

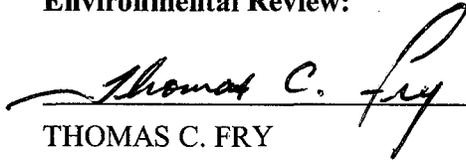
**Final Environmental Assessment and
Final Finding of No Significant Impact for the
Construction, Operation, and Maintenance of a Military
Working Dog Complex at
Fort Stewart, Georgia**



Environmental Division,
U.S. Army Garrison, Fort Stewart, Georgia
December, 2011

**FINAL ENVIRONMENTAL ASSESSMENT AND
FINAL FINDING OF NO SIGNIFICANT IMPACT FOR THE
CONSTRUCTION, OPERATION, AND MAINTENANCE OF A
MILITARY WORKING DOG COMPLEX AT
FORT STEWART, GEORGIA**

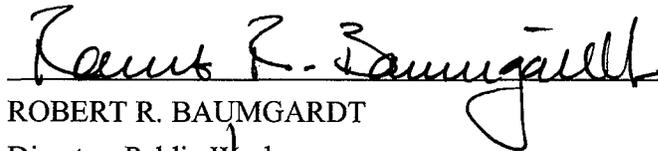
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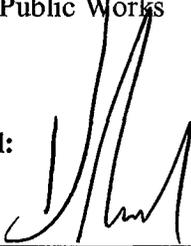
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Date: 16 Dec 2011

Approval:



KEVIN W. MILTON
Colonel, US Army
Commanding

Date: 5 Dec 12

**FINAL FINDING OF NO SIGNIFICANT IMPACT (FNSI) FOR THE
CONSTRUCTION, OPERATION, AND MAINTENANCE OF A
MILITARY WORKING DOG COMPLEX ON FORT STEWART, GEORGIA**

1.0 BACKGROUND

Fort Stewart, located in southeastern Georgia, is the largest Army Installation in area east of the Mississippi River. It encompasses nearly 280,000 acres of land located in parts of Liberty, Long, Bryan, Evans, and Tattnall counties. Fort Stewart plays a significant role in supporting the Army's mission and is an invaluable military readiness training platform. The Army's mission is to fight and win the nations wars, respond to national security threats, and promote peace. The Army does this by providing Troops trained, organized, and equipped to provide rapid and sustained military operations, from peacekeeping and security operations to high intensity military conflicts. To support the Army's mission, Fort Stewart must possess the infrastructure and facilities necessary to support the military training occurring there and support the quality of life of the Soldiers and their Families.

This FNSI summarizes the environmental assessment of the potential impacts associated with the construction, operation, and maintenance of a 10-14-acre Military Working Dog (MWD) Complex on Fort Stewart, Georgia. The complex will include an administration building for the dogs' handlers, as well as a kennel and obedience course for the military working dogs assigned to the 385th Military Police (MP) Battalion (BN) of the 3rd Infantry Division (ID). This document was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code 4321 *et seq.*), the Council on Environmental Quality Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and 32 CFR Part 651 (*Environmental Analysis of Army Actions*).

2.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

Fort Stewart currently has 14 military working dogs on Post, with an additional 10 deployed overseas with both MP and non-MP BNs of the 3rd ID. The dogs and their handlers are currently headquartered at Wright Army Airfield (WAAF), in Buildings 7737 and 7736. The dogs are housed, and trained at Building 7737, which contains an obedience course, dog run, other training components, and a kennel. Constructed in 1990, it was designed for 10 dogs, but currently houses 14, a cramped situation that will worsen when the currently deployed dogs return, requiring additional space. Building 7736 was constructed in 1941 and is used by the handlers as an administrative facility. When the MWDs and handlers were placed at WAAF in 1990, it was deemed a temporary situation only (due to a shortage of adequate facilities

elsewhere on Post). Field Manual (FM) 3-19, *Military Working Dogs*, discourages construction of kennels in locations with noise and human presence distracters, such as those found at WAAF. Department of the Army Pamphlet (DA PAM) 190-12, *Military Working Dog Program*, also discourages kennel construction near aircraft runways, taxiways, firing ranges, motorpools, Installation commercial activities, or other areas where the time weighted overall average sound pressure level for any 24-hour period exceeds 75 decibels.

The current MWD Complex consistently fails veterinary and safety inspections required per Army Regulation (AR) 190-12 (*Military Working Dog Program*) and AR 40-905 (*Veterinary Health Services*). Issues from these inspections include inadequate fencing (from which the MWDs can potentially escape), deteriorating roof support beams and panels over the kennel area, inadequate sewage line capacity that causes backups of fecal matter into the kennels and administrative areas, mold growth in kennels and offices due to damp conditions, and lack of a quarantine area to separate healthy MWDs from sick ones. Operation and maintenance funds are periodically available to repair the most dangerous problems in the kennel complex, including the roof and fencing. However, this requires removing the MWDs from the kennel for over two weeks per repair and housing them in the Veterinary Clinic. This is not an ideal situation, and without a new facility, is repeated on at least an annual basis.

The Army requires standard kennel facilities for all MWDs (AR 190-12). The purpose of the proposed action, therefore, is to construct, operate, and maintain new facilities to meet the Army's standard requirements for the military working dogs and their handlers that are of adequate size, and designed to meet all their training, living, and (for the handlers) administrative requirements. This also provides the MWDs with a standard, secure, sanitary facility that can be readily inspected.

3.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The U.S. Army proposes to abandon and replace an existing MWD Complex by constructing, operating, and maintaining a new facility on Fort Stewart. The new MWD Complex will consist of a kennel area, a kennel support building, a training area, an obedience course, and an exercise area. The kennel is the area in which the dogs are quartered and secured. The kennel support building provides an area for the operational, logistical, and administrative support functions. The training area provides a safe and secure area for obedience, confidence, and proficiency training of the dogs. The obedience course, which is normally located within the training area of the complex, helps the dogs maintain agility, stamina, and general physical fitness while reinforcing the obedience and confidence training. The exercise area provides a safe, secure area

for individual dogs to be exercised when the dog's handler is not available. Demolition of the existing MWD Complex at WAAF is universal to each action alternative, as will use of borrow materials, site preparation, development of utility corridors, lay-down areas, and landscaping.

Alternative I: No Action

Under this alternative, the military working dogs and their handlers will remain in their existing facilities at WAAF and utilize them in their existing condition. This alternative is also applied in this Environmental Assessment to measure the environmental impacts of the action alternatives.

Alternative II: Highway 144 East Location (Preferred)

Construction, operation, and maintenance will occur along Georgia Highway 144 East, approximately 1.5 miles west of FS Road 47, behind the existing Explosive Ordnance Disposal (EOD) Complex. Work at this site also requires development of an access road from GA Highway 144 to the new MWD Complex, both for the initial timber harvest and construction process, and for the subsequent day-to-day use of the completed facility.

Alternative III: Harmon Avenue Location

Construction, operation, and maintenance will occur behind the new Army/Air Force Exchange (AAFES) Shopette, near the intersection of Harmon Avenue and East 16th Street. Work at this site will utilize an existing dirt access road.

4.0 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

Analysis of this proposed action resulted in a finding of potential impact to Water Resources (Surface Water, Floodplains, Stormwater Conveyance Systems), Health and Safety, and Land Use Table 1 presents a summarized representation of these potential impacts, with a detailed analysis presented in Chapter 3.0, Environmental Consequences, of the Draft EA, incorporated herein by reference. The remaining environmental resources on Fort Stewart (including, but not limited to, Air Quality and Biological Resources), to which no potential effects were predicted, are briefly discussed in Appendix A of the Draft EA.

Potential impacts to these resources may be direct, indirect, or cumulative, and are defined as follows. Direct impacts are those caused specifically by the proposed action and which occur at the same time and place. Indirect impacts are also caused by the proposed action, but later in time or in distance. Cumulative impacts are those which “result from the incremental impact of the action” 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” and

are “the total effect, direct and indirect, on a given environmental resource, no matter who (federal, non-federal, or private) performs the action” (Canter et al, 2007).

Table 1: Level of Anticipated Environmental Impacts.

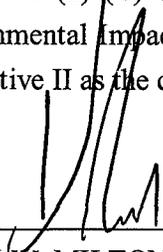
Type and Intensity of Impact			
⊖ = no impact ○ = negligible ⊙ = minor ⊗ = moderate ● = Meets TLS			
Type of Impact	Alternative I (No Action)	Alternative II (Preferred)	Alternative III
Surface Water			
Direct / Indirect	⊙	⊙	⊙
Cumulative	⊗	⊗	⊗
Floodplains			
Direct / Indirect	⊖	○	⊖
Cumulative	⊖	⊖	⊖
Stormwater Conveyance Systems			
Direct / Indirect	⊙	○	○
Health and Safety			
Direct / Indirect	⊗	⊗	○
Cumulative	○	○	⊖
Land Use			
Direct / Indirect	⊙	⊙	⊗
Cumulative	⊙	⊙	⊙

5.0 PUBLIC INVOLVEMENT

The Draft EA and FNSI were available for a 30-day public review period (November 7-December 6, 2011) at the local public libraries in Hinesville and Savannah and at the Post Library on Fort Stewart. Fort Stewart also published the Notice of Availability of the Draft EA and Draft FNSI in the *Savannah Morning News*, *Coastal Courier*, and *The Frontline* and mailed electronic copies of the document to the regulatory community and joint land use partners with whom it consults. Comments received indicated concurrence with the Army’s action at Fort Stewart, Georgia.

6.0 CONCLUSION

This FNSI summarized the environmental assessment of the potential impacts of constructing a new MWD Complex on Fort Stewart. Implementation of the preferred Alternative (*Highway 144 East Location*) will not have a significant environmental impact, within the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969, and preparation of an Environmental Impact Statement is not required. Therefore, I have selected implementation of Alternative II as the course of action.



KEVIN W. MILTON
Colonel, US Army
Commanding

Date: 5 Jul 12

ACRONYMS

AR	Army Regulation
BCT	Brigade Combat Team
BN	Battalion
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DA	Department of the Army
DPTMS	Directorate of Plans, Training, Mobilization, and Security
EA	Environmental Assessment
EISA	Energy Independence Security Act
EOD	Explosive Ordnance Disposal
ESCA	Erosion and Sedimentation Control Act
ESPCP	Erosion Sedimentation Pollution Control Plan
FNSI	Finding of No Significant Impact
GA DNR	Georgia Department of Natural Resources
GA EPD	Georgia Environmental Protection Division
GIS	Geographic Information System
INRMP	Integrated Natural Resources Management Plan
ITAM	Integrated Training Area Management
LID	Low Impact Development

MP	Military Police
MWD	Military Working Dog
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OSHA	Occupational Safety and Health Administration Act
H&S	Health and Safety
PPRFFA	Past, Present, and Reasonably Foreseeable Future Actions
ROI	Region of Influence
SPCC	Spill Prevention Control and Countermeasure
SWP3	Stormwater Pollution Prevention Plan
TLS	Threshold Level of Significance
USDA	United States Department of Agriculture
UXO	Unexploded Ordnance
WQA	Water Quality Act

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1.0 INTRODUCTION AND BACKGROUND

Fort Stewart, located in southeastern Georgia, is the largest Army Installation east of the Mississippi River (Figure 1-1). It encompasses nearly 280,000 acres of land in parts of Liberty, Long, Bryan, Evans, and Tattnall counties. The Army uses facilities and ranges on Fort Stewart to train approximately 200,000 active duty and reserve component Soldiers each year, in addition to providing a training platform 2-3 times per year for Reserve Units such as the Army Reserve, the Georgia Army National Guard (ARNG), the Florida ARNG, and the Puerto Rican ARNG. Fort Stewart is the home of the 3rd Infantry Division, which currently consists of three Heavy Brigade Combat Teams (HBCTs) (one HBCT of the 3rd Infantry Division is stationed at Fort Benning, Georgia, and trains there, rarely affecting Fort Stewart), one Infantry Brigade Combat Team (IBCT), and one Sustainment Brigade.

Several tenant units also reside and train on Fort Stewart, including the 385th Military Police (MP) Battalion (BN) of the 3rd Infantry Division (ID). While at home station, their mission is to provide detection of explosive devices/residue in support of personal protection, health and welfare inspections, crime scene searches, internment/resettlement operations, customs operations, and provide patrol support when not employed with explosive detection. They are also responsible for the housing, handling, and training of the Installation's military working dogs (MWDs), in accordance with Army Regulation (AR) 190-12, *The Military Working Dog Program*. This includes all activities to maintain, improve, regain, and/or develop skills such as patrolling, scouting, tracking, detection of persons, and the detection of drugs or explosives. Once trained, the dogs deploy with MP or non-MP BNs in the same manner as the MPs themselves and, once their deployments conclude, they return to Fort Stewart and its existing facilities. (*Note: additional MWDs are stationed at Hunter Army Airfield; however, they, their handlers, and facilities are not impacted by this action and not discussed in this EA.*)

This Draft Environmental Assessment (EA) analyzes the potential impacts associated with the construction, operation, and maintenance of 10-14-acre MWD Complex on Fort Stewart, Georgia. This document was prepared in accordance with the National Environmental Policy (NEPA) of 1969 (42 U.S. Code [USC] 4321 *et seq.*), the Council on Environmental Quality [CEQ] Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and 32 CFR Part 651 (*Environmental Analysis of Army Actions*, Final Rule; 29 March 2002).

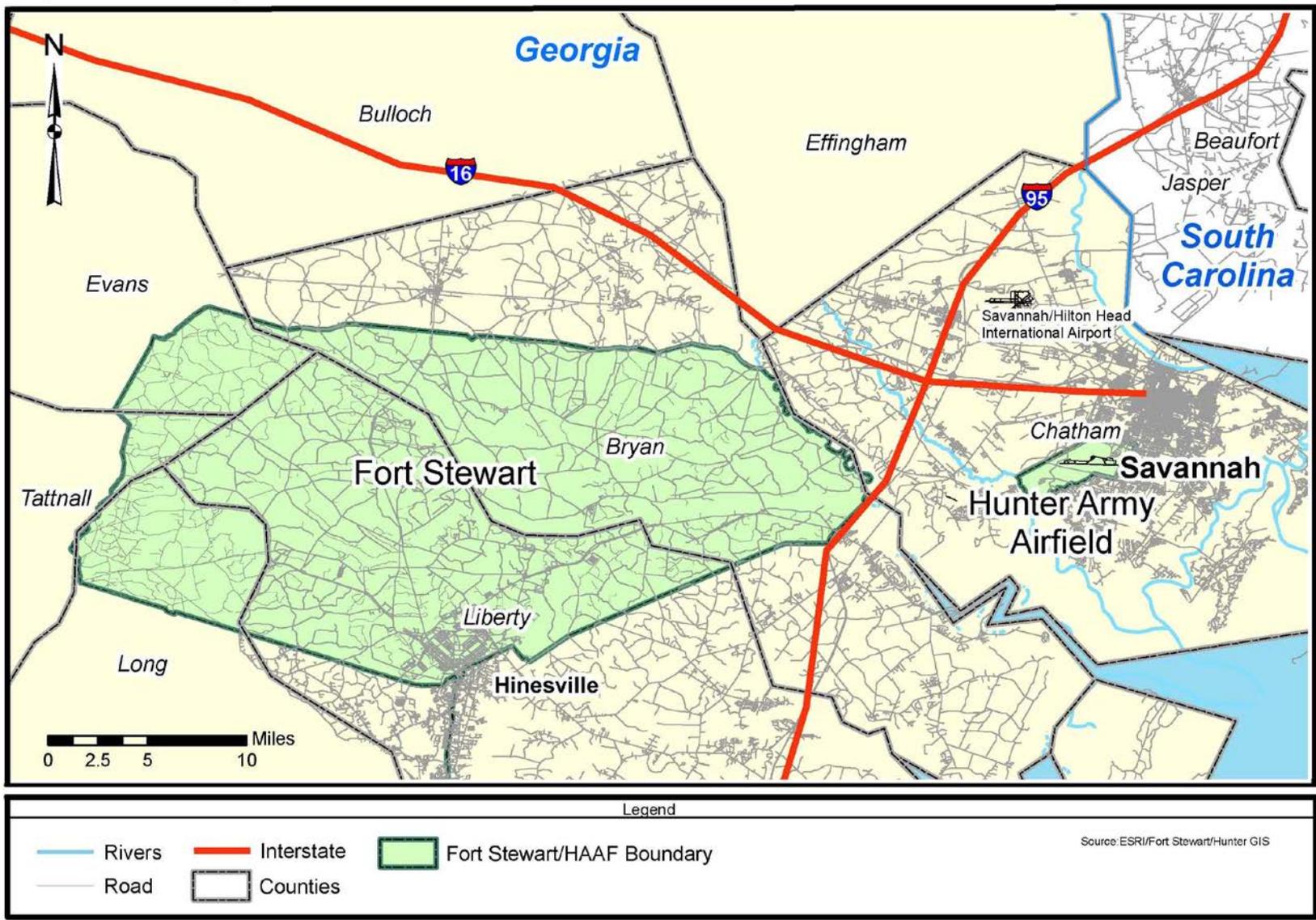


Figure 1-1: Fort Stewart and Hunter Army Airfield Location Map

Trained dogs have been used by most of the world's military forces since the first military units were organized. From these ancient beginnings, the MWD's training has been continuously refined to produce a highly sophisticated and versatile extension of the Soldier's own senses. Even the most complex machines remain unable to duplicate the operational effectiveness of a properly trained MWD. The MWD's unique capabilities are used by the military police to:

- a. Secure Installation and property.
- b. Help enforce military laws and regulations.
- c. Increase the effectiveness of the combat support provided by the Military Police.

The MWD team's specialized capabilities make it one of the most effective tools available to a commander for combat support, security, and law enforcement. As the only live equipment employed Army-wide, the dog's continuing proficiency depends on realistic daily training and care. Skills that are not practiced or used can be lost.

1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

Fort Stewart currently has kennels and trains 14 military working dogs on Post. An additional 10 dogs are deployed overseas. The existing MWD Complex, which consists of two buildings, is located at Fort Stewart's Wright Army Airfield (WAAF). The kennel and training facilities are located in Building 7737, which includes an obedience course, dog run, and other training components. The kennel was designed for 10 dogs. The overcrowding of the dogs will worsen when the currently deployed dogs return. Building 7736 serves as the Complex's administrative facility.

The MWD Complex was located at WAAF in 1990 as a temporary solution until a more suitable permanent site could be located. However, the airfield produces noise and distractions that make the location less than ideal for a MWD Complex. In accordance with Field Manual (FM) 3-19, *Military Working Dogs*, kennels should not be located in areas that are noisy or include constant distractions. Although the dogs will tolerate some distraction, activities that prevent adequate rest, such as airplanes or traffic, will adversely affect the ability to perform their duties effectively. Kennels must not be built near aircraft runways, taxiways, firing ranges, motorpools, 1 or other areas where the time weighted overall average sound pressure level for any 24-hour period exceeds 75 decibels (Department of the Army pamphlet [DA PAM] 190-12, *Military Working Dog Program*). The dogs must also be provided with facilities capable of passing safety and veterinary inspections required per AR 190-12 (*Military Working Dog Program*) and AR 40-905 (*Veterinary Health Services*), which is not the current situation at the existing MWD facilities.

