacts is presented. Also, cumulative impacts (i.e. incremental impacts when considering other projects or actions in a region of affect) are identified as well as any resultant mitigation. Differing levels of NEPA analysis are available, however, because no significant affects are anticipated, an EA is being prepared.

The Council for Environmental Quality (CEQ) has NEPA oversight for the Federal government and has published regulations and guidance for the preparation of an EA. The Army supplements NEPA and the CEQ directions with an Army Regulation 200-2, Environmental Effects of Army Actions (AR 200-2) - current version effective 29 March 2002. AR 200-2 provides guidelines for the contents of an EA and the processes required for full environmental analysis with participation by public, stakeholders, and regulators. This Plan will not restate the provisions of AR 200-2, so attention to the specific requirements provided therein is required to fully comply with AR 200-2 and the Army's guidance on public and stakeholder participation and scoping. NEPA requires opportunities for public participation, often called public scoping, during preparation of an EA. Public interaction is based on two-way communication that reflects the needs of the community, *and may utilize* such methods as notices, brochures, news releases, web page information, summaries, draft documents, public meetings, comments and/or other methods. Fort Benning should update the community at each significant phase or milestone of environmental planning. This Plan will address the optimal means of meeting the NEPA requirements at each stage. More details regarding the requirements for notices, documents reviews and comment periods are provided below.

1.2.1.2. Other Laws and Regulations. There are several other laws and regulations that require public notices and participation during the planning phases of a Federal project and some *may be* relevant to this proposed activity. Although NEPA may address some of the topics and issues in the EA, Fort Benning must still satisfy the requirements of these other laws and regulations. Additional requirements for public or stakeholder involvement, in this instance, *may* include Federal and state laws, regulations, or executive orders and Installation policies and guidelines addressing the following: Section 106 of the National Historic Preservation Act (Concurrence for affects to historic properties); a Section 404 of the Clean Water Act permitting wetland disturbance; NPDES construction *and stormwater* permits; and a Spill Prevention, Control, and Counter-Measure Plan (SPCC). Often additional planning documents will be required and available for public review and comment.

1.2.1.3. Integration of Information. Fort Benning will use information sharing, referencing, and other means to maximize the efficiency and affect of public and stakeholder involvement in the environmental planning process. Because NEPA is an umbrella-type process and produces a comprehensive document, other public participation opportunities (see section 1.2.2) will be woven into the existing framework for the NEPA public involvement.

1.2.2. Proactive Information Opportunity. AR 200-2 encourages continuous, two-way communication to enhance public and stakeholder participation. Fort Benning should take this opportunity to educate the public about Fort Benning's mission, Fort Benning's environmental stewardship, the construction of the proposed action, and any proposed mitigation that is important to the community. Various methods of communication with the public or more focused audiences are available, such as: mailings in the form of letters, brochures, information packets; electronic communications by email or website information; telephone calls and information lines; articles for Post and local newspapers; information presented via radio or television broadcasts; open houses or site visits; and meetings on an individual, small group, or large group format. Normally using a few communication devices that are focused and meet the needs of the community will be most effective. This Plan will introduce opportunities to inform the public at various phases or milestone events.

1.2.3. Goals of Plan. Fort Benning is committed to meeting the legal requirements and also takes measures for more meaningful communication and involvement of the public and stakeholders in the planning of the construction of the proposed AAFES shopping mall. Limitations in resources, personnel, and time impose constraints that necessitate an efficient and realistic Plan. This Plan must assist the planners and be realistic for implementation. Goals for this Plan include:

- Promote an understanding of public and stakeholder involvement requirements and opportunities for better resourcing and scheduling;
- Specify steps needed to meet legal responsibilities for comment opportunities of public members and stakeholders;
- List realistic time frames and responsible persons or offices for each step;
- Coordinate activities to maximize the quality of the information, ensure the information relates to planning actions in process, and incorporate any resultant feedback into future participation or planning processes;
- Incorporate opportunities to present information to better partner with the community; and
- Keep PAO informed at all levels.

2. PLAN STRUCTURE.

This Plan is presented chronologically, providing the anticipated steps, time frames and actions. Although this Plan is meant to serve as a foundation for public and stakeholder involvement, it may have to be adjusted to accommodate changes. Items in this Plan should be evaluated for suitability before engaging in the recommended actions. AR 200-2 divides the scoping process into three phases for simplification: the Preliminary Phase, the Public Interaction Phase, and the Final Phase. Although the majority of public and stakeholder involvement is conducted in the Public Interaction Phase, the other two stages encompass important steps to prepare for and respond to public and stakeholder involvement. This Plan will use the three phases to organize this Plan, although the phases often overlap.

3. PRELIMINARY PHASE.

3.1. Initial Internal Scoping. This is an internal Fort Benning action that is normally very informal and may result in limited amounts of documentation. Often proponents of the action start this internal scoping as a natural part of planning for the proposal, rather than as a conscious effort to conduct internal scoping. Internal scoping is a process of identifying project requirements, initial environmental concerns, and possibly explore options to address those concerns. Internal scoping is important because it commences the environmental analysis; however, internal scoping obviously is only a precursor to public and stakeholder involvement. It is important for the proponent and all those working with the proponent to keep in mind that the decisions regarding the project are not final and are just proposals. Until the process of environmental analysis and documenting a decision is complete, the proponent should be open to modifying the project, especially to reduce environmental impacts or to incorporate comments or mitigation.

