Final Finding of No Significant Impact

U.S. Army Reserve
Proposed Military Construction Project
Fort A.P. Hill, Caroline County, Virginia

Pursuant to the Council on Environmental Quality's (CEQ's) regulations for implementing the procedural provisions of National Environmental Policy Act (NEPA), 40 *Code of Federal Regulations* (CFR), Parts 1500 to 1508, 42 United States Code 4321 et seq., and "Environmental Analysis of Army Actions," 32 CFR Part 651, the U.S. Army Reserve (USAR) 99th Regional Support Command prepared an environmental assessment (EA) to evaluate the potential environmental consequences of construction and operation of a new equipment concentration site (ECS) at Fort A.P. Hill (FAPH), Caroline County, Virginia. The EA is incorporated by reference to this finding of no significant impact (FNSI).

Background

The USAR's mission is to provide trained, equipped, and ready Soldiers, Leaders, and Units to meet America's requirements at home and abroad. The 99th RSC has an ECS at Fort Pickett, Virginia. Units that use the Fort Pickett ECS currently come from Richmond, Fort Lee, and FAPH to retrieve military equipment from the ECS and then must travel to FAPH, approximately 40 miles, to conduct training exercises. At the completion of the training exercises, units must return the military equipment to the Fort Pickett ECS. Travel hours needed to retrieve and return the equipment takes away from unit training hours. In addition, the ECS facilities at Fort Pickett are in World War II-era wooden buildings, which are in constant need of repair, are not energy efficient, are overcrowded, and are not properly configured for this purpose. Therefore, the USAR 99th RSC proposes to construct a new ECS at FAPH to reduce travel time and to provide up to date and adequate facilities.

Description of the Proposed Action

The Proposed Action consists of construction and operation of an ECS at FAPH, Virginia. The ECS would employ approximately 41 full-time civilian employees during the week. The estimated start date of construction is 2017, with construction completion approximately 24 months following the start date. Operation of the facility is anticipated to start after construction is completed.

The ECS would include a 27,443-square-foot tactical equipment maintenance facility (TEMF), a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The Proposed Action would also include construction of stormwater management features. The TEMF would include five drive-through work bays, administrative offices, locker rooms, toilets and showers, a classroom/break area, library, tool and parts room, welding shop, tire changing area, arms vault, and maintenance areas for in and out processing of military equipment. The warehouse would include space to store large items that need a climate-controlled environment. The design will comply with the Leadership in Energy and Environmental Design Silver standard, feature low-impact development, and consider renewable energy initiatives.

Additional construction activities would consist of paving, fencing, making general site improvements, and extending utilities to serve the new facilities. Some grading and leveling of land would be required on site. Disturbed areas that are not within the footprint of the proposed buildings or parking areas would be landscaped and used to meet security setback requirements. Physical security measures or antiterrorism/force protection measures would be incorporated into the design; these would include

setbacks from roads, parking areas, and vehicle unloading areas. Buildings would comply with the Americans with Disabilities Act.

Purpose and Need

The purpose of the Proposed Action is to co-locate equipment storage and training facilities at FAPH. The Proposed Action is needed because the current ECS is geographically separated from the training area at FAPH. Units supported by the ECS at Fort Pickett come from Richmond, Fort Lee, and FAPH to retrieve equipment and then travel to FAPH to conduct training exercises. After completing the training exercises, units must return the equipment to Fort Pickett. Travel time needed to retrieve and return the equipment takes away from unit training hours. In addition, the ECS at Fort is contained in World War II-era wooden buildings, which are in constant need of repair, are not energy efficient, are overcrowded, and are not properly configured for this purpose. Without construction of the ECS at FAPH, units would continue to use training hours to retrieve and return equipment, and to work in substandard and crowded facilities.

Alternatives

A key principle of NEPA is that agencies give consideration to a range of alternatives for a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be affordable, capable of implementation, and satisfactory with respect to meeting the purpose of and need for the action. The following subsections identify alternatives considered and indicates whether the alternatives are reasonable and, therefore, subject to detailed evaluation in this EA.

Alternatives Considered

The FAPH Master Planning Working Group initiated a site selection process that identified four potentially suitable sites for construction of the ECS on FAPH (FAPH, 2015). The FAPH Real Property Planning Board evaluated the four sites for the following requirements (FAPH, 2015):

- Must be at least 35 acres
- Could be non-contiguous, or split, as long as the two areas are close to each other
- Must already have utilities in the vicinity
- Must be centrally located on FAPH
- Must not conflict with existing or planned surrounding land uses at FAPH
- Must include topographic characteristics that preclude excessive site preparation costs
- Must be outside the 500-year floodplain
- Must be environmentally clean

Descriptions of the sites that were considered and those that were dismissed from further consideration are provided below:

- Alternative 1 – Construct the ECS at Site 1, northwest of the intersection of Shackleford Road and A.P. Hill Drive.
- Alternative 2 – Construct the ECS at Site 2, at the intersection of Custer Trail and Taliaferro Trail on the far eastern side of FAPH.
- Alternative 3 – Construct the ECS at Site 3, on Early Drive.
- Alternative 4 – Construct the ECS at Site 4, between Wilcox Drive and Peuman Road.

- Alternative 5 – Continue to operate the ECS out of Fort Pickett.

Alternatives Considered But Eliminated from Further Consideration

Alternative 2 was eliminated from further consideration because wastewater and water utilities are not in the vicinity and because it is not centrally located on FAPH (FAPH, 2015).

Alternative 3 was eliminated from further consideration because it conflicts with existing surrounding land uses at FAPH (FAPH, 2015). Site 3 is near a drop zone. Lighting at the ECS facility would negatively impact the nearby night-vision training mission.

Alternative 4 was eliminated from further consideration because it conflicts with planned surrounding land uses at FAPH (construction of the ECS facility would limit the future expansion of the existing Wilcox training area), it could require the relocation of another planned development, and it is not centrally located on FAPH (FAPH, 2015).

Alternatives Considered in Detail

Alternative 1 (Preferred Alternative)

Under Alternative 1, referred to as the Preferred Alternative, the USAR would construct and operate the new ECS on Site 1, approximately 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive. Site 1 is wooded with a tank trail, the Tator Trail, bisecting the parcel on a north/south line, and a concrete-vaulted latrine along the tank trail. The concrete latrine building would be demolished as part of the Preferred Alternative. No other structures are present on Site 1. The entrance to the proposed ECS would be from Shackleford Road. Stormwater management features would be constructed on Site 1. Lighting would meet the FAPH dark skies technologies' requirements to prevent light pollution at night. The procedures in the FAPH Environmental Handbook, which outlines personnel responsibilities, policies and procedures, and guidance for managing environmental resources at FAPH, will be followed during construction and operation of the proposed ECS.

Alternative 5 (No Action Alternative)

Under Alternative 5, referred to as the No Action Alternative, new facilities would not be constructed. If the No Action Alternative was implemented, the USAR would continue to provide inadequate facilities to train the USAR units, and training hours would continue to be wasted retrieving and returning military equipment to and from Fort Pickett. This would negatively affect training and operations, resulting in a reduced ability to achieve the USAR mission, which could compromise readiness and security. As a result, the No Action Alternative does not fulfill the Proposed Action's purpose and need. It is included in this analysis as a baseline against which the impacts of the other alternatives can be compared.

Potential Environmental Impacts

This EA contains a comprehensive evaluation of the existing conditions and environmental consequences of implementing the Preferred Alternative and the No Action Alternative, as required by NEPA. Based on the analyses presented in the EA, implementing the Preferred Alternative is anticipated to result in direct and/or indirect impacts to environmental resources, including land use, soils, topography, surface water and groundwater resources, air quality, vegetation, wildlife, noise, visual resources, utilities; hazardous substances, and socioeconomics. However, effects to these resources are expected to be insignificant. No direct impacts would occur under the No Action Alternative.

There would be negligible or no impacts to land use, geology, farmland soils, floodplains, federally listed threatened or endangered species and critical habitat, state-listed threatened or endangered species, cultural resources, environmental justice, and protection of children. The Preferred Alternative would not contribute significantly to the cumulative effects on the surrounding resources.

Best Management Practices

The following best management practices would be implemented under the Preferred Alternative:

- The procedures in the FAPH Environmental Handbook, which outlines personnel responsibilities, policies and procedures, and guidance for managing environmental resources at FAPH, will be followed during construction and operation of the proposed ECS.
- Erosion and sediment controls and stormwater management facilities will be installed in accordance with the Virginia Department of Environmental Quality's approved erosion and sediment control plan, stormwater management plan, and the stormwater pollution prevention plan.
- Vegetation would not be cleared during the migratory bird nesting season (April 15 through July 1) without conducting a preconstruction survey to determine whether nesting birds are present. If nesting migratory birds are found during the preconstruction survey, then those areas of Site 1 containing nesting birds would not be disturbed or cleared until the young have naturally vacated the nest. Through coordination with the U.S. Fish and Wildlife Service, a buffer would be established around each nest to minimize potential for nest abandonment resulting from nearby construction activity. Areas within this buffer would not be cleared.
- Contractors would maintain construction equipment in accordance with manufacturers' specifications to keep unnecessary noise impacts to a minimum.
- Maintenance and refueling of construction equipment would likely occur onsite and a spill prevention, control, and countermeasures plan would be in place, per FAPH Regulation 200-2.
- Dust control measures would be in place during construction. These control measures could include the application of water to areas of bare soil to reduce dust and particles in the air.
- The site design would incorporate Energy Independence and Security Act Section 438 stormwater compliance and Leadership in Energy and Environmental Design site development and stormwater requirements. Strategies may include green infrastructure and low-impact development practices.
- An erosion and sediment control plan, stormwater management plan, and a stormwater pollution prevention plan would be prepared in accordance with the Virginia Department of Environmental Quality regulations. The appropriate stormwater permits would be obtained.

Public Review and Comment

The EA and draft FNSI were made available to the public for comment for a period of 30 days. The EA and draft FNSI were available at the Caroline County Public Library, Bowling Green Branch, 17202 Richmond Turnpike, Milford, Virginia, 22514; the Caroline County Public Library, Port Royal Branch, 419 King Street, Port Royal, Virginia, 22535; and on the Internet at http://www.aphill.army.mil/ea.asp. The public notice was published in the *Caroline Progress* and the *Freelance Star* newspapers. Comments were received from the U.S. Army Corps of Engineers, Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation, Virginia Department of Game and Inland Fisheries, and the Virginia Department of Health. Comments received did not warrant changes to the EA. No comments from the public were received.

NEPA Determination

Based on the findings of the EA, there would be no significant impact resulting from the Preferred Alternative. This FNSI was prepared to accompany the EA, which concludes that preparation of an environmental impact statement is not required for this Proposed Action.

Signature

Approved by:

1 March 2017

Jeffrey M. Hrzic — Date
Chief, Environmental Division
99th Regional Support Command, DPW
U.S. Army Reserve

Approved by:

5 MAR 17

Andrew R. Jordan — Date
Lieutenant Colonel, Fort A.P. Hill
U.S. Army

F I N A L

Environmental Assessment
Equipment Concentration Site
U.S. Army Reserve
Fort A.P. Hill, Virginia

Prepared for

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February 2017

ENVIRONMENTAL ASSESSMENT
U.S. ARMY RESERVE
PROPOSED MILITARY CONSTRUCTION PROJECT
FORT A.P. HILL, CAROLINE COUNTY, VIRGINIA
SIGNATURE SHEET

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Acronyms and Abbreviations

BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	*Code of Federal Regulations*
CH4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
EA	environmental assessment
ECP	environmental condition of property
ECS	equipment concentration site
EPA	U.S. Environmental Protection Agency
ESCP	erosion and sediment control plan
FAPH	Fort A.P. Hill
FEMA	Federal Emergency Management Agency
FNSI	finding of no significant impact
GHG	greenhouse gas
HAP	hazardous air pollutant
LEED	Leadership in Energy and Environmental Design
MBTA	Migratory Bird Treaty Act
N/A	not applicable
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSR	New Source Review
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
PSD	prevention of significant deterioration
RSC	Regional Support Command

SO_2	sulfur dioxide
TEMF	tactical equipment maintenance facility
VDEQ	Virginia Department of Environmental Quality
USACE	U.S. Army Corps of Engineers
USAR	U.S. Army Reserve
VOC	volatile organic compound

Executive Summary

This environmental assessment (EA) was prepared for Fort A.P. Hill (FAPH) Directorate of Public Works, the U.S. Army Reserve (USAR) 99th Regional Support Command (RSC), Army Reserve Installation Management Directorate, and U.S. Army Corps of Engineers (USACE) to evaluate the potential environmental consequences of construction and operation of a new equipment concentration site (ECS) at FAPH, Virginia. This EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), Section 102(2)(C); the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA; *Code of Federal Regulations* (CFR) Title 40 Parts 1500 through 1508 (CEQ, 1978); and Environmental Analysis of Army Actions, 32 CFR Part 651. The purpose of an EA is to determine if a proposed action would result in significant impacts to the environment.