Every level of command within the Army has specific responsibilities for making sure that the MWD program is properly established and efficiently managed. This includes ensuring that operational units are provided with trained dogs and handlers to form teams, and the necessary equipment and facilities to maintain effective local MWD programs. As such, a new MWD Complex is necessary to meet standard facility and operational requirements to proficiently train MWDs. The purpose of the proposed action, therefore, is to construct, operate, and maintain a MWD Complex that meets the Army's standard requirement.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

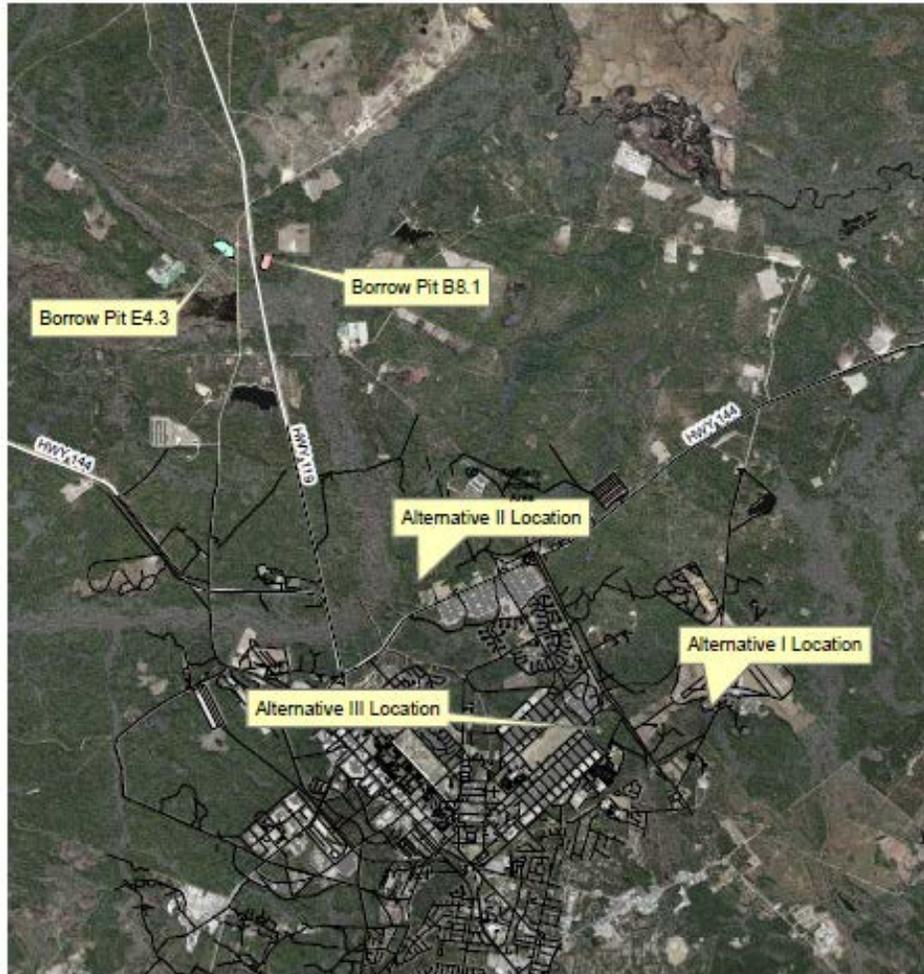
2.1 INTRODUCTION

Fort Stewart utilized its master planning process to develop siting alternatives for the new Military Working Dog (MWD) Complex. This collaborative process involved an interdisciplinary team composed of the user (occupier of the facility), the DPW's Environmental Division and Real Property Master Planning, and other the Directorate of Planning, Training, Mobilization, and Security (DPTMS). The team collected, mapped, and evaluated project-specific information, including mission requirements, to develop alternatives that met the purpose and need of the proposed action, as discussed in Section 2.4. The alternatives that did not meet the purpose and need of the proposed action were dismissed from further review and are discussed in Section 2.5.

2.2 PROPOSED ACTION

The Army proposes to construct, operate, and maintain a MWD Complex on Fort Stewart to accommodate the living, working, and training needs of its military working dogs and their handlers. The Complex will include an administration area with offices, break area, veterinary treatment room, tack room, food storage room, and a locker room with latrines and showers. Training-specific facilities for the dogs include indoor/outdoor kennel area for up to 24 military working dogs, dog runs with guillotine doors (which allow for opening/closing of doors via an external pulley system) and floor drains, as well as exterior doghouses, exercise areas, obedience course, explosive pads, storage sheds, and site preparation, to include utility corridors, lay-down areas, and landscaping. Demolition of the existing MWD facilities (Buildings 7736 and 7737 at Wright Army Airfield [WAAF]) is universal to each action alternative (II and III), and will occur at some undetermined point after completion of the new facilities. Use of borrow materials will be required for each action alternative, as well, and require coordination with the Installation Borrow Pit Manager. Borrow pits near the Action Alternatives are E4.3 BP1 and B8.1 BP1 (Figure 2-1). The No Action Alternative (I) involves neither demolition nor the use of borrow pit materials.

Proper maintenance of kennels requires early detection and correction of all deficiencies, safety, and health hazards. Kennels will be carefully inspected daily by the kennel master and each of the assigned handlers. Loose or worn hinges, catches or rollers, broken wire or anchor fasteners, and any other broken or damaged equipment will be promptly repaired.



Legend

Borrow Pits Borrow Pit Designation

B8.1BP1

E4.3BP1

Roads

0 0.5 1 2 Miles



Figure 2-1: Existing Borrow Pits Near the MWD Complex Alternatives

Kennel runs will be cleaned out daily to remove debris and stools, and washed out daily to remove urine, dust, and stains. Drain troughs will be provided outside each run to provide proper drainage. Special cleaning of kennel runs using hot water and detergent, or steam cleaning, will be done at least weekly. All areas will be thoroughly rinsed with potable water after cleaning. A chemical sanitizing agent (disinfectant) which has been approved by the

veterinarian will then be applied to control infectious bacteria and offensive odors. Tall grass, weeds, and brush will be removed from areas that harbor ticks and other insects. Vegetation will be removed from around the kennel to a distance of at least 10 feet. The area should then be sprayed with a residual insecticide, approved by the veterinarian and Installation Pest Manager. The kennel area, the food preparation and storage area, and any other appropriate area also will be sprayed periodically with a residual insecticide prescribed by the veterinarian and approved by the Installation Pest Manager.

2.3 SCREENING CRITERIA

The interdisciplinary team used the purpose and need to develop criteria that an alternative site must possess to be considered for the proposed project. These criteria were developed based on the FM and ARs for the MWDs as well as the practical experience and expertise of the dog handlers and environmental resource specialists. The screening criteria were also ranked in order of importance to the user (385th MPs), as presented below:

- A site in a quiet area (cannot exceed 75 decibels)
 - Limit noise from vehicle operations (airfield, motorpool, highway)
 - Limit noise from training and range operations
- A site consisting of 10-14 acres for construction of required facilities
- A site compatible with adjacent land uses
- A site capable of accommodating future growth
- A site presenting minimal site preparation costs
 - Close to existing utility connections/infrastructure
 - No on-site wetlands or other environmental constraints

The interdisciplinary team determined an alternative was viable if it met the following three criteria: located in an area that contains 10-14 acres of land, and was compatible with adjacent land uses. The rationale for this ranking is explained in detail below.

- A quiet location is ranked first and is the most important criteria for both practical reasons (ensuring the dogs' obtain proper rest and training periods) and because it is a requirement in Army FM 3-19, *Military Working Dog*, and DA PAM 190-12, *Military Working Dog Program*.
- The 10-14 acre project site is ranked second, and is required to accommodate the dogs' kennel and obedience course, administrative area for their handlers, and utility corridors.
- Site compatibility with adjacent land use is ranked third. The user preference is a location adjacent to training lands and away from the cantonment area. This also

indirectly assists in reducing noise levels and other distracters (i.e., a quiet location, which is the most important criteria).

- A site capable of accommodating future growth is ranked fourth because it is always possible for any Fort Stewart mission to grow. According to the Master Planning Division, there is a potential increase of 20 personnel at the MWD Complex on/around October 2012. It was not determined to be among the most important criteria because it is unclear if this growth will absolutely require additional square footage at the MWD Complex; however, it is important to have the capacity to expand the new Complex, once constructed, if and when it is required.
- Site preparation costs are ranked fifth because, although they are also important, these are more practically overcome than the first four criteria (for example, a utility trench can be dug to connect existing utilities to the new facilities, wetland permits can be obtained, etc.).

2.4 ALTERNATIVES CONSIDERED

2.4.1 Alternative I: No Action (Figure 2-2)

Under this alternative, the MWDs and their handlers will remain in their existing facilities, Buildings 7736 and 7737 at WAAF, and utilize them in their existing condition. The current facilities are dilapidated, undersized, and in poor condition. These buildings have roof leaks in several areas, leading to possible damage of computers and other sensitive equipment. This water damage also causes mold and mildew growth, and sewage backup occurs frequently. There is also no dedicated quarantine or isolation area for sick MWDs. This alternative **meets two of the required screening criteria** (site size and potential for accommodating future growth), however, it is carried forward for environmental analysis as it serves as a baseline against which to compare the impacts of the action alternatives in Chapter 3.0.

2.4.2 Alternative II: Highway 144 East Location (Preferred) (Figure 2-3)

Under this alternative, the complex will be built along Georgia Highway 144 East, approximately 1.5 miles west of FS Road 47, behind the new EOD Complex. Work at this site also requires development of an access road from GA Highway 144, both for the initial timber harvest and construction process, and for the subsequent day-to-day use of the completed facility. It is not necessary for kennel complexes to be located in remote or isolated areas, however, they should be located outside built-up areas whenever possible (DA PAM 190-12). This alternative site has the benefit of natural barriers that will reduce the minor noise and visual distractions from the adjacent EOD Complex, **allowing it to meet all of the required screening criteria**, and fulfill the purpose and need for the proposed action

2.4.3 Alternative III: Harmon Avenue Location (Figure 2-4)

Under this alternative, the complex will be built behind the new Army/Air Force Exchange (AAFES) Shoppette, near the intersection of Harmon Avenue and East 16th Street. Work at this site will utilize an existing dirt access road. Alternative III is located in a section of Post that has a moderate level of activity (due to the adjacent WAAF flight path and close-in training site, the Harmon Avenue AAFES Shoppette, and Army Family Housing); however, the site does have natural sound and visual barriers to reduce these distracters, making the location relatively quiet. This alternative **meets the three required screening criteria** and meets the purpose and need of the proposed action. It also meets the criteria for size and accommodating future growth, as well as minimal site preparation potential.



Legend

- Roads
- Existing Buildings

0 5 10 20 Miles



Figure 2-2 - Alternative I: No Action



Legend

- Roads
- Proposed MWD Complex
- Existing Buildings

0 5 10 20 Miles

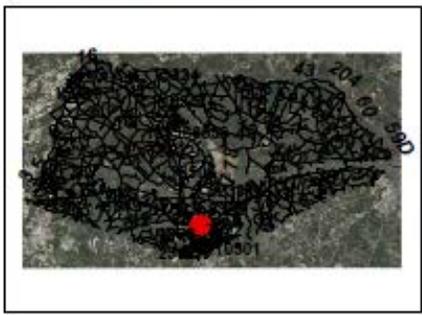


Figure 2-3 - Alternative II: Highway 144 East Location

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER REVIEW

As discussed in Section 2.4, an alternative is viable if it meets the three critical screening criteria, which were utilized to identify locations on Fort Stewart upon which the new MWD Complex could potentially be built. The alternatives discussed below were developed during the master planning process, but were eventually dismissed from further, detailed review due to their failing to meet the minimum required screening criteria and, therefore, the purpose and need for the proposed action. They are presented here, however, to inform the reader of the full spectrum of alternatives analyzed by the Installation's interdisciplinary team during the course of this project's development.

2.5.1 Alternative IV: Evans Army Airfield (EAAF) Location

This alternative did not meet the required screening criteria. It is adjacent to an active airfield, introducing noise and high levels of activity to the site; in addition, AR 210-21 discourages the construction of the MWD Facilities at an active airfield. It met the least important criteria of minimal site preparation costs (located close to existing utilities connections and infrastructure), but is surrounded by wetlands, which introduces a minor environmental constraint. The site failed the criteria for accommodating future growth (is "boxed in" by the airfield on one side and wetlands on two sides), compatibility with adjacent land uses (MWD training versus airfield uses), and two-acre site requirement (again, due to the site being restricted on three of its four sides). For these reasons, this alternative was determined unfeasible and dismissed from further review.

2.5.2 Alternative V: Georgia Highway 144 and FS Road 47 Location

This alternative met two and failed two of the top four screening criteria. The site met the size requirement and the potential for accommodating future growth, as it is not restricted on its west, east, or southern sides, but to the north only by Highway 144. However, siting the MWD Complex at this location is not compatible with adjacent land uses (Garrison/cantonment to the west conflicts with Complex's training category, although lands to the north and east are designated for training). Construction here will also remove operational (training lands) from the Installation and convert them to non-operational. The site is located directly across the highway from known ranges so presence of unexploded ordnance (UXO) is presumed, requiring UXO survey and removal prior to timber harvest and construction, increasing site preparation costs. The site is also incompatible with non-distracting noise levels that is necessary during operation of the MWD Complex. Sources of noise include the adjacent cantonment area, Small Arms

Range Complex, and WAAF aviation flight paths. For these reasons, this alternative was determined unfeasible and dismissed from further review.

2.5.3 Alternative VI: Military Police (MP) Complex Location

This alternative met one and failed three of the top four screening criteria. The site met the size requirement. It failed to meet the third and fourth criteria – it would not be compatible with adjacent land uses (as the Complex is training land use and the surrounding land use is Garrison/cantonment), and for accommodating future potential growth (because it is surrounded on all four sides by existing roads and development within the cantonment area). The site also fails the most important criteria, as it's not a quiet area of Post, but across from a motorpool, off-Post schools and apartments, and Army Family Housing. This location is adjacent to the 385th MP BN, which may seem to be an ideal location to house the MWDs; however, there is no requirement for the dogs to be at the same location as their handlers. In fact, the MPs prefer the dogs be located far from the noise and other distractions of the Garrison/cantonment area. The site did meet the criteria for minimal site preparation costs, as it is close to existing utilities and has no wetlands or other environmental constraints. Despite this, the alternative was determined unfeasible and dismissed from further review.

2.5.4 Alternative VII: Demolish Existing Facilities and Construct New Facilities at WAAF

This alternative met two and failed two of the top four screening criteria. It can accommodate the site size requirement and is capable of accommodating future growth. However, it is incompatible with adjacent land uses (the MWD Complex is a training land use and WAAF is an airfield land use) and is also not located in a quiet section of the Post, but directly on WAAF. This location does meet the minimal site preparation cost criteria (existing utilities and minimal environmental constraints), but this alternative is still unfeasible and it was dismissed from further review.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

The environmental setting for which environmental impacts are evaluated is consistent with Chapter 3 of the *Final Environmental Impact Statement for Training Range and Garrison Support Facilities Construction and Operation at Fort Stewart, Georgia*, published in July 2010. This document is available for review at the following website http://www.stewart.army.mil/dpw/EN_Downloads.asp. The analysis in this Draft EA discusses environmental impacts that might occur from the proposed action alternatives and compares those to the no action alternative. This analysis will enable decision-makers to compare the magnitude of environmental impacts of each alternative. Measurements and resulting conclusions of potential impacts of each resource from each alternative were conducted and the results explained in this chapter.

3.2 MEASURING ENVIRONMENTAL IMPACTS

As a result of the National Environmental Policy Act, Federal agencies must integrate environmental values into their decision making processes; and analyze the environmental impacts of any proposed action and reasonable alternative before the action is undertaken. This analysis must be documented in an EA or Environmental Impact Statement (EIS). The primary purpose of preparing an EA is to provide evidence and analysis for determining whether to prepare an EIS. An EIS is required if significant or potential significant direct, indirect, or cumulative environmental impact(s) are anticipated from a proposed action. Direct impacts are those caused specifically by the proposed action and which occur at the same time and place. Indirect impacts are also caused by the proposed action, but later in time or in distance. Cumulative impacts are those which “result from the incremental impact of the action” when added to “other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or what person undertakes such other actions” (Canter et al, 2007). This chapter focuses on the direct and indirect potential impacts to these environmental resources, while potential cumulative impacts are discussed in Chapter 4.0.

In order for the Army to determine whether to prepare an EIS for this proposed action, Fort Stewart established Threshold Levels of Significance (TLS) for each resource that, if potentially met, will require the preparation of an EIS. TLS are based on the professional judgment of the resource specialist. An analysis of each alternative is conducted so that a measure of the intensity of anticipated environmental impacts can be fully disclosed, which allows the decision-

maker to weigh each alternative prior to reaching a decision. Each of the TLSs in the EA are measures designed to explain how close the alternative is to potentially meeting a resource TLS. Each measure category is described as follows:

- *Negligible* - the environmental impact is barely perceptible or measurable, remains confined to a single location, and will not result in a sustained recovery time for the resource impacted (days to months).
- *Minor* – the environmental impact is readily perceptible and measurable, however, the impact will be temporary and the resource should recover in a relatively short period of time.
- *Moderate* - the environmental impact is perceptible and measurable, and may not remain localized, impacting areas adjacent to the proposed action. Under this impact, recovery of the resource may require several years or decades.
- *Significant/Meets TLS* – the environmental impact meets the TLS and significant impacts will occur.

3.3 RESOURCES ANALYZED

Following a review of the proposed action and the development of alternatives, it was determined that potential impacts may occur to Water Resources, Health and Safety, and Land Use. Table 1 presents a summarized representation of the direct and indirect impacts to these resources, which are discussed in detail in the remainder of this chapter. As mentioned earlier, potential cumulative impacts to these resources are discussed in Chapter 4.0. The environmental resources on Fort Stewart to which no potential effects were predicted (direct, indirect, or cumulative), such as Air Quality, Socioeconomics, and others, are briefly discussed in Appendix A of this document, *Environmental Resources Eliminated from Further Review*.

Although the Alternative II location (*Highway 144 East*) (preferred) contains threatened and endangered species (TES) habitat, this section of the Installation is no longer managed for TES, per the terms of the 2008 Biological Opinion from the U.S. Fish and Wildlife Service regarding the development of the adjacent 4th Infantry Brigade Combat Team Complex. A copy of this BO is available for review at Appendix B. The Alternative I (No Action) and II (Harmon Avenue) locations are also not managed for TES, as these alternatives are located within the cantonment area, not managed for TES per the Installation's Integrated Natural Resource Management Plan.