3.1.1. Identify Proponent. Initially, the proponent(s) of the proposal is identified. Usually the proponent is the person or activity that has initiated the action, has initiated a funding request, and makes the important decisions or recommendations regarding the project. For the proposed construction and operation of the AAFES shopping mall, AAFES has been identified as the proponent. As the project planning progresses, other activities may be added to the list of proponents, but currently they should be considered stakeholders, affected or interested parties, or beneficiaries of the project. AAFES is preparing the environmental planning and documentation.

3.1.2. Coordinate with Environmental Planners. For actions that could have, i.e. the potential to have, a negative impact or a substantial positive impact on the environment, the proponent is required to coordinate with EMD. Early coordination is required for large or complex projects. Failure to coordinate early can lead to several problems, including failure to maintain a proper NEPA record, delay in project execution, extra expense from redesigns and incorporation of mitigation, plus other problems. Normally the proponent initiates coordination by submitting a completed Fort Benning Form 144-R to EMD to

determine what level of NEPA analysis is required; however the NEPA documentation for some proposals obviously requires more complex NEPA analysis and the internal scoping can begin with a kick-off meeting or other ways.

3.1.3. Document internal scoping efforts. NEPA compliance involves keeping records of alternatives explored, issues brought up, personnel involved, and other aspects of the internal scoping process. Preparing meeting minutes or notes or other evidence of internal scoping is helpful not only for maintaining an administrative file, but also to later recall information for environmental document preparation. Options that may have been considered informally in the internal scoping process may be a basis for an alternative to study formally in the EA. This internal scoping does not substitute for public scoping, but it is a necessary precursor.

3.1.4. Coordinate with Public Affairs Officers (PAO). The EMD and DPW will keep the Public Affairs Officer (PAO) at Fort Benning informed regarding environmental planning and scoping for the proposed AAFES construction project. It is the responsibility of the Fort Benning PAO to keep the *Installation Management Agency (IMA), via the South East Regional Office (SERO),* informed of this action and its progress.

3.1.5. Tentative List of Affected and Interested Parties (Mailing List). EMD maintains a NEPA mailing list consisting of individuals or entities that have shown interest in Fort Benning's environmental studies or projects in the past. The mailing list also includes Federal, state and local government offices, Tribes, and anyone else requesting to be on the mailing list. This list should be thoroughly reviewed and adjusted for each NEPA action. Moving toward an electronic mailing database would be more efficient for many on the mailing list, and EMD should acquire email addresses for those who indicate a preference to receive email rather than traditional mail. At this time however, email cannot totally replace the numerous mailings that are required for notices associated with the SEA processing. For the proposed privatization process, Fort Benning has taken the basic Mailing List and adjusted it accordingly. A few names were also removed from the standard list to reflect an initial determination that those individuals or entities would not be interested or affected by the proposed privatization process. Part of the scoping process will be to continue requesting additional entries for the Mailing List through all stages and means of scoping. This List will be updated routinely to add individuals, organizations, entities and government agencies that may be affected by or interested in the proposed action.

4. PREPARATION OF THE EA AND FINDING OF NO SIGNIFICANT IMPACT (FNSI).

4.1. Involvement in Development of the EA. The EA is the environmental analysis document that is available for public review and comment in the NEPA process for this proposed action. While several partial drafts of the NEPA document may be routed for review at the Installation level, the first NEPA document to leave the installation for IMA/SERO and public review is the EA and draft FNSI. It should be the best attempt to inform the public and incorporate any scoping from the Preliminary Phase into the environmental analysis.

4.2. Preparation of the EA.

4.2.1. Drafting the NEPA Document. The EA should follow the general format in AR 200-2 although variations can be made as long as all required information and analysis are included. Environmental analysis in the EA requires reliable information regarding the project design. Developing the EA simultaneously with other environmental planning requirements is efficient and credible.

4.2.2. Gathering information. Much information can be obtained from existing sources, however additional surveys and/or analysis may be required. Coordination with the proponent, Fort Benning

stakeholders and external participants should be conducted early to ensure the information is correctly presented in the EA.

4.2.3. Coordinating with other environmental requirements. Several other environmental requirements will involve collecting of data, analyzing potential project impacts, and considering possible mitigation. Information obtained to satisfy other requirements would be incorporated into the EA, when available. Often only a summary of the related information is presented, with either a reference to the full document, placing the full document in an appendix, or incorporating by reference. If either referencing or incorporating another document, the full text of the document should be available for public review when the EA is made publicly available. If possible, the public involvement activities should be integrated to meet the requirements of NEPA and other requirements to present a complete picture of the project and potential environmental impacts to the public.

4.2.4. Coordinating with Others: The EA *internal Army* review should involve DPW, Master Planning, and the Office of the Staff Judge Advocate (OSJA). See AR 200-2 651.45(d)(2) for more information.

4.2.5. Cooperating Agencies. At this time, there are no cooperating agencies involved in the NEPA for the AAFES shopping mall construction.

5. THE FINAL PHASE.

After the close of the timeframe for public comment on the EA and draft FNSI, the Final Phase begins. Comments are considered and any revisions must be incorporated, either by errata sheets for minor revisions or complete revision and production of a revised EA for more comprehensive changes.

5.1. Draft Finding of No Significant Impact (FNSI). No decision will be made until 30 days after the Draft EA is made available for public review and comment. The Draft FNSI includes the decision (which alternative is selected); a description of alternatives considered; explanation of all factors used in making the decision; and an account of avoidance and mitigation requirements. See AR 200-2, Section 651.35(c) for more information.

5.2. Mitigation and Monitoring. Mitigation measures and monitoring requirements will be identified in the EA and FNSI. Point of contact for requesting this information is the Fort Benning Public Affairs Office (PAO).

Prepared By:
Army and Air Force Exchange Service