Background

The USAR's mission is to provide trained, equipped, and ready Soldiers, Leaders, and Units to meet America's requirements at home and abroad. The 99th RSC has an ECS at Fort Pickett, Virginia. Units that use the Fort Pickett ECS currently come from Richmond, Fort Lee, and FAPH to retrieve military equipment from the ECS and then must travel to FAPH, approximately 40 miles, to conduct training exercises. At the completion of the training exercises, units must return the military equipment to the Fort Pickett ECS. Travel hours needed to retrieve and return the equipment takes away from unit training hours. In addition, the ECS facilities at Fort Pickett are in World War II-era wooden buildings, which are in constant need of repair, are not energy efficient, are overcrowded, and are not properly configured for this purpose. Therefore, the USAR 99th RSC proposes to construct a new ECS at FAPH to reduce travel time and to provide up-to-date and adequate facilities.

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Descriptions of the sites that were considered and those that were dismissed from further consideration are provided below:

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Alternatives Considered in Detail

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Under Alternative 1, referred to as the Preferred Alternative, the USAR would construct and operate the new ECS on Site 1, approximately 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive (Figure 2-1 and Figure 2-2). Site 1 is wooded with a tank trail, the Tator Trail, bisecting the parcel on a north/south line, and a concrete vaulted latrine along the tank trail. The concrete latrine building would be demolished as part of the Preferred Alternative. No other structures are present on Site 1. The entrance to the proposed ECS would be from Shackleford Road. Stormwater management features would be constructed on Site 1. Lighting would meet the FAPH dark skies technologies requirements to prevent light pollution at night. The procedures in the FAPH Environmental Handbook, which outlines personnel responsibilities, policies and procedures, and guidance for managing environmental resources at FAPH, will be followed during construction and operation of the proposed ECS.

Alternative 5 (No Action Alternative)

Under Alternative 5, referred to as the No Action Alternative, new facilities would not be constructed. If the No Action Alternative was implemented, the USAR would continue to provide inadequate facilities to train the USAR units, and training hours would continue to be wasted retrieving and returning military equipment to and from Fort Pickett. This would negatively affect training and operations, resulting in a reduced ability to achieve the USAR mission, which could compromise readiness and security. As a result, the No Action Alternative does not fulfill the Proposed Action's purpose and need. It is included in this analysis as a baseline against which the impacts of the other alternatives can be compared.

Summary of Environmental Consequences and Best Management Practices

This EA contains a comprehensive evaluation of the existing conditions and environmental consequences of implementing the Preferred Alternative and the No Action Alternative, as required by NEPA. Table ES-1 summarizes the impacts of the Preferred Alternative and No Action Alternative. An explanation of the impact terminology used in Table ES-1 is provided in Section 3.

Table ES-1. Summary of Environmental Impacts for the Preferred Alternative and the No Action Alternative

Impact Category	Preferred Alternative Degree of Impact			No Action Alternative Degree of Impact			EA Section Where Details are Discussed
	Significant[a]	Insignificant[b]	No Impact	Significant[a]	Insignificant[b]	No Impact	
Land Use			X			X	Section 3.2.1
Geology			X			X	Section 3.2.2
Farmland Soils			X			X	Section 3.2.3
Floodplains			X			X	Section 3.2.4
Federally Listed Threatened and Endangered Species			X			X	Section 3.2.5
State-Listed Threatened and Endangered Species			X			X	Section 3.2.6
Cultural Resources			X			X	Section 3.2.7
Noise		X[c]				X	Section 3.2.8
Visual Resources		X				X	Section 3.2.9
Socioeconomics		X				X	Section 3.2.10
Environmental Justice			X			X	Section 3.2.11
Protection of Children			X			X	Section 3.2.12
Soils and Topography		X[c]				X	Section 3.3.1
Surface Water and Groundwater Resources		X[c]				X	Section 3.3.2
Biological Resources		X[c]				X	Section 3.3.3
Air Quality		X			X		Section 3.3.4
Utilities		X				X	Section 3.3.5
Hazardous Substances		X[c]				X	Section 3.3.6
Transportation and Traffic		X			X		Section 3.3.7

[a] Significant – Action results in impacts that exceed the threshold levels described in detail for each resource in Section 3.3.

[b] Insignificant – Action results in impacts that do not exceed threshold levels described in detail for each resource in Section 3.3.

[c] Insignificant with mitigation/conservation measures as described in the list that follows.

The following best management practices would be implemented under the Preferred Alternative.

- The procedures in the FAPH Environmental Handbook, which outlines personnel responsibilities, policies and procedures, and guidance for managing environmental resources at FAPH, will be followed during construction and operation of the proposed ECS.

- Erosion and sediment controls and stormwater management facilities will be installed in accordance with the Virginia Department of Environmental Quality's (VDEQ) approved erosion and sediment control plan (ESCP), stormwater management plan, and the stormwater pollution prevention plan.
- Vegetation would not be cleared during the migratory bird nesting season (April 15 through July 1) without conducting a preconstruction survey to determine whether nesting birds are present. If nesting migratory birds are found during the preconstruction survey, then those areas of Site 1 containing nesting birds would not be disturbed or cleared until the young have naturally vacated the nest. Through coordination with the U.S. Fish and Wildlife Service, a buffer would be established around each nest to minimize potential for nest abandonment resulting from nearby construction activity. Areas within this buffer would not be cleared.
- Contractors would maintain construction equipment in accordance with manufacturers' specifications to keep unnecessary noise impacts to a minimum.
- Maintenance and refueling of construction equipment would likely occur onsite and a spill prevention, control, and countermeasures plan would be in place, per FAPH Regulation 200-2.
- Dust control measures would be in place during construction. These control measures could include the application of water to areas of bare soil to reduce dust and particles in the air.
- The site design would incorporate Energy Independence and Security Act Section 438 stormwater compliance and Leadership in Energy and Environmental Design site development and stormwater requirements. Strategies may include green infrastructure and low-impact development practices.
- An ESCP, stormwater management plan, and a stormwater pollution prevention plan would be prepared in accordance with the VDEQ regulations. The appropriate stormwater permits would be obtained.

Public Involvement

The NEPA process is designed to inform the public of the potential environmental consequences of the Proposed Action and involve them in the federal decision-making process. The USAR recognizes public involvement, and intergovernmental coordination and consultation as essential elements in developing an EA. Formal notification and opportunities for public participation, as well as informal coordination with government agencies and planners, are incorporated into the EA process.

Agencies, organizations, and members of the public having a potential interest in the Proposed Action were invited to participate in the decision-making process. Early coordination was conducted with multiple agencies and groups.

The early coordination letters, as well as the responses received, are provided in Appendix A. Comments received during the scoping period were considered in the development of this EA.

The EA and draft finding of no significant impact (FNSI) were made available to the public for a 30-day comment period. The EA and draft FNSI were available at the Caroline County Public Library, Bowling Green Branch, 17202 Richmond Turnpike, Milford, Virginia, 22514; the Caroline County Public Library, Port Royal Branch, 419 King Street, Port Royal, Virginia, 22535; and on the Internet at http://www.aphill.army.mil/ea.asp. The public notice was published in the *Caroline Progress* and the *Freelance Star* newspapers. A copy of the affidavit of printing is provided in Appendix B.

Comments were received from the USACE, VDEQ, Virginia Department of Conservation and Recreation, Virginia Department of Game and Inland Fisheries, and the Virginia Department of Health. Comments received did not warrant changes to the EA. No comments from the public were received. FAPH and the USAR 99th RSC will sign the FNSI and proceed with implementing the Preferred Alternative.

Conclusions/Recommendation

Based on the findings of this environmental assessment, there would be no significant impact on environmental resources, resulting from the Preferred Alternative. A finding of no significant impact has been prepared to accompany this environmental assessment, which concludes that preparation of an environmental impact statement is not required for this Proposed Action.

SECTION 1

Introduction

This Environmental Assessment (EA) was prepared for Fort A.P. Hill (FAPH) Directorate of Public Works, the U.S. Army Reserve (USAR) 99th Regional Support Command (RSC), Army Reserve Installation Management Directorate, and U.S. Army Corps of Engineers (USACE) to evaluate the potential environmental consequences of construction and operation of a new Equipment Concentration Site (ECS) at FAPH, Virginia. This EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), Section 102(2)(C); the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA; *Code of Federal Regulations* (CFR) Title 40 Parts 1500 through 1508 (CEQ, 1978); and Environmental Analysis of Army Actions, 32 CFR Part 651. The purpose of an EA is to determine if a proposed action would result in significant impacts to the environment.

1.1 Background

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1.2 Description of Proposed Action

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Additional construction activities would consist of paving, fencing, making general site improvements, and extending utilities to serve the new facilities. Some grading and leveling of land would be required on site. Disturbed areas that are not within the footprint of the proposed buildings or parking areas would be landscaped and used to meet security setback requirements. Physical security measures or antiterrorism/force protection measures would be incorporated into the design; these would include setbacks from roads, parking areas, and vehicle unloading areas. Buildings would comply with the Americans with Disabilities Act.

1.3 Purpose and Need

The purpose of the Proposed Action is to co-locate equipment storage and training facilities at FAPH. The Proposed Action is needed because the current ECS is geographically separated from the training area at FAPH. Units supported by the ECS at Fort Pickett come from Richmond, Fort Lee, and FAPH to retrieve the equipment, and then travel to FAPH to conduct training exercises. After completing the training exercises, units must return the equipment to Fort Pickett. Travel time needed to retrieve and return the equipment takes away from unit training hours. In addition, the ECS at Fort Pickett is contained in World War II-era wooden buildings, which are in constant need of repair, are not energy efficient, are overcrowded, and are not properly configured for this purpose. Without construction of the ECS at FAPH, units would continue to use training hours to retrieve and return equipment, and to work in substandard and crowded facilities.

1.4 Public Involvement

The NEPA process is designed to inform the public of the potential environmental consequences of the Proposed Action and involve them in the federal decision-making process. The USAR recognizes public involvement, and intergovernmental coordination and consultation as essential elements in developing an EA. Formal notification and opportunities for public participation, as well as informal coordination with government agencies and planners, are incorporated into the EA process.

Agencies, organizations, and members of the public having a potential interest in the Proposed Action were invited to participate in the decision-making process. The early coordination letters, as well as the responses received, are provided in Appendix A. Comments received during the scoping period were considered in the development of this EA.

The EA and draft finding of no significant impact (FNSI) were made available to the public for a 30-day comment period. The EA and draft FNSI were available at the Caroline County Public Library, Bowling Green Branch, 17202 Richmond Turnpike, Milford, Virginia, 22514; the Caroline County Public Library, Port Royal Branch, 419 King Street, Port Royal, Virginia, 22535; and on the Internet at http://www.aphill.army.mil/ea.asp. The public notice was published in the *Caroline Progress* and the *Freelance Star* newspapers. A copy of the affidavit of printing is provided in Appendix B.

Comments were received from the U.S. Army Corps of Engineers, Virginia Department of Environmental Quality (VDEQ), Virginia Department of Conservation and Recreation, Virginia Department of Game and Inland Fisheries, and the Virginia Department of Health. Comments received did not warrant changes to the EA. No comments from the public were received. FAPH and the USAR 99th RSC will sign the FNSI and proceed with implementing the Preferred Alternative.

SECTION 2

Description of the Proposed Action and Alternatives

2.1 Overview

The USAR proposes to construct and operate an ECS at FAPH, Virginia. Alternatives considered for implementing the Proposed Action are discussed in the following subsections.

2.2 Alternatives

A key principle of NEPA is that agencies give consideration to a range of alternatives to a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable ways to achieve a stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be affordable, capable of implementation, and satisfactory with respect to meeting the purpose of and need for the action. The following subsections identify alternatives considered and indicate whether the alternatives are reasonable and, therefore, subject to detailed evaluation in this EA.