Table 1: Level of Anticipated Environmental Impacts.

Type and Intensity of Impact			
⊖ = no impact ○ = negligible ⊙ = minor ⊗ = moderate ● = Meets TLS			
Type of Impact	Alternative I (No Action)	Alternative II (Preferred)	Alternative III
Surface Water			
Direct / Indirect	⊙	⊙	⊙
Cumulative	⊗	⊗	⊗
Floodplains			
Direct / Indirect	⊖	○	⊖
Cumulative	⊖	⊖	⊖
Stormwater Conveyance Systems			
Direct / Indirect	⊙	○	○
Cumulative	⊗	⊖	⊖
Health and Safety			
Direct / Indirect	⊗	⊗	○
Cumulative	○	○	⊖
Land Use			
Direct / Indirect	⊗	⊙	⊗
Cumulative	⊙	⊙	⊙

3.4 RESOURCE ANALYSIS

3.4.1 Water Resources

Introduction. The proposed action may adversely impact some, but not all, of the Installation’s water resources; therefore, a “snapshot” of the Installation’s water resources, how they are managed, a defined TLS, and an analysis of each alternative’s potential impacts follows. During siting and design of the MWD Complex, the Installation was able to avoid impacts to wetlands. In addition, analysis by subject matter experts determined the project will have no impact to groundwater. Therefore, these water resources are not discussed in this section, but are briefly discussed in Appendix A. Water Resources that may potentially be impacted include Surface Water, Floodplains, and Stormwater Conveyance Systems. These water resources are discussed in detail in this remainder of Section 3.4.1.

Surface Water. The Fort Stewart Integrated Natural Resources Management Plan identifies 1,454 acres of ponds, reservoirs, and borrow pits (that regularly fill with water), 265 miles of freshwater rivers and streams, and an additional 12 miles of brackish water streams on Post (Fort Stewart, 2005). Although Fort Stewart occupies parts of four watersheds, the majority of the Installation lies within the Canoochee Watershed and the Ogeechee Coastal Watershed. The Canoochee River crosses the Installation from its northwest corner to its eastern side, and the Ogeechee River forms the Installation's northeastern border (Figure 3-1). The Ogeechee River is not in the vicinity of the proposed action, which is located in the southern portion of the Installation, and therefore will not experience any direct and/or indirect impacts from the proposed action. Therefore, the focus of the discussion below is on the Canoochee River and its tributaries.

The Canoochee River has several tributaries on-Post, most notably Taylor's Creek, which is also the closest tributary to the three alternatives. Taylor's Creek divides into even smaller tributaries that flow from the western and southern portions of the Installation before reconnecting with the Canoochee River and flowing off-Post into the Canoochee watershed. Both the Canoochee River and Taylor's Creek are designated Clean Water Act (CWA) Section 303(d) surface waters, also called "impaired streams" by the Georgia Environmental Protection Division (GA EPD). The GA EPD listed a segment of Taylor's Creek as impaired for copper, lead, and mercury. These impairments are attributed to discharges from the Hinesville Wastewater Treatment Plant, which is located within the Fort Stewart cantonment area. An additional segment downstream of this facility is listed as impaired for low dissolved oxygen (DO) levels, attributed to siltation and sediment loads discharging into the stream during rain events.

The majority of the surface waters within Fort Stewart are "black water systems" which have naturally occurring low DO levels during dry weather periods, as a result of low or no flow conditions. In addition, the GA EPD recently issued fish consumption warnings for two segments of the Canoochee River. The latter was due to high mercury concentrations and was determined by GA EPD to be caused by urban runoff. Fort Stewart actively monitors the tributaries of Taylors Creek, performing post-rain visual assessments, collecting samples from automated samplers, and performing annual in-stream water quality monitoring during non-rain events for DO levels, as required under Fort Stewart's existing Municipal Separate Storm Sewer Systems (MS4) and National Pollutant Discharge Elimination System (NPDES) permits.

Floodplains. The Federal Emergency Management Agency defines the 100-year Floodplain as an area subject to a 1% or greater chance of flooding in any given year, and the 500-year

Floodplain as an area subject to a 0.2% or greater chance of flooding in any given year. Floodplains are low-lying lands subject to inundation from floodwaters, are a link to adjacent streams and rivers, and serve various functions, including water storage and conveyance, filtration of nutrients and other pollutants from runoff, erosion control, groundwater recharge, fish and wildlife habitat, and recreation.

Approximately 120,000 acres of Fort Stewart is located within a floodplain. Executive Order (EO) 11988, *Floodplain Management*, requires Federal agencies to avoid construction or management practices that will adversely affect floodplains unless (1) there is no practicable alternative and/or (2) the proposed action is designed to minimize harm to or within the floodplain. There must be a finding of no practicable alternative to constructing in the floodplain and verification that all practicable measures were taken to minimize harm to the floodplain.

Federal agencies must also ensure construction is in accordance with the standards and criteria of the National Flood Insurance Program. This includes the application of accepted flood-proofing/flood protection measures. For example, to achieve the best flood protection, agencies should, wherever practicable, elevate structures above the flood level (or flood zone) rather than filling in the site with land. State of Georgia requirements must also be met and typically include similar measures, such as construction elevation requirements to or above the 100-year floodplain level, ensuring the facility is adequately anchored to prevent flotation, collapse, or lateral structural movement during flooding, and ensuring electrical, heating, ventilation, plumbing, and other such services be designed to prevent flood waters from entering and/or accumulating within these systems.

The Georgia Stormwater Management Manual/Coastal Stormwater Supplement requires (a) the review of all construction projects located within a floodplain and (b) compliance with the Energy Independence Security Act (EISA)-Section 438. When constructing within a floodplain, construction contractors must review the *U.S. Environmental Protection Agency (USEPA) Technical Guidance for Implementation of EISA-Section 438* (USEPA, 2009) and select from a series of floodplain-specific BMPs contained within the document. The BMPs chosen must be tailored to a specific project and its unique site characteristics, in order to best address runoff reduction and flood protection measures and help minimize potential flooding and stormwater concerns in the future. The contractor must also adhere to the standard BMPs provided in the NPDES and other required permits for the site, as well as the Federal and state of Georgia guidelines discussed in earlier paragraphs for the floodplain. Surface water runoff is further discussed in the following section for *Stormwater Conveyance Systems*.

Stormwater Conveyance Systems. The Installation's stormwater conveyance system consists mainly of open water ditches or channels. The cantonment area, or developed portion of Post, is drained by a sophisticated engineered stormwater collection system that discharges to a series of maintained grass drainage ditches, swales, and trapezoid-shaped drainage channels. These are primarily found in areas with impervious surfaces, i.e., where water flowing over the surface cannot naturally seep or percolate into the ground. In the less-developed areas of Fort Stewart, stormwater primarily flows overland, following the topography of the land.

Sedimentation basins and/or sedimentation traps may be used as temporary measures during the construction phase of a project; existing *retention ponds and detention basins on the Installation are post-construction measures (structural BMPs) for NPDES permitting for runoff reduction, water quality, and total suspended solids removal. Because DO is low in waters with high temperature, much of the water that discharges from the slow-moving ditches to receiving water bodies is low in DO and may be a source of low DO for surface water bodies such as Section 303(d) streams like Taylors Creek. **Note: an Engineering Policy for detention only was developed due to wildlife/pest control concerns with the retention ponds – alligators, snakes, and mosquitoes were problematic, especially around facilities utilized by Soldiers, Family members, and the Civilian workforce – and due to groundwater infiltration from the high water table on Post, which led to high maintenance costs with the retention ponds.*

Fort Stewart has an Installation-wide Master Stormwater Pollution Prevention Plan (SWP3) that details the industrial activities of the Installation wherever there is the potential for the discharge of hazardous materials into stormwater drainage systems. The Master SWP3 is required by the State of Georgia and outlines specific methods, including BMPs, for reducing potential stormwater pollution from hazardous materials. It specifically protects the environment by ensuring hazardous materials are stored indoors, are physically covered and/or contained, and located safe distances from waters of the state and floodplains. An Activity-specific SWP3 is required for each activity/organization on Post and goes into its day-to-day actions storing and utilizing hazardous materials. These Activity-specific SWP3s are components of the Master SWP3. Examples of BMPs utilized as part of the SWP3s include the incorporation of cost-effective solutions (pervious pavement, vegetated filters, and improved drainage) that help improve compliance with the requirements of the SWP3 (Cisar and Rohr, 2004). This is especially important to ensure the Installation does not discharge into sensitive areas, such as the low-DO waters of Taylor's Creek.

The CWA (33 USC § 1251 et seq.), Georgia Water Quality Act (Official Code of Georgia [OCGA] § 12-5-20), Georgia Erosion and Sedimentation Control Act (OCGA § 12-7-1), and MS4 permitting require implementation of erosion and sediment controls during projects that disturb 1.0 more acres of land, although Fort Stewart implements these requirements whenever a minimum of 0.75 acres is disturbed. Fort Stewart requires all contractors chosen to work on Installation projects to adhere to federal, state of Georgia, and local laws and regulations. In addition, they must utilize the Georgia Stormwater Management Manual/Coastal Stormwater Supplement, EISA-Section 438, all applicable Executive Orders, the United Facilities Criteria "*Design: Low Impact Development (LID) Manual*," and the United States Army Corp of Engineers Public Works Technical Bulletin, "*LID for Sustainable Installations: Stormwater Design Planning Guidance for Development within Army Training Areas*" during the design, implementation, construction, and other applicable phases of all work performed on the Installation.

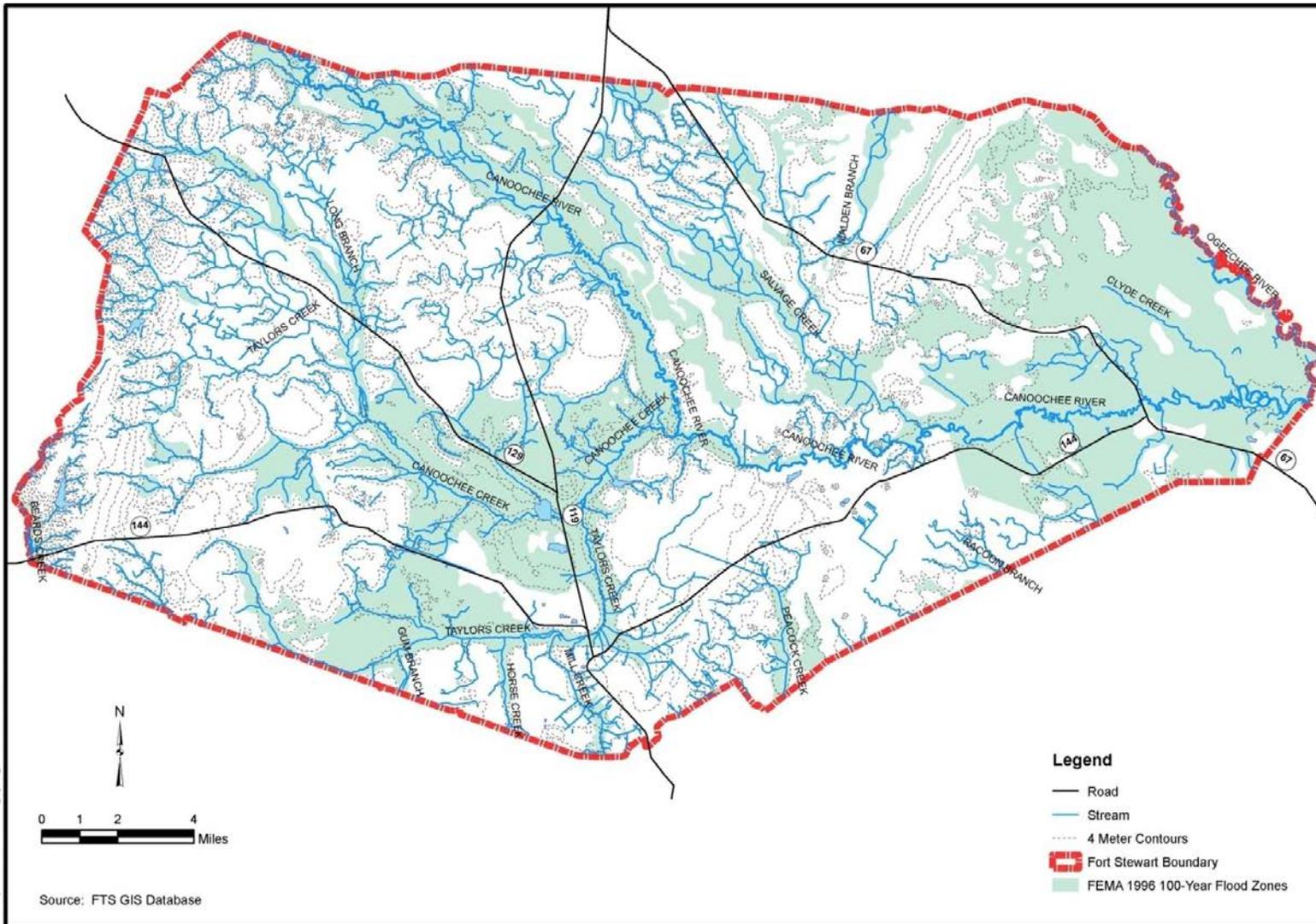


Figure 3-1: Surface Water Sources on Fort Stewart

TLS. The TLS for water resources occurs if the degradation of water quality results in the permanent alteration of the physical, chemical, or biological characteristics of the surface water.

3.4.1.1 Environmental Consequences of Alternative I: No Action (Figure 2-2)

Surface Water. Under this alternative, there is a minor potential of water quality degradation that could exceed result in the alteration of physical, chemical, or biological characteristics of surface water. The impacts are indirect, and associated with the raw sewage/cleaning fluids/dirty water being channeled to them via the stormwater conveyance systems, discussed in detail under *Stormwater Conveyance Systems*, below. These fluids are the result of clean-up activities caused by the failing wastewater treatment systems at the existing MWD kennels and administrative buildings.

The existing MWD Complex has an Activity-specific SWP3, which protects the environment by utilizing pollution prevention methods developed for potential surface water discharges that could occur from the operation of this facility. The MWD Complex personnel follow the guidance and BMPs within this plan, but repairs, not quick fixes, to the wastewater lines are required for this potential adverse impact to be fully remedied. The existing Activity-specific SWP3 is one tool to assist in the protection of streams in the vicinity of this alternative. Fortunately, no sensitive streams, such as those identified on the CWA 303(d) list as impaired, are located on or in the vicinity of WAAF. However, repairs to the failing wastewater lines are required for their full protection. Fort Stewart has no plans to permanently correct the issue.

Floodplains. Under this alternative, there will be no impacts to Floodplains.

Stormwater Conveyance Systems. Under this alternative, there are minor adverse impacts to stormwater conveyance systems due to effects from the inadequately sized wastewater lines at the current kennel and administrative building. These lines frequently clog and back up, causing fecal matter to spill into the buildings. Although personnel are careful when conducting clean-up activities, directing as much of the raw sewage/cleaning fluids/water (used to clean the affected areas) into the sanitary sewer outlets, there is still a chance for these materials to enter the stormwater conveyance systems located around the existing buildings. When this occurs, the materials are not channeled to the wastewater treatment plant for treatment, but flow untreated into streams as stormwater effluent. Improvements to these failing wastewater lines occur periodically, but are never more than temporary fixes due to funding limitations and restraints.

The existing MWD Complex has an Activity-specific SWP3, as discussed under *Surface Water*, and the MWD Complex personnel follow the guidance and BMPs within this plan. Overall, this alternative results in minor adverse impacts to the stormwater conveyance systems, and the water resource TLS will not be met or potentially met as a result of this alternative.

3.4.1.2 Environmental Consequences of Alternative II: Highway 144 Location (Preferred) (Figure 2-3)

Surface Water. Under this alternative, Fort Stewart will harvest all merchantable timber on the 10-14 acre site, utilizing timber harvest BMPs from the *Georgia Forestry BMP Manual, Version 2009*. Examples of the BMPs include spreading logging debris to drive over (thus minimizing bare soil disturbance), washing/servicing equipment away from damp soils/surface waters, and stabilizing soils when logging is complete. The construction contractor will then remove all remaining timber and debris, and perform grubbing and grading as necessary, working in accordance with State and Federal laws and regulations. This site is open and forested and will also require tree clearing of an access road to the west of the site, from Georgia Highway 144, to the north where the new MWD Complex construction begins. Before construction, to include timber harvest, can commence, a NPDES permit is required under the Georgia Water Quality Act (WQA) and the Georgia Erosion and Sedimentation Control Act (ESCA). This permit is designed to regulate discharges from timber harvest, construction, and maintenance activities, although the potential for direct and indirect impacts to surface water sources remains. An Erosion Sedimentation and Pollution Control Plan (ESPCP), payment of associated fees to the Georgia Department of Natural Resources (DNR), and filing of a Notice of Intent are also required for construction.

Together, these permits, the pollution protection measures within them (to include BMPs), and enforcement of the ESPCP by a resident Natural Resource Conservation Service (NRCS) advisor who provides technical expertise during preparation of ESPCPs prior to the Installation approving the final design, ensure the TLS for water resources resulting from erosion and sedimentation discharges will not be met (see NPDES BMPs, Appendix B). No impacts to surface waters from operations, training, and maintenance at the new MWD Complex are expected once the dogs and their handlers move in. No mitigation for water resources is proposed, beyond what is required in the permits for this proposed action. This alternative results in a minor impact to water resources from erosion and sedimentation discharges to surface water.

Floodplains. Although the alternative is not located directly in a floodplain, the construction of the access road will directly parallel the 100-year floodplain, therefore presenting the potential

for indirect impacts to this water resource. Implementation of additional floodplain-specific BMPs for construction within a floodplain, such as higher elevations for the access road to avoid inundation by floodwaters, will help mitigate potential impacts to this water resource. As such, the impact to floodplains as a result of implementation of this alternative is negligible.

Stormwater Conveyance Systems. Under this alternative, no adverse impacts from operations, training, and maintenance are expected once the MWD Complex construction is complete. The Complex will tie into existing water/wastewater utility lines (which are present along Georgia Highway 144). Within 60 days of the MWD Complex's completion and occupancy, the Installation will modify its Master SWP3 to include the new Complex, and will develop the Activity Specific SWP3 for the new facility, to ensure all hazardous materials utilized at the MWD Complex are appropriately stored and handled, as discussed under *Existing Stormwater Conveyance Systems*, and that all personnel utilizing the facility are aware of actions required in case of an emergency involving hazardous materials. The Fort Stewart Stormwater Program will assist in this process. This alternative will have a negligible impact on stormwater conveyance systems.