2.2.1 Alternatives Considered

The FAPH Master Planning Working Group initiated a site selection process that identified four potentially suitable sites for construction of the ECS on FAPH (FAPH, 2015). The FAPH Real Property Planning Board evaluated the four sites for the following requirements (FAPH, 2015):

- Must be at least 35 acres
- Could be non-contiguous, or split, as long as the two areas are close to each other
- Must already have utilities in the vicinity
- Must be centrally located on FAPH
- Must not conflict with existing or planned surrounding land uses at FAPH
- Must include topographic characteristics that preclude excessive site preparation costs
- Must be outside the 500-year floodplain
- Must be environmentally clean

Descriptions of the sites that were considered and those that were dismissed from further consideration are provided below:

- Alternative 1 – Construct the ECS at Site 1, northwest of the intersection of Shackleford Road and A.P. Hill Drive.
- Alternative 2 – Construct the ECS at Site 2, at the intersection of Custer Trail and Taliaferro Trail on the far eastern side of FAPH.
- Alternative 3 – Construct the ECS at Site 3, on Early Drive.
- Alternative 4 – Construct the ECS at Site 4, between Wilcox Drive and Peuman Road.
- Alternative 5 – Continue to operate the ECS out of Fort Pickett.

2.2.2 Alternatives Considered but Eliminated from Further Consideration

- Alternative 2 was eliminated from further consideration because wastewater and water utilities are not in the vicinity and because it is not centrally located on FAPH (FAPH, 2015).
- Alternative 3 was eliminated from further consideration because it conflicts with existing surrounding land uses at FAPH (FAPH, 2015). Site 3 is near a drop zone. Lighting at the ECS facility would negatively impact the nearby night-vision training mission.
- Alternative 4 was eliminated from further consideration because it conflicts with planned surrounding land uses at FAPH (construction of the ECS facility would limit the future expansion of the existing Wilcox training area), it could require the relocation of another planned development, and it would have limited accessibility on FAPH (FAPH, 2015).

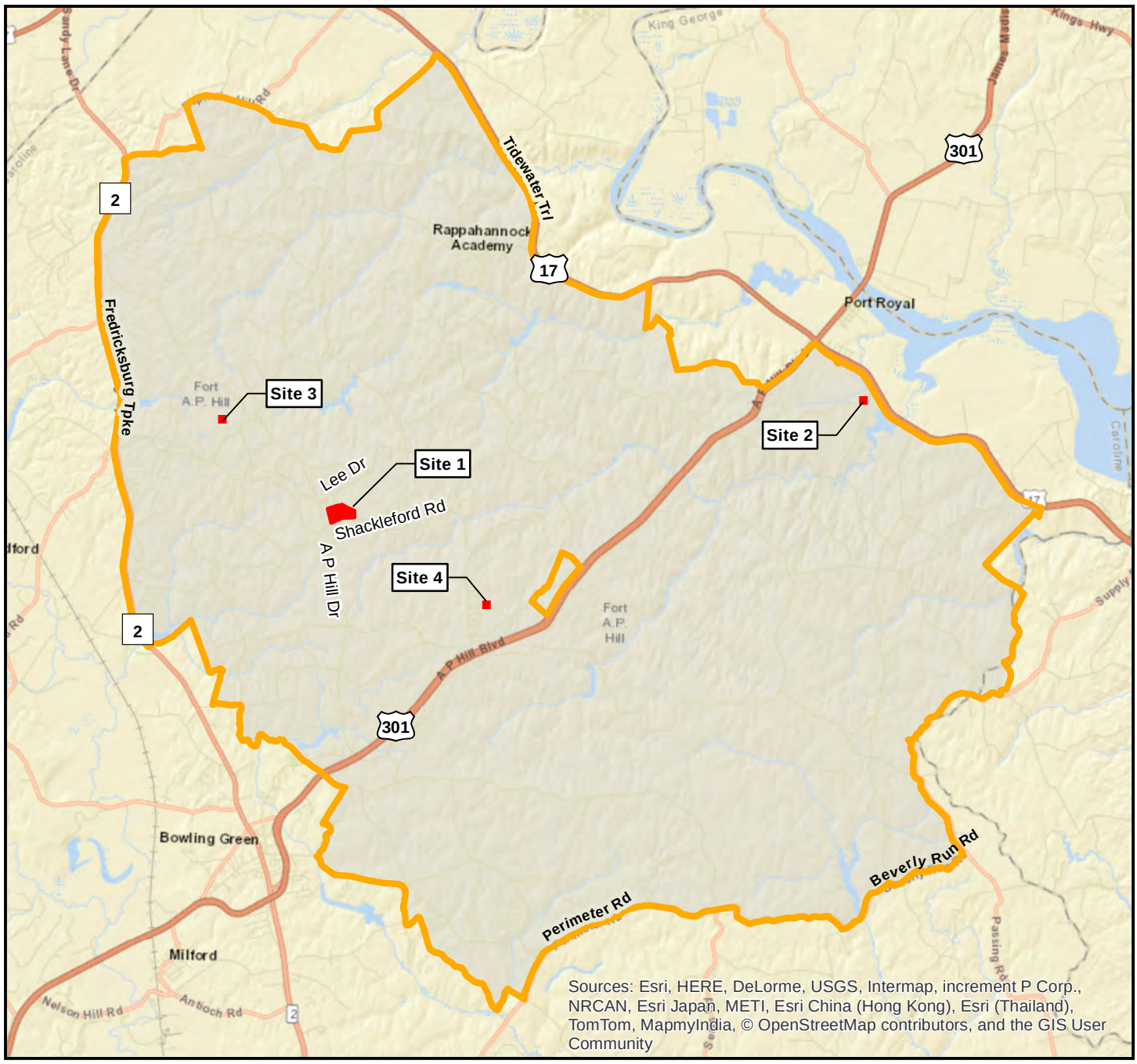
2.2.3 Alternatives Considered in Detail

2.2.3.1 Alternative 1 (Preferred Alternative)

Under the Preferred Alternative, the USAR would construct and operate the new ECS on Site 1, approximately 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive (Figure 2-1 and Figure 2-2). Site 1 is wooded with a tank trail, the Tator Trail, bisecting the parcel on a north/south line, and a concrete vaulted latrine along the tank trail. The concrete latrine building would be demolished as part of the Preferred Alternative. No other structures are present on Site 1. The entrance to the proposed ECS would be from Shackleford Road. Stormwater management features would be constructed on Site 1. Lighting would meet the FAPH dark skies technologies requirements to prevent light pollution at night. The procedures in the FAPH Environmental Handbook, which outlines personnel responsibilities, policies and procedures, and guidance for managing environmental resources at FAPH, will be followed during construction and operation of the proposed ECS.

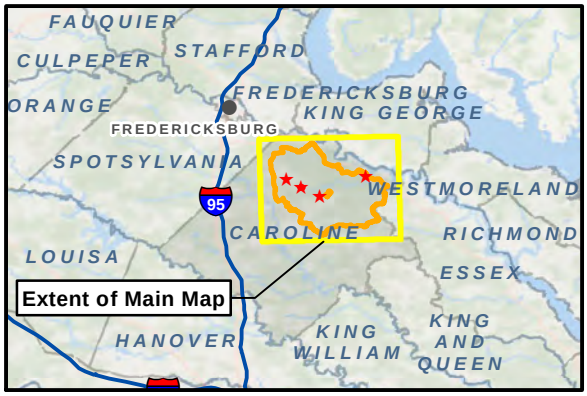
2.2.3.2 Alternative 5 (No Action Alternative)

Under the No Action Alternative, new facilities would not be constructed. If the No Action Alternative was implemented, the USAR would continue to provide inadequate facilities to train the USAR units, and training hours would continue to be wasted retrieving and returning military equipment to and from Fort Pickett. This would negatively affect training and operations, resulting in a reduced ability to achieve the USAR mission, which could compromise readiness and security. As a result, the No Action Alternative does not fulfill the Proposed Action's purpose and need. It is included in this analysis as a baseline against which the impacts of the other alternatives can be compared.



Legend

- Fort A. P. Hill Boundary
- Site Locations



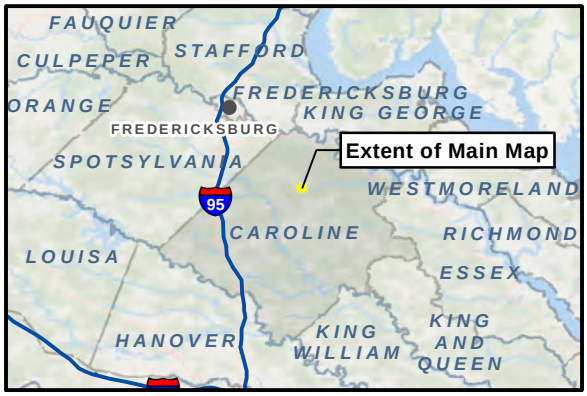
N

0 1 2 3 4 5 Miles

Figure 2-1
Proposed Project Locations
Fort A.P. Hill, Virginia

Legend

Site 1 Location



N

0 250 500 750 1,000 Feet

Figure 2-2
Proposed Site 1 Location
Fort A.P. Hill, Virginia

SECTION 3

Existing Environment, Environmental Consequences, and Mitigation

Information gathered from site visits, interviews, existing documentation, and correspondence with federal, state, and local agencies, and adjacent property owners was used to characterize the existing environment. This section identifies the potential environmental consequences of the Preferred Alternative and the No Action Alternative on land use, geology, soils and topography, water resources, air quality, natural and biological resources, cultural resources, noise levels, visual resources, transportation and traffic, utility infrastructure, hazardous materials, public services, socioeconomics, and environmental justice.

Three categories of potential environmental consequences (impacts or effects) were evaluated: direct, indirect, and cumulative. A direct impact is the result of the Proposed Action and occurs at the same time and place. Indirect impacts are caused by the Proposed Action and "are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR Part 1508). Cumulative effects are the results of incremental impacts of the Proposed Action, when added to other past, present, and reasonably foreseeable future actions, regardless of which agency, person, or private entity undertakes such actions.

In the following sections, the duration of each impact is described either as short term, such as construction-related impacts, or long term, such as impacts related to the operation of the proposed ECS. Types of impacts can be beneficial or adverse. Beneficial impacts improve the resource/issue analyzed. Adverse impacts negatively affect the resource/issue analyzed. The intensity of a potential impact refers to its severity and takes into account: the level of controversy associated with impacts on human health or the environment; whether the action establishes a precedent for further actions with significant effects to human health or the environment; the level of uncertainty about projected impacts; and the extent to which the action threatens to violate federal, state, or local environmental protection laws or constrain future activities. Potential beneficial impacts are discussed separately from potential adverse impacts. The thresholds of change for the intensity of impacts are defined as follows:

- Negligible: When the impact is localized and not measureable at the lowest level of detection
- Minor: When the impact is localized and slight, but detectable
- Moderate: When the impact is readily apparent and appreciable
- Major: When the impact is severely or significantly disruptive to current conditions

Intensities that are classified as negligible, minor, or moderate are considered to be insignificant impacts in this analysis. Significant impacts are those categorized as "major." Measures that would be implemented to avoid or minimize potential impacts to the environment, including those that would otherwise be significant, are also presented.

3.1 Cumulative Effects

This section presents the recent, present, and foreseeable future projects that were considered during the assessment of cumulative effects of each alternative. Cumulative effects can result from individually insignificant, but potentially collectively significant, actions taking place over a period of time. Among the principles of cumulative effects analysis discussed in CEQ's guide *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ, 1997), is the statement: "…for cumulative effects

analysis to help the decision maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully."

The potential for cumulative effects to the environment from the Preferred Alternative were evaluated by reviewing historical aerial photos to identify recent projects, and reviewing ongoing and planned projects in the vicinity of Site 1 that could affect the same environmental resources as the Preferred Alternative. Projects considered included construction projects that are underway or are programmed to occur in the near future. A review of Google Earth aerial images between 2009 and 2015 indicated that a facility was constructed approximately 1 mile east of Site 1 along Lee Drive between 2009 and 2011 (Google Earth, 2016).

Several forestry projects have been completed or are planned in the vicinity of Site 1 (Brown, 2016b, pers. comm.). Approximately 310 acres of woods will be thinned or cleared in several sections of woods around Site 1 (Brown, 2016b, pers. comm.). In the spring of 2016, prescribed burns were completed in areas north and west of Site 1. There are no additional planned burns in 2016 in the immediate vicinity of Site 1 (Brown, 2016b, pers. comm.).

3.2 Resources Eliminated from Further Consideration

Analyses of environmental impacts in an EA typically address numerous resource areas that may be affected by implementing the proposed action. The following resources were examined and determined not to warrant further consideration because of their lack of relevance to the alternatives. This section describes the resources that were not considered further and provides the rationale for this determination.

3.2.1 Land Use

Site 1 is on FAPH. It is currently used for military maneuvers and training. After construction of the ECS, Site 1 will be used to support military land uses, including maneuvers and training. Therefore, implementation of the Preferred Alternative would not result in adverse impacts to land use at FAPH. This resource is not considered further.

3.2.2 Geology

Construction and operation of the ECS at Site 1 would not substantially alter or damage a unique or recognized geologic feature; adversely affect geologic conditions or processes; or expose people or property to geologic hazards that could result in injury or loss of use. Therefore, there will be no impacts on geology and it is not considered further in this EA.

3.2.3 Farmland Soils

The Farmland Protection Policy Act of 1990 requires federal agencies to identify and take into account the adverse effects of their actions on the preservation of farmland. There would be no impacts to farmland soils under the Preferred Alternative because Site 1 is on FAPH which is designated as a military installation. Therefore, a Farmland Conversion Impact Rating Form (AD-1006 Form) is not required and the soils need not be given further consideration for protection under the Farmland Protection Policy Act of 1990. Farmland soils are not considered further in this EA.

3.2.4 Floodplains

Federal actions in floodplains are regulated by EO 11988, *Floodplain Management*, and EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, which define the floodplain as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands." According to EA

13690, the floodplain shall be established using several methods including the "area of flooding by the 0.2 percent annual chance flood," also considered the 500-year floodplain. A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map numbers 51033C0250C and 51033C0100C indicated that Site 1 is not within a 500-year floodplain (FEMA, 2009a, 2009b). Therefore, there would be no impacts on floodplains and they are not considered further in this EA.

3.2.5 Federally Listed Threatened or Endangered Species

Four federally listed species and one candidate species could occur on Site 1 based on known occurrences of these species elsewhere on FAPH (FAPH, 2016; USFWS, 2016). Table 3-1 presents a list of these species.

Table 3-1. Federally Listed and Candidate Plants and Animals that Could Occur on Site 1

Scientific Name	Common Name	Federal Status
Helonias bullata	Swamp pink	Threatened
Isotria medeoloides	Small whorled pogonia	Threatened
Myotis sodalis	Indiana bat	Endangered
Myotis septentrionalis	Northern long-eared bat	Threatened
Stygobromus kenki	Kenk's amphipod	Candidate

CH2M conducted field surveys on Site 1 on June 1, 2016, to determine the presence or absence of federally listed plants that could occur. Field surveys for plants were conducted within Site 1 and in the areas immediately surrounding Site 1. Habitat for the swamp pink was not present on Site 1. Swamp pink is known to occur in the vicinity of the site. The distance between the offsite swamp pink plants and established riparian buffers and the location of Site 1 would prevent the Preferred Alternative from impacting the offsite swamp pink. Habitat for the small whorled pogonia was present on Site 1. These two plants species were not observed within or adjacent to Site 1 (CH2M, 2016a). A presence/probably absence survey for Indiana bats and northern long-eared bats on June 9 and 10, 2016. Negative results of the acoustic survey suggest that Indiana and northern long-eared bats are not likely using the project area during the summer months (Copperhead, 2016). Kenk's amphipod is a groundwater-dwelling amphipod that surfaces in seeps when groundwater rises and discharges. There are no groundwater seeps or wetlands within Site 1 and groundwater and wetlands would not be impacted by the Preferred Alternative. There are no known federally listed threatened or endangered plants or animals on Site 1. Therefore, these resources are not considered further in this EA.

3.2.6 State-listed Threatened Species

Two state-listed plant species could occur on Site 1 based on known occurrences of these species elsewhere on FAPH. Table 3-2 presents a list of these species.

Table 3-2. State-listed Plants and Animals that Could Occur on Site 1

Scientific Name	Common Name	State Status
Juncus caesariensis	New Jersey rush	Threatened
Panax quinquefolius	Ginseng	Threatened
Myotis lucifugus	Little Brown Bat	Endangered
Perimyotis subflavus	Tri-colored Bat	Endangered

CH2M conducted field surveys on Site 1 on June 1, 2016, to determine the presence or absence of the two state-listed plants that could occur. Habitat for the New Jersey rush was not present on Site 1. Habitat for the ginseng was present on Site 1. These two plant species were not observed within or adjacent to Site 1 (CH2M, 2016a). There are no known state-listed plant species on Site 1. Little-brown bats were not detected on Site 1 during acoustic surveys conducted on June 9 and 10, 2016. Tri-colored bats were detected on Site 1 during acoustic surveys conducted on June 9 and 10, 2016. State conservation measures apply to known maternity roost trees and winter hibernacula, which do not occur on Site 1. Therefore, the Preferred Alternative is unlikely to impact tri-colored bats. So, this resource is not considered further in this EA.

3.2.7 Cultural Resources

A cultural resources survey for Site 1 was conducted in May of 2016 (Gray and Pape, 2016). The survey consisted of a systematic walkover and shovel testing. Site 1 has experienced significant ground disturbance from mid- to late-twentieth century military training activities. Neither the walkover nor the shovel testing resulted in documentation of archaeological resources. The 2016 cultural resources survey did not identify any aboveground architectural or historical resources on Site 1. No further work is recommended for Site 1. Therefore, this resource is not considered further in this EA.

3.2.8 Noise

There are no noise-sensitive receptors in the vicinity of Site 1. The nearest noise-sensitive receptors are military residences located on FAPH, approximately 2.7 miles south of Site 1. Therefore, there would be no impacts to noise-sensitive receptors, and this resource is not considered further in this EA.

3.2.9 Visual Resources

Site 1 is a wooded parcel, consisting of a pine-oak forest. Views from the parcel include woods to the north and the east; Shackleford Road and woods to the south; woods, a pond, and A.P. Hill Drive to the west; and a small facility to the northwest. After construction, views from Shackleford Road to the north would change from woods to a developed area. This change would not be significant because the remainder of the ECS would be surrounded by woods and the new development would be consistent with the installation development plan and the appearance of other installation buildings. Views from outside FAPH would not change. Therefore, this resource is not considered further in this EA.

3.2.10 Socioeconomics

Implementation of the Preferred Alternative would have minor, short-term, direct, beneficial impacts to socioeconomics during construction of the ECS. Impacts would be minor because the economic benefit of the construction jobs are small in relation to the economic activity in the area around FAPH. The majority of the civilian employees who will be supporting the ECS already live in the area and the units that the ECS supports are already training at FAPH. No new permanent jobs would be created. Therefore; this resource is not considered further in this EA.

3.2.11 Environmental Justice

Implementation of the Preferred Alternative would not result in disproportionately adverse impacts on environmental justice populations because implementation of the Preferred Alternative would not result in housing relocations, changes in employment opportunities, significant health or safety hazards, significant increase in air emissions, significant noise impacts, or a significant increase in traffic. These potential impacts are discussed in more detail in Sections 3.3.4 (Air Quality), 3.3.6 (Hazardous Materials), 3.2.8 (Noise), and 3.3.7 (Transportation and Traffic). Therefore, the Preferred Alternative would result in no impacts to minority and low-income populations. This resource is not considered further in this EA.

3.2.12 Protection of Children

Implementation of the Preferred Alternative would not result in environmental health or safety risks that may affect children. There would be no families or resident populations living at the ECS; therefore, no dependent children under the age of 18 would reside onsite. Access to construction areas would be controlled, thereby limiting unauthorized access by any person, including children. Therefore, this resource is not considered further in this EA.

3.3 Resources Considered in Detail

3.3.1 Soils and Topography

3.3.1.1 Definition of Resource

Soils are the unconsolidated surface materials that form from underlying bedrock or other parent material. Topography refers to an area's surface features, including its shape, height, and depth.

3.3.1.2 Existing Conditions

Soils. There are two soil types identified on Site 1. Most of Site 1 (98 percent) is covered by Kempsville-Emporia complex; a small portion along the northeastern and northwestern edges (2 percent) is covered by Slagle-Kempsville complex (NRCS, 2016). Kempsville-Emporia complex soils are formed from loamy marine deposits and are well drained. Slagle-Kempsville complex soils are also formed from loamy marine deposits and are moderately well drained (NRCS, 2016).

Topography. Site 1 has a topographic divide that runs generally north-south through the central portion of the site (XCEL, 2016). The ground slopes from this ridge gently to the northeast and east, and to the west. Elevations on Site 1 range from approximately 196 feet above mean sea level to approximately 300 feet above mean sea level (XCEL, 2016).

3.3.1.3 Environmental Consequences

Table 3-3 summarizes the impacts to soils and topography under the Preferred Alternative and the No Action Alternative. The threshold for a significant impact on soils is one that results in: (1) a substantial loss of soil, or (2) an increased potential for erosion of soils to a level where standard erosion control measures would not prevent the erosion.

The threshold for a significant impact for topography is one that results in: (1) a change to the topography that would increase potential for erosion to a level where erosion and control measures would not prevent the erosion; and/or (2) a change to the visual landscape that is inconsistent with the existing visual character of the area.

Table 3-3. Summary of Impacts – Soils and Topography

	Preferred Alternative			No Action Alternative		
Impact Category	Significant	Insignificant	No Impact	Significant	Insignificant	No Impact
Soils and Topography		X				X

Preferred Alternative. The Preferred Alternative would have minor, direct, long-term, and permanent adverse impacts to soils as a result of construction of the proposed ECS. The Preferred Alternative would

result in soil disturbance and soil compaction during site preparation and grading, construction of building footings, access points, and parking areas. Construction and ground disturbance would take place on approximately 35 of the 41 acres on Site 1. Construction of the ECS would not be expected to have significant impacts on soils because the approved ESCP will be implemented and maintained throughout the duration of the construction project.

Impacts to soil from the Preferred Alternative could have cumulative impacts when added to other recently completed, ongoing, or future development and timber projects in the area. Soils would be disturbed during timber harvesting projects; however, BMPs would be employed to prevent disturbed soils from being transported offsite through stormwater. BMPs would follow the guidelines in the *Virginia Department of Forestry's Best Management Practices for Water Quality Technical Manual* (Virginia Department of Forestry, 2011).

No Action Alternative. Implementation of the No Action Alternative would not result in a change in current conditions. Therefore, no impacts to soils would occur, and the No Action Alternative would not contribute to cumulative effects.

3.3.2 Surface Water and Groundwater Resources

3.3.2.1 Definition of Resource

Water resources include both surface water and groundwater. Surface water resources include lakes, rivers, streams, and wetlands and can be important to economic, ecological, recreational, and human health resources. Groundwater includes the subsurface hydrologic resources. Groundwater properties are often described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition. FAPH falls within the Chesapeake Bay watershed and, therefore, must comply with the Chesapeake Bay Act.

The USACE and the U.S. Environmental Protection Agency (EPA) define wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are identified and evaluated by three parameters: vegetation, soils, and hydrology. Wetlands generally include marshes, bogs, and similar areas” (33 CFR 328.3[b]). USACE regulates wetlands under Section 404 of the Clean Water Act. In addition, the Department of the Army is directed under EO 11990, *Protection of Wetlands*, to minimize the destruction, loss, and degradation of wetland environments. EO 11990 also directs the preservation and enhancement of the natural and beneficial values of the wetland environments.

3.3.2.2 Existing Conditions

Surface Water. Caroline County is in Virginia’s Coastal Zone Management Area (VDEQ, 2016). Site 1 is within the Lower Rappahannock River Watershed (Hydrologic Unit Code 02080104; FAPH, 2016). CH2M conducted a wetland delineation on Site 1 on May 23 and 24, 2016. No surface waters or wetlands were identified on Site 1 (CH2M, 2016b). Site 1 is on the topographic divide between the Mill Creek watershed and the Turkey Track Creek watershed. Forested/shrub wetlands associated with a tributary to Mill Creek were identified to the east of Site 1. Also, a pond and emergent wetlands associated with a tributary to Turkey Track Creek were identified to the west of Site 1 during the wetland delineation. Portions of Mill Creek are listed as impaired for the aquatic life use because pH values were not in the recommended range; portions of the creek are impaired for recreational use because of the presence of E. coli bacteria (FAPH, 2016).