3.4.1.3 Environmental Consequences of Alternative III: Harmon Avenue (Figure 2-4)

Surface Waters. Under this alternative, timber harvest and construction will be required to follow the same erosion and sedimentation control permitting processes as discussed under Alternative II. No surface water sources are located on site; however, there are stormwater conveyance systems located on adjacent properties, which are capable of transporting sediments disturbed through timber harvest and construction activities to streams in the vicinity of this alternative. Even though these stormwater conveyance systems have this capability, Fort Stewart's involvement with ESPCP preparation, along with its associated adherence enforcement, ensures that implementation of this alternative will result in a minor impact on surface water. No impacts will occur to surface water from operations, training, and maintenance at the new MWD Complex.

Floodplains. Under this alternative, there will be no impacts to floodplains.

Stormwater Conveyance Systems. Under this alternative, the Complex will tie into existing water/wastewater utility lines, all wastes from the kennels will wash down the sanitary sewer lines, and the users must meet Master and activity specific SWP3 requirements, as discussed under Alternative II. Overall, this alternative will have a negligible impact on stormwater conveyance systems.

3.4.2 Health and Safety

Introduction. Health and safety includes the evaluation of fire and police protection, health services, traffic hazards, and surface danger zones associated with on-Post training ranges and airfields, as well as safety issues during construction. The Directorate of Emergency Services commands the Military Police Units, civilian police, the Fort Stewart Fire Prevention and Protection Division, and the Post Safety Office. This Directorate ensures unity of effort among Fort Stewart emergency services to ensure a safe and secure environment to work, train, live, and play. Winn Army Community Hospital and the Lloyd C. Hawks Medical Clinic provide health services for active and retired military personnel and their families.

In terms of health care availability, none of the alternatives will impede the ability of local facilities (police, fire, and hospitals) to provide services, nor will the alternatives introduce any increase in the population that would over-tax local facilities; therefore, no impacts to health care availability will occur under any alternative, and health is not analyzed further. This EA will analyze potential impacts associated with safety of construction workers and users of the MWD Complex.

Construction and demolition activities performed by or contracted by the U.S. Army Corps of Engineers (USACE) must follow the USACE Safety and Health Manual 385-1-1 (USACE, September 2008). This manual also outlines the requirements to ensure full compliance with Occupational Safety and Health Act (OSHA) standards during the construction and demolition process. For both action alternatives, prescribed industrial safety standards will be required during construction. Only authorized personnel will be allowed within the footprint for construction; in addition, all workers must adhere to safety standards established by OSHA.

Specific safety considerations related to the proposed action involve the discovery of unexploded ordnance (UXO) during land disturbing activities. The Installation's Range Control Division provides a training class twice a month to Soldiers and Civilians so that they may be familiar with UXO identification, safety protocols, and reporting requirements if UXO is encountered. Only EOD personnel qualified in UXO identification and removal procedures are allowed to conduct UXO clearance operations.

UXO is found primarily in Fort Stewart's existing impact areas, where dud-producing ammunition is fired; however, as Fort Stewart has been an active military Installation for more than 60 years, it is possible for UXO to be found in non-impact areas, such as former closed

range areas. The process through which lands historically used for training activities may be transferred to other uses (AR 350-19) involves Garrison Command, environmental and planning staff, and Installation Management Command. This extensive process ensures the continued safety of the site as the Army's needs transform. A UXO avoidance plan is also a requirement for construction in former range areas, as a safety precaution.

In accordance with AR 190-12 (*Military Working Dog Program, 2007*) the military working dogs are also required to have living, training, and working spaces that are both safe and secure. Therefore, security measures such as appropriate lighting, fencing, and structural integrity can be provided by including them in the design and construction of the kennel facility. To ensure the MWDs' facilities are secure, physical security inspections are required on an annual basis, as required by AR 190-12. The Veterinary Corp Officer (VCO) must review and approve all proposed new kennel construction, the purpose of which is to promote safety and health measures into the design up-front (AR 40-905, 2006). The attending VCO also conducts a sanitary inspection of each MWD Complex at least quarterly to ensure safety, health, and welfare requirements are in compliance with AR 40-905 (*Veterinary Health Services, 2006*).

TLS. The TLS for Safety is the degree of risk to a person's safety.

3.4.2.1 Environmental Consequences of Alternative I: No Action

Overall, this alternative has a moderate risk level of safety concerns. The current MWD Complex has had numerous unsatisfactory OSHA and sanitation inspections dating back to 2005. Issues from these inspections include inadequate and dangerous fencing, deteriorating roof support beams and panels over the kennel area, inadequate sewage capacity causing backups of fecal matter into the kennels and administrative areas, mold growth in kennels and offices due to damp conditions, and lack of a quarantine area to separate healthy dogs from the sick ones. Despite the safety violations, no action has been taken, other than the minor repairs and best efforts of the personnel working on site. There are no UXO concerns at this site.

3.4.2.2 Environmental Consequences of Alternative II: Highway 144 Location (Preferred)

Overall, this alternative has a minor level of safety risk. This project site is within the boundaries of a former anti-aircraft firing range and there are 120mm artillery firing points located along the north side of GA Highway 144, directly across and to the northwest. Implementing the AR 350-19 process, Fort Stewart conducted a UXO survey and removal on site in May 2011, reducing the potential of UXO discovery to a low risk. Documented protocol for UXO avoidance will be a requirement of the construction contractor. The UXO avoidance

planning documentation is required and the construction contractor may opt to include it as part of their Health and Safety plan. The plan must sufficiently address the potential for encountering UXO and the response actions when encountered. The construction contractor's UXO avoidance plan (as stated above, can be included as part of the contractor's Health and Safety plan) must be approved by the Installation's Safety Office prior to land disturbance. A fence must be installed around the construction site, with signage that only authorized personnel are allowed on site. All personnel that will be working on site, to include construction contractors, must take a UXO awareness training / safety briefing that will be conducted initially by Fort Stewart. This requirement must be incorporated as part of the UXO avoidance plan. Personnel will be required to sign a sign-in sheet to document attendance. A copy of the sign-in sheet must be provided to the COR. When developing a UXO avoidance plan, becoming familiar with the following guidance is recommended:

- Department of Defense (DoD) Directive 4715.1E, *Environment, Safety, and Occupational Health* (available at <http://www.dtic.mil/whs/directives/corres/pdf/47150p.pdf>);
- DoD 6055.0-STD, *DoD Ammunition and Explosives Safety Standards* (available at <http://www.ddesb.pentagon.mil/2008-02-DoD6055.09STDDoDAmmunitionandExplosivesSafetyStandards.pdf>).

A key component of the avoidance plan will be to contact Range Control immediately in the event a UXO is encountered, (912-435-8777 or 912-767-7790). After Range Control is contacted, the EOD team must also be contacted (912-435-8307). The Environmental Office must also be notified (912-315-5144).

3.4.2.3 Environmental Consequences of Alternative III: Harmon Avenue Location

Overall, this alternative has a negligible risk to personnel safety. There is no known use of this site as a range and therefore a low to non-existent risk of discovering UXO during timber harvest, construction, operation, and maintenance at this location.

3.4.3 Land Use

Introduction. Land Use refers to the planned development of property to achieve its highest and best use and to ensure compatibility among adjacent land uses. In the Army, land use planning is the mapping and planned allocation of the use of all Installation lands based on established land use categories and criteria. Land Use at Fort Stewart is divided into the following categories: Garrison, training lands, recreation, aesthetics and visual resources, and buffer/joint use areas.

TLS. The TLS for Land Use is met if one or both of the following occurs:

- The action changes land use in such a way that mission-essential training cannot be accomplished; or
- The action prevents the attainment of community objectives for the affected area. *For this proposed action, no community objectives will be affected.*

3.4.3.1 Environmental Consequences of Alternative I: No Action

Overall, this alternative will result in a moderate potential of meeting the Land Use TLS. Maintaining the MWDs at their existing location will degrade their mission-essential training due to the location of their facilities on WAAF, with its multiple sources of light, sound, and human distractions. Specifically, the WAAF location is not in accordance with Army Field Manual (FM) 3-19, *Military Working Dogs*, which discourages locating kennels in built-up, busy areas of the Installation. WAAF is an active, developed airfield and is located adjacent to the Georgia Army National Guard Complex and the Fort Stewart main cantonment area, multiple sources of distraction for the MWDs. In addition, the noise levels on WAAF exceed limits established for MWDs in Department of the Army (DA) Pamphlet (PAM) 190-12, *Military Working Dog Program*, which limits the dogs' exposure in areas where the time-weighted overall average sound pressure level for any 24-hour period exceeds 75 decibels. Both documents cite airfield operations as interfering with the MWDs training and rest cycles and likely impacting their ability to perform effectively when required for duty. These potential impacts to their mission-essential training may be minimized by conducting training during hours when airfield activities are at their lowest level.

3.4.3.2 Environmental Consequences of Alternative II: Highway 144 East Location (Preferred)

Overall, this alternative will result in a minor potential of meeting the Land Use TLS. Construction and operation of the MWD Complex at this location will not result in Land Use conflicts, as its location is within a comparable area already designated and used for training. In accordance with FM 3-19, this location is in a portion of the Installation that is not built up, even though the 4th Infantry Brigade Combat Team Facilities are under construction nearby and the EOD Complex is adjacent and west of this alternative location. The EOD Complex will introduce minor levels of light, sound, and human-related distractions to the dogs at the western edge of their new Complex, but there are natural, vegetated areas on the remaining sides that will buffer or off-set these impacts. In addition, explosives detonation (and the associated elevated

noise levels) at the EOD Complex are infrequent, not consistent, and noise levels at this location will not exceed allowances per DA PAM 190-12 (which is based on a 24-hour scale, as discussed under Alternative I). MWD handlers will also receive notification prior to EOD detonation, per standard military protocols, and may secure the dogs within their kennels, if needed, ensuring minimal exposure to elevated noise levels. Further design efforts may also orient the MWDs' kennels on the far edge of the footprint, to further distance the dogs from this potential noise source, thereby minimizing impacts to mission-essential training.

3.4.3.3 Environmental Consequences of Alternative III: Harmon Avenue Location

Overall, this alternative will have a moderate potential of meeting the Land Use TLS. Construction and operation of a MWD Complex at this location will result in Land Use conflicts, as this location is not designated for training and is currently utilized for such disparate uses as Army Family Housing, the Harmon Avenue AAFES Shoppette, and other general cantonment area development. This level of development is not in accordance with guidance in FM 3-19, which favors relatively undeveloped areas for MWD facilities. This alternative location is in the direct path of the extended clear zone for aircraft utilizing WAAF, introducing a noise impact, conflicting with DA PAM 190-12, and potentially degrading the mission-essential training of the MWDs. This site contains some natural, vegetative barriers around its perimeter, which may buffer some of the sound and light from these surrounding distracters and reduce interference with the dogs' training, rest, and call-to-duty cycles. Due to its location within the WAAF extended clear zone, design efforts regarding kennel placement at this alternative location may not aid in reducing noise impacts to the same degree as under Alternative II; however, conducting training during hours when airfield activities are at their lowest level, as suggested under Alternative I, may mitigate the degradation of the mission essential training.

4.0 CUMULATIVE IMPACTS

4.1 INTRODUCTION

This chapter presents an analysis of each alternative's potential to result in cumulative impacts when combined with past, present, and reasonably foreseeable future actions (PPRFFAs). The intensity measurement of environmental impacts and the TLS of each resource potentially affected by this action are the same as presented in Sections 3.2 and 3.4, respectively.

Cumulative impact is the “cumulative effect on the environment which results from incremental impact of the action” 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 and 1997). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a defined period of time and within a geographic proximity to one another (Canter et al, 2007).

Fort Stewart assesses cumulative impacts by establishing a region of influence (ROI) for each resource potentially impacted by the proposed action. The geographic scope is dependent on the characteristics and location of affected resources, ecosystems, and human communities. In some cases, localized Installation, training range, or site boundaries may be appropriate, while in other cases, regional boundaries (watersheds, air quality regions, etc.) may be appropriate. If direct and indirect incremental impacts of an alternative on a resource do not exist, or are deemed to be inconsequential or unimportant in the region, no analyses of cumulative effect need be conducted. As such, there is no cumulative impacts analysis provided for floodplains because direct and indirect impacts were either non-existent or negligible for Alternatives I, II, and III. There are also no cumulative impacts analyses provided for stormwater conveyance systems under Alternatives II and III, as well as for Health and Safety under Alternative III, since impacts do not exist from these alternatives for these resources.

The focus of this chapter is on the potentially impacted environmental resources, locations of the PPRFFAs, and their relationship to the alternative locations. Although parts of Fort Stewart drain into four different watersheds, as discussed in Chapter 3, the ROI for Water Resources lies completely within the Canoochee Watershed and the Ogeechee Coastal Watershed, as indicated on Figure 4-1. The ROI for Land Use consists of the lands lying at and immediately adjacent to the three alternative locations, and falls within the same circle indicated on Figure 4-1 as well. *(Note: other projects, not currently indicated on Figure 4-1, are ongoing or planned for Fort*

Stewart; however, projects not falling within the ROI circle were not included on the map to help avoid confusion.) Health and Safety is not represented on an ROI or Figure because the TLS is based on the degree to which there is a risk.

4.2 RESOURCE ANALYSIS

4.2.1 Past, Present, and Reasonably Foreseeable Actions in the ROI

The PPRFFA in the Water Quality and Land Use ROI include the activities listed below. How each activity and/or project affects each resource is discussed in detail in the subsections that follow.

- Routine, day-to-day administrative, operational, and other unit activities (to include physical fitness training, virtual reality combat training, infantry training operations, etc.); airfield operations at WAAF; administrative and training operations at the GA Army National Guard Training Center; monitoring of traffic flow and vehicle inspections at the access control points; motorpool activities in unit compounds; day-to-day administrative, Directorate, and other civilian workforce activities; and minor construction, road work, and maintenance activities;
- Construction in progress includes Range Control Operations Complex on GA Highway 144, and 4th Infantry Brigade Combat Team Facilities;
- Future construction includes 10th Engineering Battalion Facilities, GA Highway 144 Widening, and GA Highway 144 Bypass.

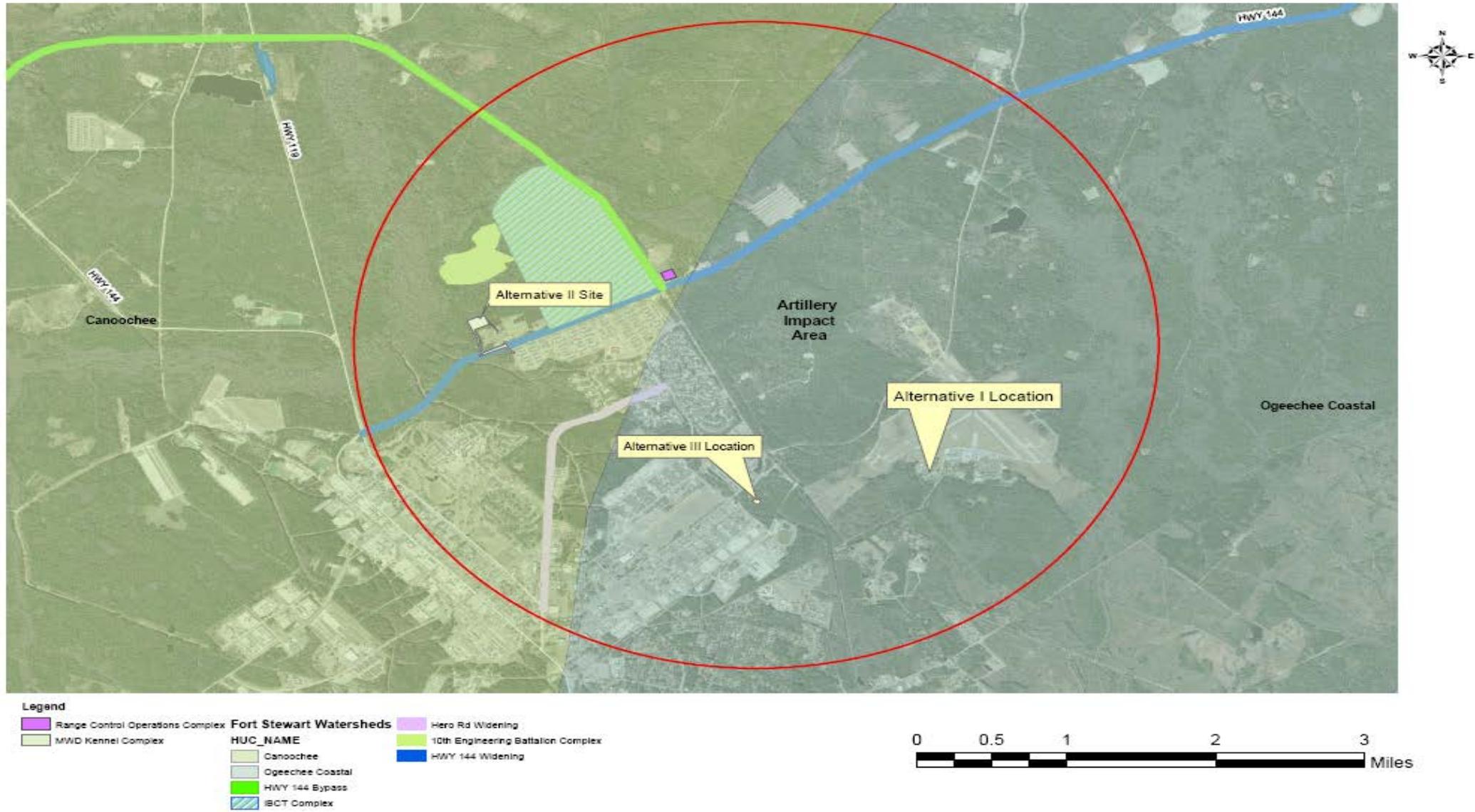


Figure 4-1 –ROI Map for MWD Complex

4.2.2 Water Resources

4.2.2.1 Cumulative Effects of Alternative I: No Action

Surface Waters and Stormwater Conveyance Systems. There is a moderate potential of meeting the water resource TLS from cumulative effects associated with potential impacts to surface water and stormwater conveyance systems.

The closest PPRFFA to the Alternative I project site within the ROI is the potential Georgia Highway 144 Widening project. No active construction or other projects are in progress; only routine actions, as discussed in Section 4.1, *Past, Present, and Reasonably Foreseeable Actions in the ROI*. Minimization of cumulative impacts for Alternative I, therefore, focuses less on construction and more on day-to-day compliance with best management practices (BMPs), adherence to federal, state of Georgia, and Installation laws, guidelines, and permits (such as the MWD Complex Activity-Specific SWP3), and use of standard and required measures as discussed in Chapter 3 (*Affected Environment and Environmental Consequences*).