Groundwater. Under natural, undisturbed conditions, shallow groundwater flow generally follows the topography of the land surface. On this basis, the topography suggests that groundwater movement across the western portions of Site 1 is toward the pond located along the western boundary, while groundwater flow in the eastern portions of Site 1 is expected to flow east and northeast, in the

direction of a tributary of Mill Creek (XCEL, 2016). Groundwater flow is affected by seasonal variations, nearby pumping wells, and/or other hydrologic influences; therefore, the presumed flow may not coincide with the actual in the subject area. Shallow groundwater at Site 1 is expected to be encountered at approximately 5 to 20 feet below ground surface (XCEL, 2016).

3.3.2.3 Environmental Consequences

Table 3-4 summarizes the impacts to surface water and groundwater resources under the Preferred Alternative and the No Action Alternative. The threshold level of significance for surface water, including wetlands, are a violation of state water quality criteria, a violation of federal or state discharge permits, an unpermitted placement of structures or other fill material within Clean Water Act-regulated waters, or implementation of a project that is inconsistent with Virginia's coastal zone management policies.

The threshold level of significance for groundwater impacts are those that result in: a release of contamination that creates concentrations that exceed the VDEQ's standards or an increase in water demand that exceeds aquifer capacity.

Table 3-4. Summary of Impacts – Surface Water and Groundwater Resources

Impact Category	Preferred Alternative			No Action Alternative		
	Significant	Insignificant	No Impact	Significant	Insignificant	No Impact
Surface Water and Groundwater Resources		X				X

Preferred Alternative. The Preferred Alternative would not result in direct impacts to surface waters or wetlands because none are present on Site 1. The Preferred Alternative could result in short-term, minor, adverse, indirect impacts to surface water quality during construction. Impacts to surface water quality could occur when soil particles in disturbed soils are transported through stormwater to receiving waters. An ESCP and stormwater management plan would be required under the Preferred Alternative. The contractor would develop and submit the plans to VDEQ for review and approval. Once both plans are approved, VDEQ would issue a Virginia Stormwater Management Program Permit to the contractor. The contractor would implement and maintain the approved ESCP and stormwater pollution prevention plan for the duration of the project. Toward the end of the construction project's schedule, the stormwater management plan will be implemented.

The Preferred Alternative could result in long-term, minor, adverse indirect impacts to surface water quality during operation of the ECS. Impacts to surface water quality could occur because a potential increase in stormwater runoff could result from an increase in impervious surface area. These impacts would be minimal because the USAR would comply with requirements of Section 438 of the Energy Independence and Security Act of 2007 and the NPDES to limit the potential impacts from development of Site 1. Strategies to reduce stormwater runoff could include green infrastructure and low-impact development practices, such as reducing impervious surfaces; using vegetative practices; or providing porous pavements, cisterns, or green roofs. Oil-water separators would be installed in areas where vehicle maintenance or vehicle washing would occur. This facility will be included in FAPH's Integrated Discharge Prevention and Contingency Plan.

Implementation of the Preferred Alternative would result in a long-term, minor, direct, adverse impact to local groundwater supply because groundwater would be used as a drinking water supply. The proposed ECS would be connected to the existing water distribution system, which is supplied by a groundwater source. A spill prevention, control, and countermeasures plan, as noted above, would be

implemented to protect groundwater quality. However, the Preferred Alternative could result in short-term, minor, direct, adverse impacts to groundwater if shallow groundwater is encountered during demolition of the latrine and construction activities. There would be a potential to temporarily cause impacts to groundwater from the suspension of sediments during excavation activities. If groundwater comes in contact with construction equipment and is exposed to oils on the equipment, there is potential for the shallow groundwater to be impacted. Shallow groundwater depths can fluctuate throughout the year, especially during spring when snow is melting and rains are heavy. Excavations deeper than 4 feet would be avoided during these times. If groundwater were to be encountered during construction activities, then activities would stop or, as needed, the water would be pumped out of the excavation area and treated and released following the requirements of the NPDES stormwater construction permit.

The USAR has prepared a Consistency Determination under Coastal Zone Management Act section 307(c)(1) and 15 CFR Part 930, sub-part C (15 §CFR 930.39) for the Preferred Alternative (provided in Appendix C). The Preferred Alternative would result in negligible impacts to the coastal resources of Virginia. Based on the information, data, and analysis included in the Coastal Zone Management Act Consistency Determination, the USAR finds that the proposed construction and operation of the new ECS is consistent to the maximum extent practicable with the enforcement policies of the Virginia Coastal Zone Management Program (see Appendix C). The consistency determination was submitted to the VDEQ on November 8, 2016. Additional information requested by the VDEQ was submitted on November 16, 2016. Approval by VDEQ will be received prior to completing the FNSI.

Indirect impacts to surface water, and direct and indirect impacts groundwater from the Preferred Alternative could add cumulatively to similar impacts from recently completed, ongoing, or future development and timber projects in the area. Increased development would add to the potential for increased stormwater runoff and related sedimentation of surrounding surface water. Increased development would also correspondingly increase the potential for spills to affect receiving surface water and shallow groundwater. Timber harvest activities could increase potential for soils to be transported into receiving waters from stormwater; however, BMPs would be employed to prevent this from happening. BMPs would follow the guidelines in the *Virginia Department of Forestry's Best Management Practices for Water Quality Technical Manual* (Virginia Department of Forestry, 2011).

No Action Alternative. The No Action Alternative would not result in a change in current conditions. Therefore, no impacts to water resources would occur and the No Action Alternative would not contribute to cumulative effects.

3.3.3 Biological Resources

3.3.3.1 Definition of Resource

Biological resources consist of plants and animals, and their habitats. These resources provide aesthetic, recreational, and socioeconomic benefits to society. This section describes plant and animal species that occur or are likely to occur in the project area. (Federally and state-listed species are discussed in sections 3.2.5 and 3.2.6.)

Two laws are applicable to the analysis of biological resources for the project:

- The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements various treaties and conventions between the United States and Canada, Japan, Mexico, and Russia for the protection of migratory birds. Under the MBTA, taking, killing, or possessing listed birds is unlawful, unless permitted by regulation.
- The Bald and Golden Eagle Protection Act of 1940 provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds.

3.3.3.2 Existing Conditions

Vegetation. Site 1 is a homogenous mature oak/pine forest. Dominant tree species on Site 1 include southern red oak (*Quercus falcata*), blackjack oak (*Quercus marilandica*), willow oak (*Quercus phellos*), loblolly pine (*Pinus taeda*), Virginia pine (*Pinus virginiana*), and tulip tree (*Liriodendron tulipifera*). Shrubs included Japanese honeysuckle (*Lonicera japonica*), hillside blueberry (*Vaccinium pallidum*), and southern dwarf huckleberry (*Gaylussacia dumosa*). Vines included poison ivy (*Toxicodendron radicans*), common greenbriar (*Smilax rotundifolia*), whiteleaf greenbriar (*Smilax glauca*), trumpet creeper (*Campsis radicans*), and Virginia creeper (*Parthenocissus quinquefolia*).

Wildlife. Site 1 includes forested habitat that could support a variety of wildlife. Animals observed by visual identification, listening, observation of tracks and scat, mapped information, and acoustic surveys included eastern hognose snake (*Heterodon platirhinos*), eastern ratsnake (*Pantherophis alleghaniensis*), white-tailed deer (*Odocoileus virginianus*), pileated woodpecker (*Dryocopus pileatus*), fox, red bat (*Lasiurus borealis*), big brown bats (*Eptesicus fuscus*), evening bats (*Nycticeius humeralis*), turtles, frogs, lizards, and a variety of birds and insects. Site 1 provides forested areas that are suitable nesting and foraging habitat for birds regulated by the MBTA. FAPH maintains records of bald eagle nests that occur on base. None are known to occur on Site 1 and none were observed when other surveys were conducted in May and June, 2016.

3.3.3.3 Environmental Consequences

Table 3-5 summarizes the impacts to biological resources under the Preferred Alternative and the No Action Alternative. The threshold level of significance for vegetation and wildlife is defined by impacts that result in: (1) a loss or impairment of sensitive or other native habitats, including wetlands or riparian corridors, such that the loss or impairment of habitat negatively affects the regional population of a species; (2) the injury or loss of individuals negatively affects the regional population of a species; (3) the take of birds in violation of the MBTA that could result in an enforcement action against the USACE; or (4) the introduction or spread of invasive or otherwise undesirable non-native species.

Table 3-5. Summary of Impacts – Biological Resources

	Preferred Alternative			No Action Alternative		
Impact Category	**Significant**	**Insignificant**	**No Impact**	**Significant**	**Insignificant**	**No Impact**
Biological Resources		X				X

Preferred Alternative

Vegetation

The Preferred Alternative would result in minor, direct, long-term, adverse impacts to vegetation at Site 1. Approximately 35 of the 41 acres on Site 1 would be converted from wooded and grassy areas to developed and/or landscaped areas. Impacts from the loss of 41 acres of forest would not be significant when compared to the existing 65,000 acres (FAPH, 2016) of forests at FAPH, because the loss of the wooded area would not negatively affect the regional population of plant species. Noxious weeds and invasive plants would be controlled through landscape maintenance. FAPH controls pest problems through the implementation of an Integrated Pest Management Plan (FAPH, 2016).

Wildlife

The Preferred Alternative would result in minor, direct and indirect, long-term, and permanent adverse impacts to wildlife. Direct impacts could occur if wildlife were accidentally killed during construction. Indirect impacts would occur from habitat loss following conversion of approximately 35 acres of wooded and grassy areas to developed and landscaped areas.

Implementing the Preferred Alternative would not affect nesting migratory birds that are protected under the MBTA because their habitat would not be cleared during the nesting season (April 15 through July 1) (Brown, 2016a, pers. comm.) without first conducting a preconstruction survey for nesting migratory birds. If vegetation needs to be cleared during the nesting season, FAPH would conduct a preconstruction survey prior to any vegetation clearing performed during the migratory bird nesting season to determine whether nesting birds are present. If nesting migratory birds are found during the preconstruction survey, then those areas of Site 1 that contain nesting birds would not be disturbed or cleared until the young have naturally vacated the nest. Through coordination with the U.S. Fish and Wildlife Service, a buffer would be established around each nest to minimize potential for nest abandonment resulting from nearby construction activity. Areas within this buffer would not be cleared. Therefore, there would be no direct adverse impacts on migratory birds. However, the Preferred Alternative would result in minor, indirect, long-term, and permanent adverse impacts to migratory bird nesting and foraging habitat from the conversion of wooded and grassy areas to developed and landscaped areas. The landscaped areas could provide nesting and foraging habitat for certain bird species.

Implementing the Preferred Alternative could have cumulative effects to biological resources when combined with other development and timber harvest projects in the vicinity of Site 1. These impacts would be from the conversion of undeveloped land to developed land.

No Action Alternative

The No Action Alternative would not result in a change in current conditions. Therefore, no impacts to biological resources would occur and the No Action Alternative would not contribute to cumulative effects to biological resources**.**

3.3.4 Air Quality

3.3.4.1 Definition of Resource

Under the authority of the Clean Air Act (CAA), the EPA has established nationwide air quality standards to protect public health and welfare. These federal standards include National Ambient Air Quality Standards (NAAQS), which represent the maximum allowable atmospheric concentrations for six criteria pollutants: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter (which includes respirable particulate matter less than or equal to 10 micrometers in diameter, and respirable particulate matter less than or equal to 2.5 micrometers in diameter).

Under the CAA, the country is classified into attainment, nonattainment, and maintenance areas for NAAQS. Any area not meeting the NAAQS is designated as “nonattainment” for the specific pollutant or pollutants, whereas areas meeting the NAAQS are designated as “attainment”. Maintenance areas are those areas previously designated as “nonattainment” and subsequently redesignated to “attainment,” subject to development of a maintenance plan.

Under the EPA New Source Review (NSR) program, stationary sources of air pollution are required to have permits before construction of the source begins. NSR prevention of significant deterioration (PSD) approval would be required if the proposed project was either a new source, having the potential to emit 250 tons per year or more of an attainment pollutant, or an existing major source of emissions, making it a major modification in an attainment area, which would result in a net emissions increase

above specified levels. Nonattainment NSR approval would be required if the proposed project was a new stationary source or a major source, making it a major modification in a nonattainment area with potential to emit nonattainment pollutants in excess of the NSR thresholds.