4.2.2.2 Cumulative Effects of Alternative II: Highway 144 East Location (Preferred)

Surface Waters. There is a moderate potential of meeting the water resource TLS as a result of cumulative impacts from discharges to surface waters.

The PPRFFAs closest to this alternative are the 4IBCT Complex, currently under construction, and the pending 10th EN BN and potential GA Highway 144 Widening projects. Implementation of impaired stream-specific BMPs, adherence to federal, state of GA, and Installation laws, guidelines, and permits (such as the NPDES and SWP3), and use of standard and required measures as discussed in Chapter 3 (*Affected Environment and Environmental Consequences*) help ensure minimization of cumulative impacts to Fort Stewart's water resources.

4.2.2.3 Cumulative Effects of Alternative III: Harmon Avenue Location

Surface Waters. Alternative III has a moderate potential at meeting the water resources TLS from potential discharges to surface waters. The PPRFFA closest to this alternative is the potential Hero Road Widening project. As discussed in Section 4.2.2.2 above, implementation of erosion and sedimentation BMPs and adherence to applicable requirements and guidelines will help to minimize cumulative impacts to water resources.

4.2.2 Safety

4.2.2.1 Cumulative Effects of Alternatives I, II, and III

When considered along with impacts associated with PPRFFAs, the new MWD Complex will introduce no adverse cumulative safety risk impacts.

4.2.3 Land Use

4.2.3.1 Cumulative Effects of Alternatives I, II, and III

When Land Use is evaluated in associated with PPRFFAs, it is not anticipated that there would be significant cumulative impacts to this resource from the proposed action. When considered cumulatively with anticipated growth at the Installation, the incremental changes to Land Use could eventually present adverse impacts to training areas and on-Post recreation resources if Land Use conversion (from a training to built environment) continues to occur across the Installation. Overall, however, there is only a negligible potential of meeting the Land Use TLS.

5.0 CONCLUSIONS

This Environmental Assessment analyzed the potential impacts of the Army constructing, operating, and maintaining a new Military Working Dog Complex on Fort Stewart, Georgia. Following an analysis of the No Action and two Action Alternatives, it was determined that none of the alternatives will result in significant impacts, and that the preparation of a Finding of No Significant Impact (FNSI) is appropriate. The Army will therefore proceed with the preparation of a FNSI for this action.

Table 2: Summary of Environmental Impacts

Type and Intensity of Impact			
⊖ = no impact ○ = negligible ⊙ = minor ⊗ = moderate ● = Meets TLS			
Type of Impact	Alternative I (No Action)	Alternative II (Preferred)	Alternative III
Surface Waters			
Direct / Indirect	⊙	⊙	⊙
Cumulative	⊗	⊗	⊗
Floodplains			
Direct / Indirect	⊖	○	⊖
Cumulative	⊖	⊖	⊖
Stormwater Conveyance Systems			
Direct / Indirect	⊙	○	○
Cumulative	⊗	⊖	⊖
Health and Safety			
Direct / Indirect	⊗	⊗	○
Cumulative	⊖	⊖	⊖
Land Use			
Direct / Indirect	⊙	⊙	⊗
Cumulative	○	○	○

6.0 REFERENCES AND PERSONS CONSULTED

- 32 Code of Federal Regulations (CFR) Part 651. 2002. *Environmental Analysis of Army Actions*. Headquarters, Washington, D.C.
- 40 CFR 1500-1508. 1997. *Council on Environmental Quality Regulations for Implementing the National Environmental Policy Act*. Headquarters, Washington, D.C.
- 29 United States Code (USC) Chapter 15. 1970. *The Occupational Safety and Health Act*.
- 33 USC § 1251 et seq. 1970. *The Clean Water Act*.
- Army Regulation (AR) 40–905. 2006. *Veterinary Health Services*. Headquarters, Washington, D.C.
- AR 190-12. 2007. *Military Working Dog Program*. Headquarters, Washington, D.C.
- AR 210-20. 2005. *Real Property Master Planning on Army Installation*. Headquarters, Washington, D.C.
- AR 350-19. 2005. *The Army Sustainable Range Program*. Headquarters, Washington, D.C.
- AR 385-10. 2008. *The Army Safety Program*. Headquarters, Washington, D.C.
- AR 385-64. 2011. *Ammunition and Explosive Safety Standards*. Headquarters, Washington, D.C.
- Canter, Larry, et al. 2007. *NEPA Analysis Guidance Manual*. U.S. Army Environmental Command. Aberdeen Proving Ground, MD.
- Cisar, Heather, and Rohr, Erica. 2004. *Department of Defense Installation Watershed Impact Assessment Protocol, A Water Resources Management Guide*. Department of Defense.
- Council on Environmental Quality. 1997. *Considering Cumulative Effects Under the National Environmental Policy Act*.

Department of the Army Pamphlet 190-12. 2007. *Military Working Dog Program*. Headquarters, Washington, D.C.

Energy Independence and Security Act. 2007. (Public Law 110-140).

Executive Order 11988. Floodplain Management. 42 CFR 26951. 1977.

Field Manual 3-19. 2005. *Military Working Dogs*. Headquarters, Washington, D.C.

Fort Stewart. 2010. Final Environmental Impact Statement and Record of Decision for Training and Garrison Support Facilities Construction and Operation. Environmental Division, Directorate of Public Works.

Fort Stewart. 2006. Fort Stewart Borrow Pit Excavation Management Plan. Environmental Division, Directorate of Public Works.

Fort Stewart. 2005. *Integrated Natural Resource Management Plan Fiscal Year, 2004 Review*. Environmental Division, Directorate of Public Works.

Fort Stewart. 2005. *Joint Land Use Study*. Coastal Georgia Regional Development Center.

Georgia Forestry Commission. 2009. *Georgia Forestry Best Management Practices Manual*. Georgia Environmental Protection Division.

Georgia Soil and Water Conservation Commission. 2002. *Field Manual for Erosion and Sediment Control in Georgia*. Athens, Georgia. Fourth Edition.

National Park Service. 2003. *Directors Order 12 Handbook, Conservation Planning, NEPA Analysis, and Decision-Making*. United States Department of the Interior.

Official Code of Georgia § 12-7-1. 2009. The Erosion and Sedimentation Act of 1975. The State of Georgia.

Official Code of Georgia § 12-5-20. 1964. Georgia Water Quality Control Act. The State of Georgia.

U.S. Army Corps of Engineers (USACE). 2008. Public Works Bulletin No. 200-1-62, *Low Impact Development for Sustainable Installations: Stormwater Design and Planning Guidance for Development within Army Training Areas*. Department of Defense. Washington, DC.

USACE. 2008. Safety and Health Requirements Manual 385-1-1. Department of Defense. Washington, DC.

USACE. 2004. *United Facilities Criteria Design: Low Impact Development Manual*. UFC 3-210-10. Department of Defense. Washington, DC.

U.S. Environmental Protection Agency. 2009. *Technical Guidance for Implementing Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*. 2009. U.S. Environmental Protection Agency. Washington, DC.

APPENDIX A

**Environmental and Socioeconomic Resources
Eliminated From Detailed Review**

Analysis by Installation subject matter experts determined no impacts will occur to the following resources at any of the alternative locations for the Military Working Dog Complex. Therefore, they are not discussed in the body of the EA, but presented here instead to allow the reader to see rationale for this decision and the due diligence provided each resource.

Threatened and Endangered Species (TES). The land containing the footprint for Alternative II (Highway 144 East Location) was removed from Fort Stewart's TES management program as part of the 2008 Biological Opinion (BO) received from the U.S. Fish & Wildlife Service for the construction, operation, and maintenance of the 4th Infantry Brigade Combat Team facilities. As part of this BO, the Installation no longer manages TES within this overall area; therefore, there are no impacts to TES under Alternative II. The footprint of Alternative I (No Action) and Alternative II (Harmon Avenue Location) also have no TES impacts, because they are within the cantonment area, which is also not managed for TES. Therefore, there are no impacts to TES under any of the alternatives and requirements indicated in Section 7(a)(2) of the Endangered Species Act have been fulfilled.

Wildlife. No impacts to wildlife will occur at the Alternative I location (No Action) due to its location on an active airfield and the lack of wildlife at this location. Impacts at the Alternative II (Highway 144 East) and Alternative III (Harmon Avenue) locations, if any, would be temporary and negligible, with wildlife leaving the area at the start of timber harvest and construction, then returning once normal operations and routine maintenance began.

Wetlands. There are no wetlands at the Alternative I location (WAAF) and Alternative III locations (Harmon Avenue). Through design efforts, the access road leading from Georgia Highway 144 to the Alternative II location (Highway 144 East) was re-routed to avoid wetland impacts.

Groundwater. The Fort Stewart region has three distinct aquifer systems: the Floridan, Brunswick, and surficial (near surface). Analysis determined no effects to groundwater resources will occur under any alternative.

Cultural Resources Management (CRM): The Alternative I (WAAF) and III (Harmon Avenue) locations are located in previously developed areas, where no historic properties will be affected. Previously-completed surveys also determined no CRM concerns are at the Alternative II location (Highway 144 East). If, however, the project uncovers artifacts or human remains, all

work must cease, the Installation Military Police and the Fort Stewart CRM office notified, and the Standard Operating Procedure regarding Accidental Discovery of Archeological Deposits and/or Human Remains followed. Language to this effect must be incorporated into the construction contract for this action.

Utilities. Utilities at Fort Stewart include electrical power, natural gas, potable water supply systems, and wastewater systems. Utilities at Alternatives II and III will tie into existing systems, which have the capacity to support the additional load. The Alternative I location (WAAF) is already connected to existing utility systems.

Noise. Noise is defined as any undesirable sound that interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, and/or is otherwise annoying. Response to noise varies by the type and characteristics of the noise source, distance from the source, receptor sensitivity, and time of day. Noise can be intermittent or continuous, steady or impulsive, and may come from either stationary or mobile sources. Noise for this proposed action includes short-term timber harvesting and construction, followed by subsequent operations, repairs, and maintenance, and the sounds of the dogs' and handlers training regime. Noise produced from these activities will be negligible and temporary, no impacts to sensitive noise receptors (e.g., schools, residences) will occur, and no impacts are anticipated under any of the alternatives. (*Note: This is not to be confused with the noise avoidance siting criteria for the MWD Complex, whose purpose is to ensure a highly functional and calm training and resting environment for the dogs.*)

Solid Waste – Landfills and Recycling. Fort Stewart has four active landfills, all located in the northwest corner of the cantonment area. The Installation's recycling program is mandatory and all construction and demolition projects must support the mandated 50% diversion rate. On-Post landfills are for the sole use of Installation personnel only; contractors working on this construction project must use off-Post, approved disposal facilities, and must do so in accordance with all Federal, State, and local regulations. The Contractor must provide a copy of landfill scale tickets to their Contracting Officer's Representative for all waste disposed off the Installation, who will ensure copies of the tickets are provided to the DPW Environmental Division. Recycling and salvage are required to be included is part of the design and construction process for any project on Fort Stewart

Environmental Justice. Environmental justice compliance is prescribed by Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income*

Populations, issued in 1994. This policy directive to Federal agencies outlines appropriate and necessary steps to identify and address disproportionately high and adverse impacts of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Since the proposal will not disproportionately impact low-income or minority populations at any of the alternative locations, no impacts to environmental justice are anticipated.

Provision for the Handicapped. American Disabilities Act requires access be provided for the handicapped in all facilities constructed. This project will be designed for accessibility and usability by individuals with disabilities.

Protection of Children. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* requires each Federal agency to identify and assess environmental health and safety risks that may disproportionately affect children and pose a disproportionate environmental health or safety risk to children. Environmental health and safety risks are those which are attributable to products or substances a child is likely to encounter or ingest. This Executive Order focuses primarily on the noise environment around schools, which is not an issue concerning implementation of the alternatives; therefore, no impacts are predicted.

Sustainability Management: As required by Executive Order 13514, Federal agencies shall implement high performance, sustainable Federal building design by ensuring that all new construction, major renovation, or repair and alteration of Federal buildings complies with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. Federal Agencies are required to incorporate the Guiding Principles for New Construction and Major Renovations into all new construction, major renovation, or repair and alteration of Federal Buildings. This guidance, at http://www.wbdg.org/references/fhpsb_new.php, addresses (1) employing integrated design principles, (2) optimizing energy performance, (3) protecting and conserving water, (4) enhancing indoor environmental quality, and (5) reducing environmental impact of materials. This requirement is part of the design process and a required part of the construction contract for the MWD Complex, regardless of the alternative selected as preferred. Therefore, compliance will occur and no adverse impacts are predicted. For this reasons, it is not discussed in the main body of the Draft EA.

APPENDIX B

Biological Opinion from the U.S. Fish and Wildlife Service

4th Infantry Brigade Combat Team Complex,

Fort Stewart, Georgia



United States Department of the
Interior

Fish and Wildlife Service
105 West Park Drive, Suite D
Athens, Georgia 30606

West Georgia Sub Office
P.O. Box 52560
Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4270 Norwich Street
Brunswick, Georgia 31520

Colonel Todd A. Buchs
Department of the Army (DOA), Installation Commander
Headquarters, Fort Stewart
954 William H. Wilson Avenue
Fort Stewart, Georgia 31314

FWS Log No: 08-FA-0899

Dear Colonel Buchs:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (BO) based on our review of the construction, operation and maintenance of a new cantonment area to support an Infantry Brigade Combat Team (IBCT) on Fort Stewart Military Installation in Liberty County, Georgia and its effects on the red-cockaded woodpecker (RCW, *Picoides borealis*) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Your request for formal consultation was received on May 5, 2008.

Based on information available to the Service, we concur with the Army's May 2, 2008, biological assessment (BA) which concludes that the subject action is not likely to adversely affect the federally-endangered wood stork (*Mycteria americana*), the threatened eastern indigo snake (*Drymarchon corais couperi*), and the threatened flatwoods salamander (*Ambystoma cingulatum*). There are no wood stork nests, rookeries, or consistent foraging areas present in the action area. There are only two active gopher tortoise burrows in the action area and the nearest known record of an eastern indigo snake is about 1.2 miles northeast of the action area. Also, there are no known flatwoods salamander breeding ponds within the action area. Therefore, these species will not be considered further in this BO.

This BO is based on information provided in the May 2, 2008, BA; the Fort Stewart/Hunter Army Airfield (FSHAA) Integrated Natural Resources Management Plan 2001-2005 (FSHAA 2001); meetings, telephone conversations with DOA staff, field investigations and other sources of information. A complete administrative record of this consultation is on file at our Coastal Georgia Sub-office in Brunswick.

Consultation History

November 27, 2007, the Service attended a meeting at Fort Stewart to talk about the Army's initiative to "Grow the Army" and Fort Stewart's gaining of an IBCT and the need to construct a new cantonment area for support of this IBCT. Fort Stewart requested Service input into any foreseeable threatened and endangered species conflicts.

May 5, 2008, the Service received Fort Stewart's request for formal consultation and accompanying BA, dated May 2, 2008, for the proposed action. The Army issued a "may affect" determination for the RCW and a determination of "not likely to adversely affect" for the eastern indigo snake, flatwoods salamander, and wood stork.

May 27, 2008, the Service, by letter dated same, acknowledged receipt of a complete initiation package and notified Fort Stewart of the anticipated delivery date of this BO of no later than October 5, 2008.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Project Description

As identified in the May 2, 2008, BA, the action being evaluated is the proposed construction, operation, and maintenance of a new cantonment area for the 5th IBCT at Fort Stewart in Liberty County, Georgia. Fort Stewart will convert an existing Heavy Brigade Combat Team (HBCT) to an IBCT in fiscal year 2010, and receive an additional IBCT in 2011. Existing facilities on Fort Stewart cannot support current and future expansion of an IBCT and a new cantonment area will need to be constructed to support an additional IBCT. The proposed project consists of the new cantonment area for the 5th IBCT, which is 953 acres in Training Area B-5.

The construction of this project is scheduled to begin in FY 2009, and will consist of clear-cutting most of the timber, stumping, grubbing, and grading on the site. Complete removal of timber in this area is not anticipated; however, effective management of endangered and threatened species will be precluded by range development. The new cantonment area will be used to construct new housing, dining facilities, motor pools, gymnasiums, etc. for the additional soldiers from the IBCT.

Based on the installation's Multi-Species Endangered Species Management Plan (ESMP) (FSHAA 2001), three Habitat Management Units (HMUs) have been designated for RCWs on Fort Stewart. Unit boundaries are delineated based on military land use and compatibility with RCW conservation and protection requirements. Of the 953 acres to be impacted by the proposed 5th IBCT, 656 acres are within RCW HMU 2 (equal to 2.56% of the 25,617 acres in HMU 2), and 272 acres are wetlands. The remainder 25 acres are classified as "non-forested." Non-forested habitat is habitat with or without standing timber that is considered unsuitable for endangered species management, due to an incompatibility with present or projected future military use. Open spaces such as artillery firing points, borrow pits, live fire ranges, or wildlife food plots also fall within this category.

Project construction will impact habitats typical of the Lower Atlantic Coastal Plain to include wetlands, pine flatwoods and sandhill communities. In general, wetlands are dominated by pond cypress (*Taxodium ascendens*), black gum (*Nyssa sylvatica*), and sweetgum (*Liquidambar styraciflua*) while typical upland vegetation includes longleaf (*Pinus palustris*), slash (*Pinus elliottii*) and loblolly pine (*Pinus taeda*). The open understory is characterized by pyrogenic grass species of the genera *Aristida* and *Sporobolus* along with *Ilex glabra* (gallberry) and species of the family Ericaceae (e.g., *Vaccinium* and *Gaylussacia* spp.). Prescribed fire is frequently used in the project area.

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The Service has determined that the action area for this project consists of the project area of 953 acres where the direct impacts (clearcutting) to two RCW clusters will occur, plus the area of indirect effects – the foraging areas of three other RCW clusters whose foraging partitions will be affected by the project – another 481 acres not in the project area.

Conservation measures proposed by Fort Stewart and considered a part of this action include provisioning recruitment clusters in unoccupied habitat to accommodate the two RCW groups directly impacted by this action in an attempt to minimize impacts of cluster loss on the local RCW neighborhood. Fort Stewart will capture all RCW's residing in clusters 169 and 195 before clear-cutting begins and translocate them to these recruitment clusters with USFWS concurrence. RCW foraging partitions, inactive and active clusters occur within the action area, impacts to which will be discussed under **EFFECTS OF THE ACTION**. The following additional measures will also minimize the potential impact of the project on federally-listed species.

As defined and required in U.S. Army (1996), Primary Recruitment Clusters (PRCs) and Supplemental Recruitment Clusters (SRCs) will continue to be added yearly. Per the ESMP (FSHAA 2001), PRCs will be created at a rate of at least 10% the annual RCW growth rate on Fort Stewart and SRCs at a rate of 5 %. For example, during fiscal year (FY) 2007, a total of 316 RCW clusters were active, requiring the establishment of 31 PRCs and 16 SRCs in FY 2008. PRCs are subject to training restrictions and SRCs are not.