The CAA General Conformity Rule (40 CFR Parts 6, 51, and 93) requires federal agencies to make written conformity determinations for federal actions in or affecting nonattainment or maintenance areas. If the emissions of a criteria pollutant (or its precursors) do not exceed the *de minimis* level, then the federal action has minimal air quality impacts. Therefore, the action is determined to conform for the pollutant under study; no further analysis is necessary.

Under the EPA Mandatory Reporting Rule, facilities that emit 25,000 metric tons or more per year of carbon dioxide equivalent (CO_2e) emissions must submit annual reports to the EPA. The CEQ final guidance establishes an annual total of 25,000 metric tons of carbon dioxide (CO_2) as a screening level for conducting a quantitative and qualitative assessment of greenhouse gas (GHG) emissions in NEPA analysis (CEQ, 2016). GHGs are compounds that may contribute to accelerated climate change by altering the thermodynamic properties of the earth's atmosphere. GHGs consist of CO_2, methane, nitrous oxide, hydrofluorocarbons, and perfluorocarbons (EPA, 2010).

3.3.4.2 Existing Conditions

Site 1 is in Caroline County, Virginia, which is an attainment area for all federal and state air quality standards (FAPH, 2016). Site 1 includes one structure (a concrete block latrine) that is not a source of air emissions. Sources of air emissions in the vicinity of Site 1 primarily consist of fuel combustion emissions from vehicle traffic on the surrounding roadways and fuel combustion emissions from stationary sources of nearby military facilities.

3.3.4.3 Environmental Consequences

Table 3-6 summarizes the impacts to air quality under the Preferred Alternative and the No Action Alternative. The threshold level of significance for air quality is defined as a violation of an ambient air quality standard or regulatory threshold.

Table 3-6. Summary of Impacts – Air Quality

	Preferred Alternative			No Action Alternative		
Impact Category	**Significant**	**Insignificant**	**No Impact**	**Significant**	**Insignificant**	**No Impact**
Air Quality		X			X	

Preferred Alternative

Potential air quality impacts associated with the Preferred Alternative were evaluated based on whether potential emissions would be localized or whether a reasonable potential exists for a violation of an ambient air quality standard or regulatory threshold.

Implementation of the Preferred Alternative would result in minor, direct, short-term, adverse impacts on overall air quality from construction of the new facility. The operation of heavy construction equipment would increase exhaust emissions and generate dust and other construction-related particles in the air during the construction phase. Emissions from construction vehicles would be minimized by requirements in the construction specifications that the contractor keep equipment properly maintained and operating. During construction, the construction contractor would implement dust-

control measures. These control measures could include the application of water to areas of bare soil to reduce dust and particles in the air.

Implementation of the Preferred Alternative would result in minor, direct, long-term, adverse impacts on overall air quality from stationary source emissions associated with operation of the proposed ECS. Operation of the proposed facilities would include emissions associated with building operations, such as heating, ventilation, and air conditioning. No other new stationary sources of emissions are anticipated from the Preferred Alternative.

Implementation of the Preferred Alternative would result in minor, direct, long-term, beneficial impacts on overall air quality from mobile source emissions associated with operation of the proposed ECS. Impacts would be beneficial because units would no longer need to drive to Fort Pickett to pick up the military equipment and then transport it to FAPH and back, reducing emissions from vehicles. In addition, compliance with the LEED Silver standard would reduce utility needs, as compared to the existing World War II era buildings being used at Fort Pickett.

Table 3-7 summarizes the projected total air emissions from the Preferred Alternative from sources associated with the action. A copy of the calculations used to develop these estimates is in Appendix D.

Table 3-7. Summary of Proposed Action Emissions*

	Projected Annual Emissions (tons per year)						
Project Activities	**SO_2**	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**VOCs**	**HAPs**
Operational Sources							
Stationary Sources	0.005	0.85	0.66	0.065	0.065	0.047	0.016
Mobile Sources	0.006	0.6	4.24	0.07	0.033	0.12	0.009
Operational Sources Total	**0.01**	**1.44**	**4.91**	**0.13**	**0.10**	**0.17**	**0.025**
Construction Sources							
Construction Sources Total	**0.013**	**7.03**	**6.11**	**0.58**	**0.46**	**0.61**	**0.21**
PSD Thresholds	250	250	250	250	250	250	25
Non-attainment NSR Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A
General Conformity *de minimis* Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Activities	**GHG Emissions (metric tons)**			
	CO_2	**CH_4**	**N_2O**	**Total CO_2e**
Operational Sources	1,242	0.023	0.002	1,243
Construction Sources	1,010	0.082	0.012	1,016
GHG Thresholds				**25,000 tons CO_2e**

Table 3-7. Summary of Proposed Action Emissions*

Project Activities	Projected Annual Emissions (tons per year)						
	SO_2	NO_x	CO	PM_{10}	$PM_{2.5}$	VOCs	HAPs

Notes:
CH_4 = methane
CO = carbon monoxide
HAP = hazardous air pollutant
N/A = not applicable
N_2O = nitrous oxide
NO_x = nitrogen oxide
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
SO_2 = sulfur dioxide
VOC = volatile organic compound

The projected emissions have been estimated using typical equipment for similar construction. Actual specifications of fuel usages, construction equipment, and vehicle mileage have been estimated based on similar projects.

Based on the estimated emissions listed in Table 3-7, the emissions from the Preferred Alternative would be well below regulatory thresholds (shown in Table 3-7). Therefore, the Preferred Alternative would not be subject to PSD or NSR requirements. Because the area is a NAAQS attainment area, the General Conformity Rule does not apply to the Preferred Alternative. Appendix D contains a General Conformity Record of Non-Applicability for the Preferred Alternative.

The Preferred Alternative would not have a significant impact on GHG emissions because the operational and construction activities proposed at Site 1 are not expected to cause direct emissions of 25,000 metric tons of CO_2e or more per year. The Preferred Alternative would result in a decrease in GHG emissions because of the reduction in vehicle trips. This decrease in emissions would result in beneficial impacts on climate change.

Implementation of the Preferred Alternative could result in cumulative effects to air quality when combined with other development, timber harvest, and prescribed burn projects in the area. These effects would not be significant because the proposed projects would not increase air pollutants to levels that exceed regulatory thresholds.

No Action Alternative

Implementation of the No Action Alternative would not result in a change in current conditions. Military vehicles would continue to need to travel between Fort Pickett and FAPH. Therefore, long-tern, minor, adverse, direct negative impacts to air quality would continue. The No Action Alternative would contribute to cumulative effects to air quality from vehicle emissions in the region.

3.3.5 Utilities

3.3.5.1 Definition of Resource

Utility infrastructure refers to the system of public works that provides the underlying framework for a community. Utilities include electric, gas, telephone, Internet service, sanitary sewer, and potable water systems.

3.3.5.2 Existing Environment

Electricity at FAPH is provided by Rappahannock Electric Cooperative. Telephone is provided by Verizon. Drinking water is provided by groundwater wells on FAPH. Production and distribution of potable water is provided by American Water. Wastewater services are also provided by American Water. Most solid waste on FAPH is taken to the King George County Landfill.

3.3.5.3 Environmental Consequences

Table 3-8 summarizes the impacts to utilities under the Preferred Alternative and the No Action Alternative. The threshold levels of significance for impacts to utilities and infrastructure occur with exceedances of the existing capacities of utilities or infrastructure.

Table 3-8. Summary of Impacts – Utilities

	Preferred Alternative			No Action Alternative		
Impact Category	Significant	Insignificant	No Impact	Significant	Insignificant	No Impact
Utilities		X				X

Preferred Alternative

The Preferred Alternative would have minor, direct, long-term, adverse impacts on utilities at Site 1. Impacts on utilities would not be significant because energy usage at the maintenance facility and warehouse are not anticipated to exceed existing capacities of local providers. In addition, new facilities would include energy-efficient buildings. In accordance with EO 13693, *Planning for Sustainability in the Next Decade,* and the U.S. Army's Sustainability Policy, an effort will be made to achieve at least the LEED Silver standard in designing the buildings, landscaping, and other facilities that are part of the Preferred Alternative. Utility connections would be provided in accordance with the requirements of the respective utility companies and local building codes.

Implementation of the Preferred Alternative would result in negligible cumulative effects on utility use, when added to utility demands of other development in the area.

No Action Alternative

No new construction or development activities are proposed under the No Action Alternative. Therefore, no impacts to utilities would occur. The No Action Alternative would not contribute to cumulative impacts to utility infrastructure.

3.3.6 Hazardous Substances

3.3.6.1 Definition of Resource

This section describes the affected environment associated with hazardous substances used or stored at the considered locations. A "hazardous substance" refers to any item or agent (biological, chemical, or physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

Issues associated with hazardous substances typically center around waste streams; underground storage tanks; aboveground storage tanks; and the storage, transport, use, and disposal of pesticides, fuels, lubricants, and other industrial substances. When such substances are improperly used, they can threaten the health and well-being of wildlife species, habitats, soil and water systems, and humans.

Radon is considered to be part of the affected environment associated with hazardous substances. The Indoor Radon Abatement Act of 1988 established a long-term goal that indoor air be as free from radon as the ambient air outside buildings. In general, elevated indoor radon gas concentrations may present public health concerns.

3.3.6.2 Existing Conditions

An environmental condition of property (ECP) report was prepared to assess the current environmental conditions at Site 1 (XCEL, 2016). The findings of the ECP were based on a visual reconnaissance, interviews with the current property owners and local government employees, and a review of historical information.

The ECP revealed no evidence of recognized environmental conditions in connection with Site 1. No underground or aboveground storage tanks, odors, pools of liquids, buried sumps, hazardous substance or petroleum product containers, devices containing polychlorinated biphenyls, pits, ponds, sewage treatment solid waste, wells, or septic systems were observed on Site 1 (XCEL, 2016). A vaulted concrete latrine building is on Site 1, adjacent to the tank trail.

Caroline County is listed as within Zone 3, where the average predicted indoor radon screening level is anticipated to be less than 2 picoCuries per liter, which is below the 4 picoCuries per liter action level established by EPA (XCEL, 2016).

3.3.6.3 Environmental Consequences

Table 3-9 summarizes the impacts to hazardous substances under the Preferred Alternative and the No Action Alternative. The threshold level of significance for impacts resulting from hazardous substances would include a release of hazardous substances or a violation of local, state, or federal hazardous substances regulations.

Table 3-9. Summary of Impacts – Hazardous Substances

	Preferred Alternative			No Action Alternative		
Impact Category	**Significant**	**Insignificant**	**No Impact**	**Significant**	**Insignificant**	**No Impact**
Hazardous Substances		X				X

Preferred Alternative

Construction of the new ECS is expected to have short-term, minor, direct, adverse impacts on hazardous substances because some petroleum products would be used to maintain construction equipment and stored or disposed of as a result of proposed construction activities. A spill prevention, control, and countermeasures plan would be prepared and followed to minimize occurrences of spills and provide procedures for cleaning up spills that may occur, per FAPH Regulation 200-2. In addition, FAPH requires that drip pans be placed under parked tactical vehicles, per Army Training Circular TC 21-305-11.

Operation of the new ECS is expected to have long-term, minor intensity, direct, adverse impacts on the environment from the use of hazardous substances and the disposal of hazardous waste associated with vehicle maintenance. Hazardous substances would be used and stored at the ECS to support wide maintenance activities. The hazardous substances typically used in a facility similar to the ECS include solvent-based cleaners, aqueous cleaners/degreasers, oil, hydraulic fluid, gear oil, antifreeze, grease, transmission fluid, and other related materials. Storage of these hazardous materials would be rotational in nature to support maintenance activities at the site. Small amounts of hazardous wastes associated with maintenance activities would likely be generated and managed at Site 1. Such wastes would be disposed of regularly through a contracted hazardous waste hauler in accordance with applicable federal and state waste management regulations. No long-term storage or onsite disposal of

these materials would occur. Staff members would be trained in proper spill prevention and spill handling and containment. Containment and cleanup equipment and materials would be available onsite. Because licensed handlers would remove municipal and hazardous wastes from FAPH and disposed of at appropriate offsite locations, there would be no impacts caused by the generation of hazardous wastes under the Preferred Alternative. The volume of municipal and hazardous wastes generated is not anticipated to place a measurable burden on regional disposal sites. Therefore, there would be no significant adverse impacts from the use of hazardous substances.

The anticipated radon level at Site 1 is not expected to negatively affect human health or the environment because radon levels are anticipated to be below EPA's established action levels.

Impacts to hazardous materials and disposal of hazardous wastes from the Preferred Alternative could have cumulative impacts when added to other projects planned in the area.

No Action Alternative

No new construction or development activities are proposed under the No Action Alternative. Therefore, no impacts to human health or the environment from hazardous materials are anticipated. The No Action Alternative would not contribute to cumulative impacts on the use of hazardous materials and disposal of hazardous waste.

3.3.7 Transportation and Traffic

3.3.7.1 Definition of Resource

Transportation and traffic resources generally include the roadway and street systems surrounding the affected environment. This section also discusses the movement of vehicles, pedestrian and bicycle traffic, and mass transit.

3.3.7.2 Existing Conditions

Site 1 would be access from Shackleford Road on FAPH. Shackleford Road is a two-lane road that runs east/west on FAPH. There are no traffic issues related to volume along Shackleford Road, and there are no sidewalks or designated bike routes along the road.

3.3.7.3 Environmental Consequences

Table 3-10 summarizes the impacts to transportation and traffic under the Preferred Alternative and the No Action Alternative. The threshold level for significant impacts to traffic and transportation would be a permanent disruption in traffic flow on adjacent roadways or other surrounding roads. Factors considered in determining whether a significant traffic-related impact could occur include: (1) an increase in vehicle trips that would disrupt or alter local circulation patterns; (2) permanent lane closures or other impediments to traffic; (3) activities that would create potential traffic safety hazards; (4) conflict with pedestrian and bicycle routes or fixed-route transit that would cause safety hazards; and (5) parking demand that exceeds the supply.

Table 3-10. Summary of Impacts – Transportation and Traffic

	Preferred Alternative			No Action Alternative		
Impact Category	**Significant**	**Insignificant**	**No Impact**	**Significant**	**Insignificant**	**No Impact**
Transportation and Traffic		X				X

Preferred Alternative

The Preferred Alternative would result in minor, direct, short-term, adverse traffic impacts during construction of the new ECS as a result of trucks and slower-moving construction equipment entering and leaving Site 1 and FAPH. Construction vehicles would likely travel to Site 1 through the FAPH North Gate, along A.P. Hill Drive, to Shackleford Drive. No lane closures or other disruptions to circulation patterns would be required for construction, and no activities that would create traffic hazards are anticipated.

Overall, operation of the new ECS at Site 1 would result in minor, direct, long-term, adverse traffic impacts at the North Gate and along A.P. Hill Drive. Weekday vehicle trips were estimated using methodologies from the *Traffic Engineering Handbook* (Institute of Transportation Engineers, 2008). The average rate of trip generation per employee for a single-tenant office building is 3.62. On weekdays, it was calculated that 149 additional vehicle trips would be generated by the 41 full-time employees. These impacts would not result in lane closures or other impediments to traffic; new traffic safety hazards would not be created; conflicts with pedestrian and bicycle routes or fixed-route transit that would cause safety hazards would not occur; and parking demand would not exceed supply. Sufficient parking would be provided at the site to accommodate the vehicular needs. Parking spaces for assigned USAR personnel, as well as for assigned military vehicles and equipment, would be provided in the project design. Off-site parking would not be required and would not be constructed under the Preferred Alternative. Vehicle trips by units supported by the ECS that train at FAPH were not calculated, because those trips would not change.

There would be an overall benefit to regional traffic and traffic around Fort Pickett from the reduction in trips to pick up and drop off the military equipment stored there that would be stored at FAPH after ECS completion.

The Preferred Alternative would result in cumulative impacts on local traffic, when combined with the added traffic generated by the other planned projects in the area. Impacts would not be significant because there would not be a permanent disruption in traffic flow on adjacent roadways or other surrounding roads as a result of these projects.

No Action Alternative.

Implementation of the No Action Alternative would not result in a change in current conditions. Therefore, no impacts to traffic and transportation would occur, and the No Action Alternative would not contribute to cumulative effects.

SECTION 4

Conclusions

This environmental assessment contains a comprehensive evaluation of the existing conditions and environmental consequences of implementing the Proposed Action's Preferred Alternative and the No Action Alternative, as required by the National Environmental Policy Act of 1969.

The following best management practices would be implemented under the Preferred Alternative.

- The procedures in the FAPH Environmental Handbook, which outlines personnel responsibilities, policies and procedures, and guidance for managing environmental resources at FAPH, will be followed during construction and operation of the proposed ECS.
- Erosion and sediment controls and stormwater management facilities will be installed in accordance with the VDEQ's approved ESCP, stormwater management plan, and the stormwater pollution prevention plan.
- Vegetation would not be cleared during the migratory bird nesting season (April 15 through July 1) without conducting a preconstruction survey to determine whether nesting birds are present. If nesting migratory birds are found during the preconstruction survey, then those areas of Site 1 containing nesting birds would not be disturbed or cleared until the young have naturally vacated the nest. Through coordination with the U.S. Fish and Wildlife Service, a buffer would be established around each nest to minimize potential for nest abandonment resulting from nearby construction activity. Areas within this buffer would not be cleared.
- Contractors would maintain construction equipment in accordance with manufacturers' specifications to keep unnecessary noise impacts to a minimum.
- Maintenance and refueling of construction equipment would likely occur onsite and a spill prevention, control, and countermeasures plan would be in place, per FAPH Regulation 200-2.
- Dust control measures would be in place during construction. These control measures could include the application of water to areas of bare soil to reduce dust and particles in the air.
- The site design would incorporate Energy Independence and Security Act Section 438 stormwater compliance and Leadership in Energy and Environmental Design site development and stormwater requirements. Strategies may include green infrastructure and low-impact development practices.
- An ESCP, stormwater management plan, and a stormwater pollution prevention plan would be prepared in accordance with the VDEQ's regulations. The appropriate stormwater permits would be obtained.

Based on the findings of this environmental assessment, there would be no significant impacts on environmental resources, resulting from the Preferred Alternative. A finding of no significant impact has been prepared to accompany this environmental assessment, which concludes that preparation of an environmental impact statement is not required for this Proposed Action.

SECTION 5

List of Preparers, Agencies Contacted, and Distribution

5.1 Preparers

Table 5-1 lists the preparers of this EA.

Table 5-1. List of Preparers

Name	Education and Experience	Primary Responsibilities
Laura Haught	B.S., Biology, George Mason University, 1998 18 years of experience in NEPA projects for the Department of Defense, federal and state agencies, and private clients	Project Manager; primarily responsible for technical review and quality assurance of the EA
Danielle Aycock	B.S, Ecology, The University of Georgia, 2012 1 year of experience	Staff Scientist; data collection, analysis and preparation of EA text
Kim Watkins	B.S., Chemical Engineering, Howard University, 1996 13 years of experience	Senior technical review; primarily responsible for air quality analysis
Rich Reaves	Ph.D., Wetland and Wildlife Ecology, Purdue University, 1995; B.S., Wildlife Ecology and Resource Management, University of Wyoming, 1986 20+ years of experience in NEPA analysis, environmental permitting, ecological surveys, and Section 7 consultation.	Senior botanist; primarily responsible for conducting threatened and endangered plant surveys
Rob Price	M.S. Environmental Science and M.P.A. Aquatic Ecosystems Management, Indiana University, 1994; B.A. Zoology and B.A. History, Miami University, 1992 20 years of experience in NEPA analysis, environmental permitting, ecological surveys, and Section 7 consultation	Senior technical review
Andrea Naccarato	B.S., Biology (Minors in Chemistry and Geography-Environmental Studies), Radford University, 1993 16 years of experience in NEPA project management	Senior technical review and quality assurance of the EA

5.2 Persons and Agencies Contacted

Agencies and groups that were contacted regarding the project are provided in Appendix A.

5.3 Distribution List

The following entities will receive a hardcopy of the EA/FNSI:

- Caroline County Public Library, Bowling Green and Port Royal branches

SECTION 6

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Appendix A
Coordination Letters and Responses

A1: Coordination Letters

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

To Whom It May Concern:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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- Specific issues or geographic areas of concern, based on your expertise or regulatory jurisdiction
- Available technical information regarding these issues
- Mitigation or permitting requirements that may be necessary for project implementation

Please send your comments or response within 30 days of receipt of this letter to the Directorate of Public Works, Environmental and Natural Resources Division – NEPA Coordinator, 19952 N. Range Road, Fort A.P. Hill, VA 22427-3123. Or email responses to: usarmy.aphill.imcom-northeast.mail.ernd@mail.mil.

If you have any questions, please contact the Environmental and Natural Resources Division at (804) 633-8417 or at the above referenced email address.

Sincerely,

Andrew Q. Jordan
Lieutenant Colonel, U.S. Army
Commanding

Enclosure

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Dear Elected Official:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Mr. Kendall Fancher
Chief, NGS Instrumentation & Methodologies Branch
15351 Office Drive
Woodford, VA 22580

Dear Mr. Fancher:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Chief Robert Gray
Pamunkey Indian Tribe
64 Lay Landing Road
King William, VA 23086

Dear Chief Gray:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Ms. Regena Bronson
U.S. Army Corps of Engineers
1329 Alum Spring Road, Suite 202
Fredericksburg, VA 22401

Dear Ms. Bronson:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Mr. Andy Hofmann
US Fish and Wildlife Service
Eastern Virginia Rivers Refuge Complex
336 Wilna Rd
Warsaw, VA 22572

Dear Mr. Hofmann:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Ms. Rene Hypes
Virginia Department of Conservation and Recreation - Division of Natural Heritage
217 Governor Street
Ricmond, VA 23219

Dear Ms. Hypes:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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Lieutenant Colonel, U.S. Army
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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Ms. Ellie Irons
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street
Richmond, VA 23219

Dear Ms. Irons:

Fort A.P. Hill, the U.S. Army Reserve (USAR), which includes the 99th Regional Support Command and the Army Reserve Installation Management Directorate, and the U.S. Army Corps of Engineers are preparing an environmental assessment (EA) for a proposed military construction project in the vicinity of Fort A.P. Hill. The EA is being prepared in accordance with the National Environmental Policy Act (NEPA). In addition to meeting the requirements of NEPA, compliance with other relevant environmental regulations (including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) will be accomplished during the EA process.

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

August 18, 2016

Directorate of Public Works

Mr. Troy Andersen
US Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Dear Mr. Andersen:

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Sincerely,

Andrew Q. Jordan
Lieutenant Colonel, U.S. Army
Commanding

Enclosure

Legend

Property Location

N

0 200 400 600 800 1,000 Feet

Figure 1
Proposed Project Location
Fort A.P. Hill, Virginia

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
DIRECTORATE OF PUBLIC WORKS FORT A.P. HILL
P.O. BOX 1220
BOWLING GREEN, VIRGINIA 22427-1220

REPLY TO
ATTENTION OF

September 26, 2016

Directorate of Public Works

Mr. Marc Holma
Commonwealth of Virginia
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

RE: Proposed Equipment Concentration Site
Fort A.P. Hill, Caroline County, Virginia
DHR File No. 2016-3929

Dear Mr. Holma:

The U.S. Army Reserve, 99th Regional Support Command is planning to construct and operate a new equipment concentration site (ECS) at Fort A.P. Hill, Caroline County, Virginia. The ECS will include a 27,443-square-foot tactical equipment maintenance facility, a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. Additional construction activities will include paving, fencing, general site improvements, extending utilities to new facilities, and constructing stormwater management features. Physical security measures or antiterrorism/force protection measures will include setbacks from roads, parking areas, and vehicle unloading areas, as well as landscaping features as deemed necessary. The area of potential effects (APE) includes approximately 16.6 hectares (41 acres) between Lee Drive and Shackleford Road, where ground-disturbance and construction will occur.

An archaeological survey of the proposed project area was conducted by Gray & Pape, Inc. No artifacts, archaeological sites, or intact cultural features or cultural deposits were identified in the APE. Enclosed are two copies of the technical report that presents the results of the archaeological survey.

Please indicate if you concur/nonconcur that the proposed construction and operation of an ECS at Fort A.P. Hill will have no effects on historic properties. Thank you for assisting us in complying with Section 106 of the National Historic Preservation Act. If you have any questions, please contact John Mullin at (804) 633-8255.