Fort Stewart began intensive habitat management and monitoring of RCWs in 1994. Since then, the number of active clusters has increased on the installation by 101% (from 157 active clusters in 1994 to 316 in 2007). Fort Stewart will continue aggressive RCW management and monitoring, particularly the application of prescribed fire and timber thinning to maintain the longleaf pine/wiregrass-communities.

Fort Stewart promotes conservation of threatened and endangered (T & E) species through several different avenues (pers. comm., Larry Carlile, DOA, 2005). Soldiers new to Fort Stewart receive T & E species identification and awareness training during in-processing and have open access to T & E species information (e.g., T & E posters, etc) at key sites on the installation, such as Range Control. Soldiers are also issued personal T & E cards by the Integrated Training Area Management Section. Cards contain critical information needed by soldiers to avoid impacting sensitive species and their habitats. Environmental Compliance Officers are also designated for each civilian and military unit and are required to take T & E species training once a quarter.

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description

The RCW is a territorial, non-migratory, cooperative breeding species (Lennartz et al. 1987, Walters et al. 1988) and is the only North American woodpecker that exclusively excavates its roost and nest cavities in living pines. In 1970, the Service listed the RCW as endangered (*Federal Register* 35:16047), and in 1973, the RCW was provided protection as an endangered species with the passage of the Endangered Species Act. No critical habitat has been designated for the RCW.

Historically, the RCW occupied a wide range throughout old-growth, fire-maintained pine ecosystems of the southern United States. Although still widely distributed, the range of the RCW is now limited and fragmented as a result of past and present human activities (such as resource extraction activities and urban development) and natural factors (such as hurricanes and pine beetle outbreaks). The remaining RCW populations exist primarily on Federal lands located in the Coastal Plain from North Carolina to Texas, the Piedmont of Georgia and Alabama, the Sandhills of North Carolina and South Carolina, and the interior highlands of Arkansas, Oklahoma, and until recently, Kentucky (Costa and Walker 1995).

Life history

The RCW has an advanced social system that revolves around family groups. A typical RCW group includes one pair of breeding birds, the current year's offspring (if any), and zero to four helpers. Helpers are usually male offspring from previous breeding seasons that assist the breeding pair by incubating eggs, feeding the young, excavating cavities, and defending the territory (Ligon 1970, Lennartz and Harlow 1979, Lennartz et al. 1987, Walters et al. 1988). The RCW nesting season occurs from April to July. Incubation lasts approximately 10 days, and the young fledge 24 to 26 days after hatching. Some juvenile males disperse from their natal territory prior to the next breeding season in an attempt to find vacant territories, or to establish their own (Hooper et al. 1980, USFWS 2003). Others may remain and become helpers during subsequent nesting seasons. Most juvenile females disperse after fledging, although some may remain with the group as helpers (Walters et al. 1988). The average dispersal distance of fledging males and females is about 3 miles (Walters 1991, Letcher et al. 1998).

Each group of RCWs occupies a discrete territory consisting of its cavity trees, called a cluster, and adjacent foraging habitat (Walters 1990). The RCW requires mature (usually 60 or more years old), live pine trees to excavate its nesting and roosting cavities. The cavity trees are essential to the RCW because they provide shelter and a place to nest and raise young (Ligon 1970). A typical cluster contains between one and 20 cavity trees, and the breeding male usually chooses the most recently excavated natural cavity as the nest tree, or selects cavity trees with higher resin yields (Conner and Rudolph 1989). Such cavity trees may enhance the survival of the nestlings by decreasing the parasite load of nestlings and incubating adults, and providing a resin barrier to snake predation.

RCW cluster stands are typically less dense than surrounding stands and may be the least dense stands available (USFWS 2003). For clusters, basal areas as low as 40 feet²/acre in longleaf stands and from 40 to 60 feet²/acre in shortleaf/loblolly stands are suitable (Conner et al. 1991). Seedtree and shelterwood cuts with excessive pine or hardwood midstory, however, are not acceptable as nesting habitat. Once established, clusters are often utilized for many consecutive years or even decades (Walters 1990). Hardwood midstory lessens the habitat quality, eventually leading to cavity abandonment when the hardwood midstory reaches cavity height (Conner and O'Halloran 1987, Costa and Escano 1989). Cluster abandonment may also occur as a result of displacement by competing cavity dwellers, or stochastic events such as hurricanes (Conner and O'Halloran 1987).

RCWs scale and probe bark on the trunks and limbs of living pine trees while foraging for insects. The amount of foraging area used by a group is dependent upon the quality of the habitat and population density. Research indicates that birds generally forage within one-half mile of the cluster (USFWS 2003). RCW home ranges may vary seasonally, and encompass

60 to 300 acres. Habitat typically consists of open pine and/or pine/hardwood forests. Although in some habitats RCWs will use smaller pine trees as foraging substrate (DeLotelle et al. 1987), they prefer pines greater than 10 inches in diameter at breast height (dbh) (USFWS 2003). Groups may forage on pines scattered through hardwood stands, but pure hardwood stands are of little value to the RCW (Conner and O'Halloran 1987). The highest populations of the birds occur on areas with active prescribed burning programs that control hardwoods. Many complex and interrelated factors, such as condition of the understory plant community, annual weather fluctuations, forest type, soils, physiographic province, season of the year, fire frequency and intensity, are important in determining foraging habitat quality.

The RCW is territorial and defends its home range from adjacent groups (Hooper et al. 1982, Ligon 1970). Territories tend to be smaller in areas with few hardwoods, presumably because of higher quality habitat. Home range size is related to both habitat and demographic (e.g., group size and population density) variables (Hooper et al. 1982, Lennartz et al. 1987) and has been found to be inversely related to habitat quality (DeLotelle et al. 1987, 1995). Studies by Hardesty et al. (1997) and James et al. (2001) suggested that habitat structure, and not just the quantity of total resources, is an important determinant of home range size, territory quality, and reproductive success. The availability, quantity, and quality of foraging habitat affects RCW cluster status, group size, home range size, and reproductive success (Conner and Rudolph 1991, DeLotelle et al. 1987, 1995, Hardesty et al. 1997). Low-quality foraging habitat and large reductions in available foraging habitat can cause RCWs to abandon clusters, reduce fledging rates, and disrupt social interactions (Conner and Rudolph 1991, DeLotelle et al. 1995, Jackson and Parris 1995).

Population dynamics

According to the RCW Recovery Plan: *Second Revision* (Recovery Plan), the recovery of the RCW is directly linked to the viability of discrete populations within selected southeastern States. Populations required for recovery are distributed among 11 recovery units based on physiographic region to ensure the representation of broad geographic and genetic variation in the species. Viable populations within each recovery unit, to the extent allowed by habitat limitations, are essential to recovery of the species as a whole. Until recently, most RCW populations were considered stable at best or declining. RCW population trends since the early 1990's are improving, with an estimated 5,627 active RCW clusters range-wide (USFWS 2003). The species can be delisted when five criteria are met that establish a tier of populations within the 11 recovery units that contain sufficient suitable nesting and foraging habitat, and are not dependent on the installation of artificial cavities to remain stable.

Long-term viability of an RCW population, in genetic terms, depends on the presence of an adequate number of breeding individuals for the natural processes that increase genetic variability (e.g., mutation and recombination) to offset the natural processes that decrease genetic variability (e.g., genetic drift and inbreeding). Additionally, any prediction of a population's viability should also consider the population's ability to survive population fluctuations due to demographic and environmental fluctuations (Koenig 1988) or natural catastrophes. Reproductive rates, population density, and recolonization rates may influence RCW population variability more than mortality rates, sex ratios, and genetic viability. Therefore, dispersal of adult birds into breeding vacancies is essential for population persistence (Daniels et al. 2000, Schiegg et al. 2002). RCWs exhibit relatively low adult mortality rates; annual survivorship of

breeding males and females is high, ranging from 72 to 84 percent and 51 to 81 percent, respectively (Lennartz and Heckel 1987, Walters et al. 1988, DeLotelle and Epling 1992).

Although the relationship between RCW population variability and density is not well understood, recent studies indicate spatial distribution of territories is important in long-term population stability. Conner and Rudolph (1991) found that, in sparse populations, RCW group size and the number of active clusters decreased as fragmentation increased. Hooper and Lennartz (1995) suggested that populations with less than 4.7 active clusters within 1.25 miles on average had critically low densities that inhibited population expansion. Results from a spatially explicit simulation model of RCW population dynamics suggest that population growth rate may depend more on the number and spatial distribution of territories, than on the initial composition of the population (Letcher et al. 1998). Achieving a self-sustaining population required five-fold more territories when territories were randomly spaced than when they were maximally clumped, and populations with as few as 49 territories were stable when those territories were highly aggregated. Populations of more maximally aggregated groups are likely to persist over the short term (i.e., 20 years) (Crowder et al. 1998).

Natural population growth (i.e., without recruitment clusters) occurs at extremely low rates (one to two percent per year) in this species (Walters 1991) and the availability of cavity trees is limiting (Copeyon 1990, Allen 1991). New groups or new territories arise by two processes, pioneering and budding (Hooper 1983). Pioneering is the occupation of vacant habitat by construction of a new cavity tree cluster and is relatively rare. Budding is the splitting of a territory, and the cavity tree cluster within it, into two. Budding is more common than pioneering in RCWs, since the new territory contains cavities from the outset (USFWS 2003). Inactive clusters are important to maintaining extant populations of RCWs and may provide a short-term opportunity to enhance habitat available to RCWs and, thus, increase the number of groups in populations (Doerr et al. 1989). After a territory is abandoned for two or more years, however, it is almost never reoccupied, typically because cavities are unsuitable due to deterioration or hardwood encroachment (Beckett 1971, Conner and Locke 1982, Copeyon et al. 1991).

However, the technology to create new territories at desired locations exists and management for optimum territory clumping is, therefore, possible (Letcher et al. 1998). Artificial cavities can be installed in unoccupied habitat that is otherwise suitable (Copeyon 1990, Allen 1991), with subsequent occupancy by dispersing birds, typically subadults (Carrie et al. 1999, Conner et al. 1999). Adding artificial cavities to sites already occupied increases group size (Carrie et al. 1999). Artificial cavities provide additional roosting opportunities for subadult males, encouraging them to remain in their natal clusters and potentially inherit the territory (Carrie et al. 1999). Females may also benefit when additional cavities are provided because they are the most subordinate members of the RCW social group and, therefore, may not always be able to secure adequate roost cavities.

Inducing the formation of RCW groups in restored habitat with artificial cavities is an established and successful technique (Copeyon et al. 1991, Walters et al. 1992, Gaines et al. 1995, Watson et al. 1995). Within 1 year of restoring habitat and providing artificial cavities at 20 unoccupied territories in the Sandhills of North Carolina, 90 percent of the sites were occupied by RCWs (Copeyon et al. 1991). Translocating RCWs is another method successfully used to establish new groups (Rudolph et al. 1992, Allen et al. 1993, Hess and Costa 1995, Costa

and Kennedy 1994, Franzreb 1999). Translocation can include augmenting a solitary-bird group or translocating a pair of subadult RCWs [i.e., unrelated male and female (Costa and Kennedy 1994)]. Franzreb (1999) found that 63.2 percent of translocated birds (including adults and juveniles) remained at the release site for at least 30 days and 51.0 percent reproduced.

Status and distribution

The RCW was listed as endangered due to documented declines in local populations and massive reduction in foraging and nesting habitat. The life history of RCWs is closely tied to the occurrence of fire-maintained old growth pine forests that once dominated the southeastern United States. Only three million acres of longleaf pine forest remain of the estimated 60 to 92 million acres once in existence (Frost 1993). Timber clearing for agriculture, short timber rotations and the suppression of fire has reduced the amount and quality of RCW foraging and nesting habitat.

At the time of listing, the total number of individuals had declined to less than 10,000 in widely scattered and isolated populations (USFWS 2003). Most RCW populations (regardless of location or land ownership) were considered stable at best, but more likely declining (Costa 1995). Costa and Escano (1989) documented RCW population declines in at least ten, and perhaps as many as 17, populations on National Forests. James (1995) estimated that the number of active clusters range-wide declined 23 percent between the early 1980s and 1990. Recently, numerous RCW populations have increased, particularly on Federal lands, as a result of management activities.

Currently, 5,903 active clusters are known across 11 States in the southeast United States. National Forests (NF), military installations, and National Wildlife Refuges (NWR) contain the majority of extant populations and most of the habitat that is potentially suitable for RCWs. Conservation of RCWs as a species will depend on prudent management of habitats on those Federal lands. National Forests support the majority of the core populations required for delisting of the species, and therefore, have a uniquely important role in the species' recovery. Prior to the 1980s, most populations on National Forests were declining, but management efforts during the past decade, especially prescribed burning and cavity management, have stabilized most of those populations and led to increases in some (USFWS 2003).

The Service, in response to the apparent range-wide decline of the species on private lands, developed a private lands conservation strategy that has been aggressively implemented, modified as necessary based on new scientific findings, and regularly evaluated to ensure objectives are being achieved. The RCW recovery objectives of the private lands strategy are to increase the acreage of private land habitat being managed for RCWs, maintain or increase the larger existing RCW population on private lands, rescue RCW groups from private lands that would be lost as a result of demographic and/or genetic uncertainty, foster and develop cooperative partnerships between and among Federal, State, and private parties responsible for and/or interested in, RCW recovery, and increase the size of designated recovery and support populations while pursuing those objectives (Costa 1995). To achieve those strategic objectives, the Service has implemented three types of agreements involving private landowners: Safe Harbor Agreements, Habitat Conservation Plans (HCPs), and "no-take" management plans implemented via Memoranda of Agreement (Costa 1995).

In Georgia, the largest and most stable populations are on Federal lands, including Fort Stewart, Fort Benning, Piedmont NWR and Oconee NF. The Georgia Department of Natural Resources (GDNR) has an active and successful RCW Safe Harbor program for private landowners. To date, 103 baseline groups have been enrolled and the program has assisted in the creation of 22 new RCW groups through the installment of recruitment clusters.

Fort Stewart Army Installation provides habitat for 40% of the RCWs in Georgia and is one of 13 Primary Core Recovery Populations identified in the Service's RCW Recovery Plan. The amount of available habitat and delisting criteria or population size determines the designation as a primary or secondary core population (USFWS 2003). As a primary core population, Fort Stewart has two recovery objectives. One objective is the Installation Regional Recovery Goal (IRRG) which, according to the installation's ESMP (FSHAA 2001), is 500 clusters. An estimated 400-500 active clusters is believed to be the cluster equivalent of 350 potential RCW breeding groups, the preferred measure of RCW population size and a number thought highly robust to demographic and environmental stochasticity as well as inbreeding depression (USFWS 2003). This goal is achievable due to the large amount of suitable RCW habitat (136,929 acres) (FSHAA 2001) on Fort Stewart. However, imposition of training restrictions on 500 RCW clusters would have unacceptable adverse impacts to the installation's training mission. Therefore, the Management Guidelines for the Red-cockaded Woodpecker on Army Installations (U.S. Army 1996) provides for a second objective, the Installation Mission Compatible Goal (IMCG). The IMCG is the number of protected clusters thought compatible with the current military mission, which in the case of Fort Stewart is 411 active clusters (FSHAA 2001). Artificial cavities and other habitat improvements will be used to create 89 SRCs, satisfying the difference between the IMCG and required IRRG. SRCs are not subject to military training restrictions nor are they held to foraging habitat protection requirements (FSHAA 2001).

Fort Stewart currently supports a total of 316 active RCW clusters and the success of their intensive management efforts is reflected in the high growth rate documented for the installation. According to USFWS (2003), RCW growth rates documented during the 1990's on Fort Stewart and Camp Lejeune Marine Corps Base were among the highest yet documented in the absence of translocation. Projected population trends based on a recommended growth rate of at least 5 percent per year are outlined at five-year intervals in USFWS (2003; Table 10). Fort Stewart projects it will reach its IRRG (350 PBGs) in the breeding season of 2010 (May 2, 2008, BA). This projection is still ahead of the expected 2010 population size of 345 active clusters (USFWS 2003), a number 55 clusters shy of the minimal estimate (400 clusters) thought to equal 350 PBGs.

ENVIRONMENTAL BASELINE

Status of the species within the Action Area (AA)

Within the action area, there are currently five active RCW clusters (clusters 4/24, 26, 169, 195, and 209), two of which (clusters 169 and 195) will be directly impacted by the project. RCW cluster 4/24 used to be two separate groups but became one group in 2007 with one pair of birds; and they nested in 2007 but produced no fledglings. Cluster 26 has been active since 1994, but has not been monitored in the past couple of years; they had nested nearly every year up until 2006. Cluster 169 has been active since 1997 and had one breeding pair plus a helper in 2007; and nested each year since 2002. Cluster 195 has been active since 2006 and had a potential

breeding pair of birds in 2007 with no helpers and did not nest. Cluster 209 has been active since 1994 and in 2007 consisted of a breeding pair and one helper; produced nests from 1994-1996, 1999-2005, and 2007.

RCW populations on Fort Stewart increased at a rate of about 5.5% from 1994 until 2007 (May 2, 2008, BA). Fort Stewart expects to achieve recovery of its population in 2010, slightly ahead of expected population trends outlined in the RCW Recovery Plan (USFWS 2003).

Factors affecting species' environment in the AA

Fort Stewart comprises 279,270 acres, the majority of which were acquired during 1941 and 1945 from individual landowners (FSHAA 2001). Although slight boundary adjustments occurred within the first 20 years, there are no past or present State, tribal, local, or private actions affecting the species within the AA.

The installation's ESMP (FSHAA 2001) sets forth conservation goals, management actions and prescriptions needed to effectively manage for the RCW, which consists of commercial thinning, control of hardwood midstory, prescribed burning, native ground cover re-establishment and conservation and regeneration of longleaf pine. The AA has had several of these management actions in the past, including prescribe burning, midstory control, and commercial thinning, thus improving the habitat for the RCW.

EFFECTS OF THE ACTION

Because of the environmental due diligence required of major, Federal construction projects; the resultant tight construction deadlines; and critical training need this Congressionally-funded project will satisfy, this review is being performed well in advance of the final construction design. Therefore, this opinion is based on the Army's assessment of a "worse case scenario" relative to the project's potential impact to federally-listed species.

Under Section 7(a)(2) of the ESA, "effects of the action" refers to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated or interdependent with that action. The effects of the proposed action are added to the environmental baseline to determine the future baseline, which serves as the basis for the determinations in this document. The Service has determined that there are no interrelated or interdependent actions apart from the action under consideration.

Using the Foraging Matrix (Matrix), a detailed analysis of potential impacts to RCW was performed by Fort Stewart in accordance with the Service's May 5, 2005, memorandum entitled "Implementation Procedures for Use of Foraging Habitat Guidelines and Analysis of Project Impacts under the Red-cockaded Woodpecker (*Picoides borealis*) Recovery plan: *Second Revision*." This analysis, which appears in Fort Stewart's BA, examined project impacts at the foraging partition, group, neighborhood and population levels.

The construction, operation and maintenance of the proposed IBTC cantonment area will be a long term, permanent event that will directly impact two active RCW clusters located within the project area (clusters 169 and 195). The cantonment area will be cleared resulting in the loss of all cavity trees within these clusters, and most of the foraging habitat for these clusters. The foraging partitions of three other RCW clusters (4/24, 26, and 209) will be indirectly impacted

by project construction; however, none of the partitions will be reduced post-project to below the Managed Stability Standard (May 2, 2008 BA).

Clear-cutting of cavity trees in active clusters will result in cluster abandonment and the dissolution of the potential breeding group (PBG) occupying that cluster. A PBG, as defined in USFWS (2003), consists of an adult male and adult female that occupy the same cluster, with or without helpers and whether or not the breeding pair attempts to nest or successfully fledges young. Though possible, it is highly unlikely that displaced RCW groups will abandon clusters and disperse to a vacant territory as a group. Therefore, breeding vacancies, where there were none, could occur post-project. These vacancies could last for several years, lowering reproduction in affected territories until breeding vacancies become filled. During the 2007 breeding season, PBGs were in residence in both clusters 169 and 195.

RCWs displaced by the proposed project will be forced to seek out new territories and/or breeding vacancies. In general, RCWs exhibit high survival rates but the costs of dispersal can be high and competition for suitable territories or breeding vacancies is intense. For example, breeding females that disperse suffer higher mortality rates than those who remain in a group (Daniels and Walters 2000). Survival of RCWs during the first year is much lower than in subsequent years and is influenced primarily by the number of birds dispersing and the number of available breeding vacancies (USFWS 2003). Dispersal of young birds and adult breeders occurs naturally within RCW populations, and typically takes place just before or just after the breeding season.

An RCW Neighborhood Level Analysis was completed for this project and is more completely described in the BA. The analysis found that the mean dispersal distance for Fort Stewart's RCW population is 3.96 miles. Therefore, the dispersal neighborhood for this project is 3.96 miles from the boundary of the project area that encompasses 38 active RCW clusters. Dispersal events have occurred across large range openings on Fort Stewart, making it likely that RCWs went around the openings in suitable forested habitat. It is believed that RCWs in the proposed project neighborhood will also disperse around the openings and continue to move effectively among and between clusters, therefore, these 38 RCW groups will not be impacted by this proposed project.

In an attempt to minimize impacts to birds occupying clusters 169 and 195, Fort Stewart will translocate RCWs to recruitment clusters in unoccupied habitat, subject to USFWS concurrence. Techniques and benefits of translocation are discussed in Carrie et al. (1999).

Translocated birds can be particularly vulnerable during the transport process. Injury or death can occur from the time birds are placed in transport boxes to the time they are removed and released into the recipient cavity tree. Such death or injury results in a loss of potential breeders or helpers in the vicinity of the proposed release site and the translocation itself reduces the pool of potential breeders and helpers in the vicinity of the donor (impact) site (Franzreb 1999).

It is important to note that the majority of death, if any, is expected to occur post-translocation. Birds may die from exposure or predation if after release they disperse back to their capture territory (where habitat is severely degraded or no longer available) or become floaters [i.e., never establish a new territory or occupy an existing one, being forced to compete for roost

cavities]. Dispersal to a population outside the recipient population is also a possibility (Carrie et al. 1999).

Accounting for post translocation death, however, is difficult because dead birds are never found. They simply remain unaccounted for, and are assumed dead unless monitoring efforts at the release site or elsewhere document the bird's presence.

Potential indirect effects (e.g., noise, dust, traffic, etc.) caused by the construction, operation, and maintenance in the action area is not expected to adversely impact RCW populations due to the existence of stable or increasing RCW populations on similar landscapes for many years. A study on the effect of noise on RCW fecundity (Delaney et al. 2002) demonstrated that reproduction of RCWs in or near noisy areas was not statistically different from the reproduction of RCWs in more protected habitats. A study of the effects of military maneuver on the Fort Stewart RCW population (Hayden et al. 2002) was inconclusive.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Actions adjacent to Fort Stewart, such as logging and clear-cutting operations, urban development, and associated activities, will all continue to reduce and degrade available habitat for the RCW. However, there is no State or private land within the action area considered in this consultation. Consequently, the Service did not identify any State or private activities that are reasonably certain to occur within the action area that would constitute cumulative effects.

CONCLUSION

After reviewing the current status of the RCW; the environmental baseline for the AA; the effects of the proposed construction, operation, and maintenance of the IBCT cantonment area, and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the RCW. Critical habitat for the RCW has not been designated; therefore none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take

that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered to be a prohibited taking under the Act, provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by the DOA for the exemption in section 7(o)(2) to apply. The DOA has a continuing duty to regulate the activity covered by this incidental take statement. If the DOA fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Fort Stewart must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(1)(3)]

AMOUNT OR EXTENT OF TAKE ANTICIPATED

Fort Stewart analyzed the impacts of the project in accordance with the Service's May 5, 2005, memorandum entitled "Implementation Procedures for Use of Foraging Habitat Guidelines and Analysis of Project Impacts under the Red-cockaded Woodpecker (*Picoides borealis*) Recovery plan: *Second revision*." Based on the results of this analysis, the Service anticipates the incidental take in the form of harassment, harm, wound, kill, and or capture of two active RCW groups (clusters 169 and 195), consisting of 5 birds (2 breeding pair plus one helper). This take will result from one or more of the following: loss in the form of harm due to loss of cavity trees and foraging habitat from timber clearing for project construction, loss in the form of harassment of translocated birds that could occur during the transport process or due to forced changes in normal behavior patterns such as breeding, feeding and/or sheltering, loss from harm, wound, kill, and capture of transporting birds could also result, although it is unlikely that all birds would be injured or killed during transport. Most, if not all of the take will be associated with post-translocation dispersal. However, because dead birds are never found after translocation, quantifying such take is impossible. Birds are simply assumed dead, if after release, they remain unaccounted for. Therefore, under the worse case scenario, all translocated birds (i.e., 2 RCW groups – 5 birds) will suffer mortality.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that the anticipated level of incidental take is not likely to result in jeopardy to the species.

REASONABLE AND PRUDENT MEASURES (RPMs)

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of incidental take.

- (1) Establish 2 additional recruitment clusters for maintaining demographic continuity of the local population, thereby minimizing the adverse impacts of the incidental take.
- (2) Improve habitat conditions in RCW habitat surrounding the project area.
- (3) To facilitate a more accurate assessment of any future environmental baseline, track incidental take of RCW individuals known to occupy clusters 169 and 195.

TERMS AND CONDITIONS (TCs)

In order to be exempt from prohibitions of section 9 of the Act, the Army must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

- (1) [RPM(1)] Create two additional RCW recruitment clusters as close as possible to the proposed action area. Existing unoccupied recruitment clusters within 1.0 mile of the project area can count towards this total. To prevent capture by neighboring groups, place recruitment clusters no closer than 0.25 miles of an existing occupied cluster. To achieve beneficial spatial arrangement and density requirements, strive to locate recruitment clusters within 2 miles and preferably no farther than 1 mile from existing or newly created recruitment clusters (see 8B, USFWS 2003).
- (2) [RPM (2)] Conduct prescribed burns at least once every 3 years, preferably during the growing season; conduct timber thinning operations and conduct monitoring activities in RCW habitat surrounding the project area to determine the effectiveness of habitat management actions. Examples of monitoring activities to be conducted include inspecting cavities to determine activity status, banding adult and nestling RCWs, and determining group composition in recruitment clusters.
- (3) [RPM (3)] Color band all RCWs occupying clusters 169 and 195 prior to impact. Monitor color-banded RCWs post translocation. Record movements (e.g., as determined by confirmed presence in other RCW clusters) presence, and breeding status of color-banded individuals during annual RCW monitoring. For a period of five years after range construction, provide annual reports to the Service's Brunswick field office.

Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the Fish and Wildlife Service Law Enforcement Office at Atlanta, Georgia. Additional notification must be made to the Brunswick Fish and Wildlife Service Ecological Services Field Office at 4270 Norwich Street, Brunswick, Georgia 31520. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

These reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than two RCW groups (five birds), will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking, and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on a listed species or critical habitat, to

help implement recovery plans, or to develop information. We recommend implementation of the following conservation recommendation: assist private landowners adjacent to Fort Stewart in restoring native longleaf pine habitats for the benefit of wildlife species that utilize these habitats, such as the RCW.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the May 2, 2008, request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Army involvement or control over the action has been retained (or is authorized by law) and if (1) the amount of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species not considered in this opinion; or, (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operation causing such take must cease pending reinitiation of consultation.

The Service appreciates the cooperation of Fort Stewart personnel during this consultation. We would like to continue working with you and your staff regarding construction, operation and maintenance of the IBCT cantonment area. For further coordination please contact staff biologist Robert Brooks at (912) 265-9336.

Sincerely,



Sandra S. Tucker
Field Supervisor

cc: file
FWS, ES, Brunswick, GA
FWS, ES, Jackson, MS (RCW Coordinator)
FWS, RO, ES, Atlanta, GA

LITERATURE CITED

- Allen, D. H. 1991. Constructing artificial red-cockaded woodpecker cavities. USDA Forest Service General Technical Report SE-73.
- Allen, D. H., K. E. Franzreb, and R. F. Escano. 1993. Efficacy of translocation strategies for red-cockaded woodpeckers. *Wildlife Society Bulletin* 21:155-159.

- Beckett, T. 1971. A summary of red-cockaded woodpecker observations in South Carolina. Pp. 87-95 in R. L. Thompson, ed. Ecology and management of the red-cockaded woodpecker. U.S. Bureau of Sport Fishing and Wildlife and Tall Timbers Research Station, Tallahassee, FL.
- Carrie, N. R., R. N. Conner, D. C. Rudolph, and D. K. Carrie. 1999. Reintroduction and postrelease movements of red-cockaded woodpecker groups in eastern Texas. *Journal of Wildlife Management* 63:824-832.
- Conner, R. N. and B. A. Locke. 1982. Fungi and red-cockaded woodpecker cavity trees. *Wilson Bulletin* 94:64-70.
- Conner, R. N. and K. A. O'Halloran. 1987. Cavity-tree selection by red-cockaded woodpeckers as related to growth dynamics of southern pines. *Wilson Bulletin* 99:398-412.
- Conner, R. N. and D. C. Rudolph. 1989. Red-cockaded woodpecker colony status and trends on the Angelina, Davy Crockett and Sabine National Forests. U.S. Department of Agriculture Forest Service Research Paper SO-250.
- Conner, R. N. and D. C. Rudolph. 1991. Forest habitat loss, fragmentation, and red-cockaded woodpeckers. *Wilson Bulletin* 103:446-457.
- Conner, R. N., A. E. Snow, and K. A. O'Halloran. 1991. Red-cockaded woodpecker use of seed-tree/shelterwood cuts in eastern Texas. *Wildlife Society Bulletin* 19:67-73.
- Conner, R. N., D. C. Rudolph, R. R. Schaefer, D. Saenz, and C. E. Schackelford. 1999. Relationships among red-cockaded woodpecker group density, nestling provisioning rates, and habitat. *Wilson Bulletin* 111:494-498.
- Copeyon, C. K. 1990. A technique for constructing cavities for the red-cockaded woodpecker. *Wildlife Society Bulletin* 18:303-311.
- Copeyon, C. K., J. R. Walters, and J. H. Carter III. 1991. Induction of red-cockaded woodpecker group formation by artificial cavity construction. *Journal of Wildlife Management* 55:549-556.
- Costa, R. 1995. Red-cockaded woodpecker recovery and private lands: a conservation strategy responsive to the issues. Pp. 67-74 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. Red-cockaded woodpecker: recovery, ecology and management. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.
- Costa, R. and R. Escano. 1989. Red-cockaded woodpecker: status and management in the southern region in 1986. US Forest Service Technical Publication R8-TP12.
- Costa, R. and E. Kennedy. 1994. Red-cockaded translocations 1989-1994: state of our knowledge. Pp. 74-81 in Proceedings of the American Zoo and Aquarium Association. Zoo Atlanta, Atlanta, GA.

- Costa, R. and J. Walker. 1995. Red-cockaded woodpecker. Pp. 86-89 in E. T. LaRoe, G. S. Farris, C. E. Puckett, and others, eds. *Our living resources: a report to the nation on The distribution, abundance, and health of U.S. plants, animals and ecosystems*. U. S. National Biological Survey, Washington, D. C.
- Crowder, L. B., J. A. Priddy, and J. R. Walters. 1998. Demographic isolation of red-cockaded woodpecker groups: a model analysis. USFWS Project Final Report. Duke University Marine Laboratory, Beaufort, NC, and Virginia Polytechnic Institute and State University, Blacksburg, VA.
- Daniels, S. J., and J. R. Walters. 2000. Between-year breeding dispersal in red-cockaded woodpeckers: multiple causes and estimated costs. *Ecology* 81:2473-2484.
- Daniels, S. J., J. A. Priddy, and J. R. Walters. 2000. Inbreeding in small populations of red-cockaded woodpeckers: insights from a spatially-explicit individual-based model. Pp. 129-147 in Young, A. G. and G. M. Clarke, eds. *Genetics, demography and viability of fragmented populations*. Cambridge University Press, London, UK.
- Delaney, D.K., L.L. Pater, R.J. Dooling, B. Lohr, B.F. Brittan-Powell, L.L. Swindell, T.A. Beaty, L.D. Carlile, E.W. Spadgenske, B.A. MacAllister, and R.H. Melton. 2002. Assessment of training noise impacts on red-cockaded woodpeckers: 1998-2000. U.S. Army Corps of Engineers ERDC/CERL TR-01-32.
- DeLotelle, R. S. and R. J. Epting. 1992. Reproduction of the red-cockaded woodpecker in central Florida. *Wilson Bulletin* 104:285-294.
- DeLotelle, R. S., R. J. Epting, and J. R. Newman. 1987. Habitat use and territory characteristics of red-cockaded woodpeckers in central Florida. *Wilson Bulletin* 99:202-217.
- DeLotelle, R. S., R. J. Epting, and G. Demuth. 1995. A 12-year study of red-cockaded woodpeckers in central Florida. Pp. 259-269 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. *Red-cockaded woodpecker: recovery, ecology and management*. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.
- Doerr, P. D., J. R. Walters, and J. H. Carter III. 1989. Reoccupation of abandoned clusters of cavity trees (colonies) by red-cockaded woodpeckers. *Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies* 43:326-336.
- Fort Stewart/Hunter Army Airfield. 2001. Fort Stewart/Hunter Army Airfield integrated natural resources management plan: 2001-2005. Fort Stewart Directorate of Public Works, Environmental and Natural Resources Division, Fort Stewart, Georgia, USA.
- Franzreb, K. E. 1999. Factors that influence translocation success in the red-cockaded woodpecker. *Wilson Bulletin* 111:38-45.

- Frost, C. C. 1993. Four centuries of changing landscape patterns in the longleaf pine ecosystem. Pp. 17-44 in S. M. Hermann, ed. The longleaf pine ecosystem: ecology, restoration, and management. Tall Timbers Fire Ecology Conference Proceedings No. 18. Tall Timbers Research Station, Tallahassee, FL.
- Gaines, G. D., K. E. Franzreb, D. H. Allen, K. S. Laves and W. L. Jarvis. 1995. Red-cockaded woodpecker management on the Savannah River Site: a management/research success story. Pp. 81-88 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. Red-cockaded woodpecker: recovery, ecology and management. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.
- Hardesty, J. L., K. E. Gault, and F. P. Percival. 1997. Ecological correlates of red-cockaded woodpecker (*Picoides borealis*) foraging preference, habitat use, and home range size in northwest Florida (Eglin Air Force Base). Final Report Research Work Order 99, Florida Cooperative Fish and Wildlife Research Unit, University of Florida, Gainesville, FL.
- Hayden, T.J., R.H. Melton, B. Willis, L.B. Martin III, and T. Beatty. 2003. Effects of maneuver training activities on re-cockaded woodpecker populations on Fort Stewart, GA. U.S. Army Corps of Engineers ERDC/CERL TR-02-17.
- Hess, C. A., and R. Costa. 1995. Augmentation from the Apalachicola National Forest: the development of a new management technique. Pp. 385-388 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. Red-cockaded woodpecker: recovery, ecology and management. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.
- Hooper, R. G. 1983. Colony formation by red-cockaded woodpeckers: hypotheses and management implications. Pp. 72-77 in D. A. Wood, ed. Red-cockaded woodpecker symposium II. Florida Game and Fresh Water Fish Commission, Tallahassee, FL.
- Hooper, R. G. and M. R. Lennartz. 1995. Short-term response of a high density red-cockaded woodpecker population to loss of foraging habitat. Pp. 283-289 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. Red-cockaded woodpecker: recovery, ecology and management. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.
- Hooper, R. G., A. F. Robinson, Jr., and J. A. Jackson. 1980. The red-cockaded woodpecker: notes on life history and management. USDA Forest Service General Report SA-GR-9.
- Hooper, R. G., L. J. Niles, R. F. Harlow, and G. W. Wood. 1982. Home ranges of red-cockaded woodpeckers in coastal South Carolina. *Auk* 99:675-682.
- Jackson, J. A. and S. D. Parris. 1995. The ecology of red-cockaded woodpeckers associated with construction and use of a multi-purpose range complex at Fort Polk, Louisiana. Pp. 277-282 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. Red-cockaded woodpecker: recovery, ecology and management. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.

- James, F. C. 1995. The status of the red-cockaded woodpecker in 1990 and the prospect for recovery. Pp. 439-451 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. Red-cockaded woodpecker: recovery, ecology and management. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.
- James, F. C., C. A. Hess, and B. C. Kicklighter. 2001. Ecosystem management and the niche gestalt of the red-cockaded woodpecker in longleaf pine forests. *Ecological Applications* 7:854-870.
- Koenig, W. D. 1988. On determination of viable population size in birds and mammals. *Wildlife Society Bulletin* 16:230-234.
- Lennartz, M. R. and R. F. Harlow. 1979. The role of parent and helper red-cockaded woodpeckers at the nest. *Wilson Bulletin* 91:331-335.
- Lennartz, M. R. and D. G. Heckel. 1987. Population dynamics of a red-cockaded woodpecker population in Georgia Piedmont loblolly pine habitat. Pp. 48-55 in R. R. Odom, K. A. Riddleberger, and J. C. Ozier, eds. Proceedings of the third southeast nongame and endangered wildlife symposium. Georgia Department of Natural Resources, Game and Fish Division, Atlanta, GA.
- Lennartz, M. R., R. G. Hooper, and R. F. Harlow. 1987. Sociality and cooperative breeding of red-cockaded woodpeckers (*Picoides borealis*). *Behavioural Ecology and Sociobiology* 20:77-88.
- Letcher, B. H., J. A. Priddy, J. R. Walters, and L. B. Crowder. 1998. An individual-based, spatially explicit simulation model of the population dynamics of the endangered red-cockaded woodpecker. *Biological Conservation* 86:1-14.
- Ligon, J. D. 1970. Behavior and breeding biology of the red-cockaded woodpecker. *Auk* 87:255-278.
- Rudolph, D. C., R. N. Conner, D. K. Carrie, and R. R. Schaefer. 1992. Experimental reintroduction of red-cockaded woodpeckers. *Auk* 109:914-916.
- Schiegg, K., J. R. Walters, and J. A. Priddy. 2002. The consequences of disrupted dispersal in fragmented red-cockaded woodpecker *Picoides borealis* populations. *Journal of Animal Ecology* 71:710-721.
- U.S. Department of the Army. 1996. Revised management guidelines for the red-cockaded woodpecker on army installations. U.S. Department of the Army, Washington, DC.
- U.S. Fish and Wildlife Service. 2003. Recovery plan for the red-cockaded woodpecker (*Picoides borealis*): second revision. U. S. Fish and Wildlife Service, Atlanta, GA.

- Walters, J. R. 1990. Red-cockaded woodpeckers: a 'primitive' cooperative breeder. Pp. 69-101 in P. B. Stacey and W. D. Koenig, eds. *Cooperative breeding in birds*. Cambridge University Press, London, UK.
- Walters, J. R. 1991. Application of ecological principles to the management of endangered species: the case of the red-cockaded woodpecker. *Annual Review of Ecology and Systematics* 22:505-523.
- Walters, J. R., P. D. Doerr, and J. H. Carter III. 1988. The cooperative breeding system of the red-cockaded woodpecker. *Ethology* 78:275-305.
- Walters, J. R., C. K. Copeyon, and J. H. Carter III. 1992. Test of the ecological basis of cooperative breeding in red-cockaded woodpeckers. *Auk* 109:90-97.
- Watson, J. C., R. G. Hooper, D. L. Carlson, W. E. Taylor, and T. C. Milling. 1995. Restoration of the red-cockaded woodpecker population on the Francis Marion National Forest: three years post-Hugo. Pp. 172-182 in D. L. Kulhavy, R. G. Hooper, and R. Costa, eds. *Red-cockaded woodpecker: recovery, ecology and management*. Center for Applied Studies in Forestry, Stephen F. Austin State University, Nacogdoches, TX.

APPENDIX C

National Pollutant Discharge Elimination System

Best Management Practices

**Recommended Best Management Practices (BMPs) to assist in meeting the Total
Maximum Daily Loads National Pollutant Discharge Elimination System (NPDES)
Construction Stormwater Permitting Requirements**

NPDES Permitting Stormwater Discharges Associated with Construction Activity-Stand Alone Projects

PART III. SPECIAL CONDITIONS, MANAGEMENT PRACTICES, PERMIT VIOLATIONS AND OTHER LIMITATIONS

C. Discharges into, or within One Mile Upstream of and within the Same Watershed as, Any Portion of a Biota Impaired Stream Segment.

For construction activities, where the NOI was submitted within 90 days after the effective date of this permit (1 AUG 08), the requirements of Part III.C. of this permit are not applicable.

Any permittee who intends to obtain coverage under this permit for stormwater discharges associated with construction activity into an Impaired Stream Segment, or within one (1) linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment identified as "not supporting" its designated use(s), as shown on Georgia's 2008 and subsequent "305(b)/303(d) List Documents (Final)" at the time of NOI submittal, must satisfy the requirements of Part III.C. of this permit if the Impaired Stream Segment has been listed for criteria violated, "Bio F" (Impaired Fish Community) and/or "Bio M" (Impaired Macroinvertebrate Community), within Category 4a, 4b or 5, and the potential cause is either "NP" (nonpoint source) or "UR" (urban runoff). Those discharges that are located within one (1) linear mile of an Impaired Stream Segment, but are not located within the watershed of any portion of that stream segment, are excluded from this requirement. Georgia's 2008 and subsequent 305(b)/303(d) List Documents (Final) can be viewed on the EPD website, www.gaepd.org/Documents/305b.html.

1. If a Total Maximum Daily Load (TMDL) Implementation Plan for sediment has been finalized at least six (6) months prior to the permittee's submittal of the NOI, the Erosion, Sedimentation and Pollution Control Plan (Plan) must address any site-specific conditions or requirements included in the TMDL Implementation Plan that are applicable to the permittee's discharge(s) to the Impaired Stream Segment within the timeframe specified in the TMDL Implementation Plan. If the TMDL Implementation Plan establishes a specific numeric Wasteload allocation that applies to a permittee's discharge(s) to the Impaired Stream Segment, then the permittee must incorporate that allocation into the Erosion, Sedimentation and Pollution Control Plan and implement all necessary measures to meet that allocation. A list of TMDL Implementation Plans can be viewed on the EPD website, www.gaepd.org.

2. In order to ensure that the permittee's discharge(s) do not cause or contribute to a violation of State water quality standards, the Plan must include at least four (4) of the following best management practices (BMPs) for those areas of the site which discharge into or within one (1) linear mile upstream and within the same watershed as the Impaired Stream Segment:

Recommended Best Management Practices (BMPs) to assist in meeting the Total Maximum Daily Loads National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permitting Requirements

NOTE: To assist in meeting this permit requirement, Natural Resources Conservation Service (NRCS) and the DPW Environmental Prevention & Compliance Branch at Fort Stewart/HAAF, recommend utilizing 4 of the 10 **green highlighted** BMPs from the NPDES Construction Permit list (below).*

- a. During construction activities, double the width of the 25 foot undisturbed vegetated buffer along all State waters requiring a buffer and the 50 foot undisturbed vegetated buffer along all State waters classified as "trout streams" requiring a buffer. During construction activities, EPD will not grant variances to any such buffers that are increased in width pursuant to this section.
- b. Increase all temporary sediment basins and retrofitted storm water management basins to provide sediment storage of at least 3600 cubic feet (134 cubic yards) per acre drained.
- c. Use baffles in all temporary sediment basins and retrofitted stormwater management basins to at least double the conventional flow path length to the outlet structure.
- d. Place a large sign (minimum 4 feet x 8 feet) on the site visible from the roadway identifying the construction site, the permittee(s), and the contact person(s) and telephone number(s).
- e. Use anionic polyacrylamide (PAM) and/or mulch to stabilize areas left disturbed for more than seven (7) calendar days in accordance with Part III.D.1. of this permit.
- f. Conduct turbidity and Total Suspended Solids (TSS) sampling after every rain event of 0.5 inch or greater within any 24 hour period, recognizing the exceptions specified in Part IV.D.8.d. of this permit.
- g. Comply with the applicable end-of-pipe turbidity effluent limit, without the "BMP defense" as provided for in O.C.G.A. 12-7-8(a)(1).
- h. Limit the total planned site disturbance to less than 50% impervious surfaces (excluding any State mandated buffer areas from such calculations).
- i. Limit the amount of area disturbed at any one time to no greater than 25 acres or 50% of the total planned site, whichever is less.
- j. Use "Dirt II" techniques to model and manage storm water runoff (e.g., seep berms, sand filters, anionic PAM), available on the EPD website, www.gaepd.org.
- k. Add appropriate organic soil amendments (e.g., compost) and conduct pre- and post-construction soil sampling to a depth of 6 (six) inches to document improved levels of soil carbon after final stabilization of the construction site.
- l. Use mulch filter berms, in addition to a silt fence, on the site perimeter wherever stormwater may be discharged.

Recommended Best Management Practices (BMPs) to assist in meeting the Total Maximum Daily Loads National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permitting Requirements

m. Apply the appropriate Georgia Department of Transportation approved erosion control matting or blankets or bonded fiber matrix to all slopes steeper than 3:1.

n. Use appropriate erosion control matting or blankets instead of concrete in construction storm water ditches and storm drainages designed for a 25 year, 24 hour rainfall event.

o. Use anionic PAM under a passive dosing method (e.g., flocculant blocks) within construction storm water ditches and storm drainages that feed into temporary sediment basins and retrofitted management basins.

p. Install sod for a minimum 20 foot width, in lieu of seeding, along the site perimeter wherever stormwater may be discharged.

q. Use a surface draining skimmer designed to drain temporary sediment basins and retrofitted stormwater management basins over a minimum three (3) day period.

r. Certified personnel shall conduct inspections at least twice every seven (7) calendar days and within 24 hours of the end of the storm that is 0.5 inches rainfall or greater in accordance with Part IV.D.4.a.(2). (a) – (c) of this permit.

s. Apply the appropriate compost blankets (minimum depth 1.5 inches) to protect soil surfaces until vegetation is established during the final stabilization phase of the construction activity.

t. Use alternative BMPs whose performance has been documented to be superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the State Soil and Water Conservation Commission).**

*Ultimately, it is up to the Designer to determine which BMPs to utilize for each particular project site, but Designers will need to select 4 out of the 20 listed BMPs from the NPDES Construction Permit and incorporate the 4 selected BMPs into the Erosion & Sedimentation Pollution Control Plan for compliance.

**For example FS/HAAF require dry detention vs. wet retention ponds; reference Engineering Policy Letter #10 and the dry detention pond specifications dated 18 APR 08.

For questions or any additional information regarding this permit requirement, please contact POCs Mr. James Freeman-NRCS (912) 767-7829 or Mr. Russell Moncrief-Environmental P&CB (912) 767-0271

APPENDIX D

Regulatory Coordination and Consultation



MARK WILLIAMS
COMMISSIONER

A.G. 'SPUD' WOODWARD
DIRECTOR

November 23, 2011

Ms. Melissa B. Kendrick
Fort Stewart Directorate of Public Works
Environmental Division
1587 Frank Cochran Drive
Fort Stewart, Georgia 31314

RE: Consistency Determination for DEA/DFONSI for Construction, Operation and Maintenance of a Military Working Dog Complex, Fort Stewart, Liberty County, Georgia

Dear Ms. Kendrick:

Staff of the Coastal Management Program has reviewed your undated letter received November 7, 2011 along with the attached Draft Environmental Assessment and Draft Findings of No Significant Impact on the above referenced subject. The proposed action includes construction and maintenance of a military working dog complex that will house 14 dogs. The existing complex will be demolished because it does not meet health and safety codes. The new complex will be constructed on the base and will not impact any freshwater wetlands.

The Program concurs with your consistency determination. This determination ensures that the proposed project has been designed to comply to the maximum extent practicable with the applicable enforceable policies of the Georgia Coastal Management Program.

Please feel free to contact Kelie Moore or me if we can be of further assistance.

Sincerely,

A.G. "Spud" Woodward
Director

SW/km



OFFICE OF PLANNING AND BUDGET

Nathan Deal
Governor

Debbie Dlugolenski Alford
Director

GEORGIA STATE CLEARINGHOUSE MEMORANDUM EXECUTIVE ORDER 12372 REVIEW PROCESS

TO: Melissa Kendrick
DPW-Environmental Div.
Dept. of the Army

FROM: Barbara Jackson 
Georgia State Clearinghouse

DATE: 11/30/2011

PROJECT: Draft EA/Draft FONSI: Construction, Operation and Maintenance of a Military Working Dog (MWD) Complex at Fort Stewart, GA

STATE ID: GA111108001

The applicant/sponsor coordinated directly with DNR's Wildlife Resources Division and DNR's Historic Preservation Division, two of our state reviewers for this type project.

The State level review of the above-referenced proposal has been completed, and the proposal found to be consistent with those state or regional goals, policies, plans, fiscal resources, criteria for Developments of Regional Impact (DRI), environmental impacts, federal executive orders, acts and/or rules and regulations with which the state is concerned.

/bj

Enc.: DNR/EPD, Nov. 22, 2011

GFC, Nov. 29, 2011

✓ cc: Amber Franks

Form NCC
Oct. 2008

**GEORGIA STATE CLEARINGHOUSE MEMORANDUM
EXECUTIVE ORDER 12372 REVIEW PROCESS**

TO: Barbara Jackson
Georgia State Clearinghouse
270 Washington Street, SW, Eighth Floor
Atlanta, Georgia 30334

FROM: MR. F. ALLEN BARNES *F. Allen Barnes*
GA DNR-EPD DIRECTOR'S OFFICE

APPLICANT: Dept. of the Army - Fort Stewart, GA

PROJECT: Draft EA/Draft FONSI: Construction, Operation and Maintenance of a Military Working Dog (MWD) Complex at Fort Stewart, GA

STATE ID: GA111108001

FEDERAL ID:

DATE:

This project is considered to be consistent with those state or regional goals, policies, plans, fiscal resources, criteria for developments of regional impact, environmental impacts, federal executive orders, acts and/or rules and regulations with which this organization is concerned.

This project is not consistent with:

- The goals, plans, policies, or fiscal resources with which this organization is concerned. (Line through inappropriate word(s) and prepare a statement that explains the rationale for the inconsistency. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID no. and any Federal ID no. on all pages).
- The criteria for developments of regional impact, federal executive orders, acts and/or rules and regulations administered by your agency. Negative environmental impacts or provision for protection of the environment should be pointed out. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID no. and any Federal ID no. on all pages).
- This project does not impact upon the activities of the organization.

**NOTE: Should you decide to FAX
this form (and any attached pages),
it is not necessary to mail the
originals to us. [770-344-3568]**

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GEORGIA
STATE CLEARINGHOUSE

Form SC-3
Aug. 2011

D Remote ID: R page of

**GEORGIA STATE CLEARINGHOUSE MEMORANDUM
EXECUTIVE ORDER 12372 REVIEW PROCESS**

TO: Barbara Jackson
Georgia State Clearinghouse
270 Washington Street, SW, Eighth Floor
Atlanta, Georgia 30334

FROM: MR. DAN GARY
GEORGIA FORESTRY COMMISSION

APPLICANT: Dept. of the Army - Fort Stewart, GA

PROJECT: Draft EA/Draft FONSI: Construction, Operation and Maintenance of a Military Working Dog (MWD) Complex at Fort Stewart, GA

STATE ID: GA111108001

FEDERAL ID:

DATE: 11-29-2011

- This project is considered to be consistent with those state or regional goals, policies, plans, fiscal resources, criteria for developments of regional impact, environmental impacts, federal executive orders, acts and/or rules and regulations with which this organization is concerned.

This project is not consistent with:

- The goals, plans, policies, or fiscal resources with which this organization is concerned. (Line through inappropriate word(s) and prepare a statement that explains the rationale for the inconsistency. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID no. and any Federal ID no. on all pages).
- The criteria for developments of regional impact, federal executive orders, acts and/or rules and regulations administered by your agency. Negative environmental impacts or provision for protection of the environment should be pointed out. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID no. and any Federal ID no. on all pages).

- This project does not impact upon the activities of the organization.

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Form SC-3
Aug. 2011

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NOV 29 2011
GEORGIA
STATE CLEARINGHOUSE

AFFIDAVIT OF PUBLICATION
SAVANNAH MORNING NEWS

STATE OF GEORGIA
COUNTY OF CHATHAM

Personally appeared before me, Alaina Fincher, to me known, who being sworn, deposes and says:

That she is the Obituary/Legal Clerk for Southeastern Newspaper Corporation, a Georgia corporation, doing business in Chatham County, GA, under the trade name of Savannah Morning News, a daily newspaper published in said county;

That he is authorized to make affidavits of publication on behalf of said published corporation;

That said newspaper is of general circulation in said county and in the area adjacent thereto;

That he has reviewed the regular editions of the Savannah Morning News, published on:

Nov. 7 _____, 2011 _____, 2011,
_____, 2011, _____, 2011,

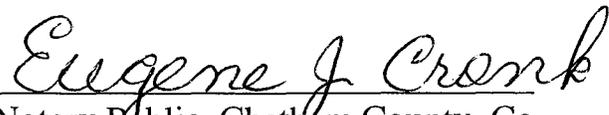
and finds that the following advertisement, to-wit:

Appeared in each of said editions.
Sworn to and subscribed before me

This 18 day of Nov, 2011



(Deponent)



Notary Public, Chatham County, Ga.

EUGENE J. CRONK
Notary Public, Chatham County, GA
My Commission Expire January 25, 2014

NOTICE OF AVAILABILITY

**DRAFT ENVIRONMENTAL
ASSESSMENT (EA) AND
DRAFT FINDING OF NO
SIGNIFICANT IMPACT (FNSI)**

For the Construction, Operation,
and Maintenance of a Military
Working Dog (MWD) Complex
at Fort Stewart, Georgia.

The U.S. Army proposes to
construct, operate, and maintain a
new MWD Complex on Fort
Stewart to accommodate the living
and training needs of the MWDs of
the 3rd Infantry Division. The
complex will include an
administration building, a kennel,
and an obedience course. The
existing MWD facilities cannot
support the current and future
MWD mission due to inadequate
size and required substantial
repairs (to resolve safety and
sanitary violations). Demolition of
the existing facilities is therefore
universal to each action
alternative, as is use of borrow
materials, site preparation,
development of utility corridors,
material lay-down areas, and
landscaping.

The Draft EA addresses the
potential impacts to environmental
and socioeconomic resources. The
Draft EA indicates that no
significant adverse impacts would
result from the proposed action. A
copy of the Draft EA and Draft
FNSI will be available for public
review on/around November
7-December 6, 2011 at the public
libraries and Post library listed
below. All public review comments
must be received no later than
December 6, 2011.

1LT George P. Hays Library,
Building 411, 316 Lindquist Rd.,
Fort Stewart, GA
Mon. - Thurs. 10:30 a.m.
to 9:00 p.m.
Fri. closed
Sat.-Sun. 11:30 a.m. to 6:00 p.m.

Liberty County Public Library,
236 Memorial Drive, Hinesville, GA
Mon. - Thurs. 9:00 a.m. to 9:00 p.m.
Fri. - Sat. 9:00 a.m. to 6:00 p.m.
Sun. 2:00 p.m. to 6:00 p.m.

Mall Branch Library, 7 Mall
Annex, Savannah, GA
Mon. and Wed. 9:00 am to 8:00 pm
Tues., Thurs., and Sat. 9:00 am to
6:00 pm
Fri. and Sun. closed

Southwest Chatham Branch
Library, 14097 Abercorn Street,
Savannah, GA
Mon. closed
Tues. and Thurs. 9:00 am to 8:00
pm
Wed., Fri.-Sun. 9:00 am to 6:00 pm

Request all comments be mailed
to the following address:

Chief, Environmental Division (Mr.
Thomas C. Fry)
Directorate of Public Works
1550 Frank Cochran Drive,
Bldg. 1137
Fort Stewart, GA 31314-4927