Sincerely,

Terry Banks
Chief, Environmental & Natural
Resources Division

Enclosures

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

Mr. Kendall Fancher
Chief, NGS Instrumentation & Methodologies Branch
15351 Office Drive
Woodford, VA 22580

Dear Mr. Fancher:

Fort A.P. Hill has prepared an Environmental Assessment (EA) for constructing and operating an equipment concentration site (ECS). The EA supports the finding that there will be no significant impacts from the proposed action and that the preparation of an Environmental Impact Statement is not required. The proposed action includes 27,443-square-foot tactical equipment maintenance facility a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The ECS would employ approximately 41 full-time civilian employees during the week.

The EA and a Draft Finding of No Significant Impact (FNSI) are available for review at the Caroline County Public Library's Bowling Green Branch, 17202 Richmond Turnpike, Milford, VA 22514 and Port Royal Branch, 419 King Street, Port Royal, VA 22535; and on the Fort A.P. Hill website at http://www.aphill.army.mil/ea.asp.

We respectfully request your comments on the EA and FNSI be submitted within thirty (30) days. Please send your response to Directorate of Public Works, Environmental and Natural Resources Division – NEPA Coordinator, 19952 N. Range Road, Fort A.P. Hill, Virginia 22427-3123 or by email at usarmy.aphill.imcom-northeast.mail.ernd@mail.mil. If you have any questions, please contact the Environmental Division at (804) 633-8417 or at the above referenced email address.

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January 9, 2017

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Mr. Robert Gray, Chief
Pamunkey Indian Tribe
64 Lay Landing Road
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We respectfully request your comments on the EA and FNSI be submitted within thirty (30) days. Please send your response to Directorate of Public Works, Environmental and Natural Resources Division – NEPA Coordinator, 19952 N. Range Road, Fort A.P. Hill, Virginia 22427-3123 or by email at usarmy.aphill.imcom-northeast.mail.ernd@mail.mil. If you have any questions, please contact the Environmental Division at (804) 633-8417 or at the above referenced email address.

Sincerely,

Andrew Q. Jordan
Lieutenant Colonel, US Army
Commanding

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

Mr. Andy Hofmann
US Fish and Wildlife Service
Eastern Virginia Rivers Refuge Complex
336 Wilna Rd
Warsaw, VA 22572

Dear Mr. Hofmann:

Fort A.P. Hill has prepared an Environmental Assessment (EA) for constructing and operating an equipment concentration site (ECS). The EA supports the finding that there will be no significant impacts from the proposed action and that the preparation of an Environmental Impact Statement is not required. The proposed action includes 27,443-square-foot tactical equipment maintenance facility a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The ECS would employ approximately 41 full-time civilian employees during the week.

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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

Ms. Rene Hypes
Virginia Department of Conservation and Recreation - Division of Natural Heritage
217 Governor Street
Richmond, VA 23219

Dear Ms. Hypes:

Fort A.P. Hill has prepared an Environmental Assessment (EA) for constructing and operating an equipment concentration site (ECS). The EA supports the finding that there will be no significant impacts from the proposed action and that the preparation of an Environmental Impact Statement is not required. The proposed action includes 27,443-square-foot tactical equipment maintenance facility a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The ECS would employ approximately 41 full-time civilian employees during the week.

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Andrew Q. Jordan
Lieutenant Colonel, US Army
Commanding

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

Ms. Julia Wellman
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street
Richmond, VA 23219

Dear Ms. Wellman:

Fort A.P. Hill has prepared an Environmental Assessment (EA) for constructing and operating an equipment concentration site (ECS). The EA supports the finding that there will be no significant impacts from the proposed action and that the preparation of an Environmental Impact Statement is not required. The proposed action includes 27,443-square-foot tactical equipment maintenance facility a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The ECS would employ approximately 41 full-time civilian employees during the week.

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Sincerely,

Andrew Q. Jordan
Lieutenant Colonel, US Army
Commanding

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

Mr. Troy Andersen
US Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Dear Mr. Andersen:

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Andrew Q. Jordan
Lieutenant Colonel, US Army
Commanding

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

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Lieutenant Colonel, US Army
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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

Ms. Anne Richardson, Chief
Rappahannock Tribe Cultural Center
5036 Indian Neck Road
Indian Neck, VA 23148

Dear Chief Richardson:

Fort A.P. Hill has prepared an Environmental Assessment (EA) for constructing and operating an equipment concentration site (ECS). The EA supports the finding that there will be no significant impacts from the proposed action and that the preparation of an Environmental Impact Statement is not required. The proposed action includes 27,443-square-foot tactical equipment maintenance facility a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The ECS would employ approximately 41 full-time civilian employees during the week.

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US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON
18436 4TH STREET
FORT A.P. HILL, VIRGINIA 22427-3114

January 9, 2017

Office of the Commander

Dear Elected Official:

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Sincerely,

Andrew Q. Jordan
Lieutenant Colonel, US Army
Commanding

A2: Responses

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

MEMORANDUM

TO: Andrew Q. Jordan, Lieutenant Colonel US Army

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: August 26, 2016

SUBJECT: Army: Fort A.P. Hill Equipment Concentration Site Maintenance Project

We have reviewed the scoping request and submitted information for the above-referenced project and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

In Caroline County, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include those areas of the County not included in the RPAs.

Under the Federal Consistency Regulations of the *Coastal Zone Management Act of 1972*, federal actions in Virginia must be conducted in a manner "consistent to the maximum extent practicable" with the enforceable policies of the Virginia Coastal Zone Management Program. Those enforceable policies are administered through the Chesapeake Bay Preservation Act and Regulations. Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated RPAs and RMAs, as provided in §9VAC25-830-130 and 140 of the Regulations, including the requirement to minimize land disturbance (including access and staging areas), retain existing vegetation and minimize impervious cover as well as including compliance with the requirements of the *Virginia Erosion and Sediment Control Handbook,* and stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*." For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion and Sediment Control Handbook.*

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

August 23, 2016

Directorate of Public Works
Environmental and Natural Resources Division
NEPA Coordinator
19952 N. Range Road
Fort A.P. Hill, Virginia 22427-3123
Email: usarmy.aphill.imcom-northeast-mail.ernd@mail.mil

RE: Equipment Concentration Site Maintenance Facility, Fort AP Hill, Virginia

To Whom It May Concern:

This letter is in response to the scoping request for the above-referenced project.

As you may know, the Department of Environmental Quality, through its Office of Environmental Impact Review (DEQ-OEIR), is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. Similarly, DEQ-OEIR coordinates Virginia's review of federal consistency documents prepared pursuant to the Coastal Zone Management Act which applies to all federal activities which are reasonably likely to affect any land or water use or natural resources of Virginia's designated coastal resources management area must be consistent with the enforceable policies Virginia Coastal Zone Management (CZM) Program.

DOCUMENT SUBMISSIONS

In order to ensure an effective coordinated review of the NEPA document and federal consistency documentation, notification of the NEPA document and federal consistency documentation should be sent directly to OEIR. We request that you submit one electronic to eir@deq.virginia.gov (10 MB maximum) or make the documents available for download at a website, file transfer protocol (ftp) site or the VITAShare file transfer system (https://vitashare.vita.virginia.gov). We request that the review of these two documents be done concurrently, if possible.

The NEPA document and the federal consistency documentation (if applicable) should include U.S. Geological Survey topographic maps as part of their information. We strongly encourage you to issue shape files with the NEPA document. In addition, project details should be adequately described for the benefit of the reviewers.

ENVIRONMENTAL REVIEW UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT: PROJECT SCOPING AND AGENCY INVOLVEMENT

As you may know, NEPA (PL 91-190, 1969) and its implementing regulations (Title 40, *Code of Federal Regulations*, Parts 1500-1508) requires a draft and final Environmental Impact Statement (EIS) for federal activities or undertakings that are federally licensed or federally funded which will or may give rise to significant impacts upon the human environment. An EIS carries more stringent public participation requirements than an Environmental Assessment (EA) and provides more time and detail for comments and public decision-making. The possibility that an EIS may be required for the proposed project should not be overlooked in your planning for this project. Accordingly, we refer to "NEPA document" in the remainder of this letter.

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA document. Accordingly, we are providing notice of your scoping request to several state agencies and those localities and Planning District Commissions, including but not limited to:

Department of Environmental Quality:
- DEQ Regional Office*
- Air Division*
- Office of Wetlands and Stream Protection*
- Office of Local Government Programs*
- Division of Land Protection and Revitalization
- Office of Stormwater Management*

Department of Conservation and Recreation
Department of Health*
Department of Agriculture and Consumer Services
Department of Game and Inland Fisheries*
Virginia Marine Resources Commission*
Department of Historic Resources
Department of Mines, Minerals, and Energy
Department of Forestry
Department of Transportation

Note: The agencies noted with a star (*) administer one or more of the enforceable policies of the Virginia CZM Program.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the federal Coastal Zone Management Act of 1972, as amended, and its implementing regulations in Title 15, *Code of Federal Regulations*, Part 930, federal activities, including permits, licenses, and federally funded projects, located in Virginia's Coastal Management Zone or those that can have reasonably foreseeable effects on Virginia's coastal uses or coastal resources must be conducted in a manner which is consistent, to the maximum extent practicable, with the Virginia CZM Program.

Additional information on the Virginia's review for federal consistency documents can be found online at
http://www.deq.virginia.gov/Programs/EnvironmentalImpactReview/FederalConsistencyReviews.aspx

DATA BASE ASSISTANCE

Below is a list of databases that may assist you in the preparation of a NEPA document:

- DEQ Online Database: Virginia Environmental Geographic Information Systems

  Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:
  - www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

- DEQ Virginia Coastal Geospatial and Educational Mapping System (GEMS)

  Virginia's coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:
  - http://128.172.160.131/gems2/

- DHR Data Sharing System

  Survey records in the DHR inventory:
  - www.dhr.virginia.gov/archives/data_sharing_sys.htm

- DCR Natural Heritage Search

  Produces lists of resources that occur in specific counties, watersheds or physiographic regions:
  - www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml

- DGIF Fish and Wildlife Information Service

  Information about Virginia's Wildlife resources:
  - http://vafwis.org/fwis/

- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems

  Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL:
  - www.epa.gov/superfund/sites/cursites/index.htm

- EPA RCRAInfo Search

  Information on hazardous waste facilities:
  - www.epa.gov/enviro/facts/rcrainfo/search.html

- EPA Envirofacts Database

EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:

- www.epa.gov/enviro/index.html

- EPA NEPAssist Database

Facilitates the environmental review process and project planning:
http://nepaassisttool.epa.gov/nepaassist/entry.aspx

If you have questions about the environmental review process and/or the federal consistency review process, please feel free to contact me (telephone (804) 698-4204 or e-mail bettina.sullivan@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

Bettina Sullivan

Bettina Sullivan, Program Manager
Environmental Impact Review and
Long-Range Priorities

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

October 30, 2015

Greetings:

Due to increased workload and refinement of our priorities in Virginia, this office will no longer provide individual responses to requests for environmental reviews. However, we want to ensure that U.S. Fish and Wildlife Service trust resources continue to be conserved. When that is not possible, we want to ensure that impacts to these important natural resources are minimized and appropriate permits are applied for and received. We have developed a website that provides the steps and information necessary to allow any individual or entity requiring review/approval of their project to complete a review and come to the appropriate conclusion. This site can be accessed at: *http://www.fws.gov/northeast/virginiafield/endangered/projectreviews.html*.

The website is frequently updated to provide new species/trust resource information and methods to review projects. Refer to the website for each project review to ensure that current information and methods are utilized.

If you have any questions about project reviews or need assistance, please contact Troy Andersen of this office at (804) 824-2428 or troy_andersen@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

Haught, Laura/WDC

From: USARMY Ft AP Hill IMCOM Atlantic Mailbox ERND <usarmy.aphill.imcom-atlantic.mbx.ernd@mail.mil>
Sent: Thursday, September 15, 2016 1:44 PM
To: Haught, Laura/WDC
Cc: Coombs, Craig A LRL; Van Voorhis, Daniel B CTR USARMY 99 RSC (US); Banks, Terry L CIV USARMY IMCOM ATLANTIC (US); Sergi, Sergio A CIV USARMY USAG (US); Fisher, George E (Gef) JR CIV USARMY IMCOM ATLANTIC (US)
Subject: FW: [Non-DoD Source] EA for maintenance facility [EXTERNAL]

Laura,
See below. A question submitted during the scoping process that will need to be addressed in the EA.

Thank you!
Kristine

-----Original Message-----
From: Stephen H. Manster [mailto:townmanager@townofbowlinggreen.com]
Sent: Thursday, September 15, 2016 12:09 PM
To: USARMY Ft AP Hill IMCOM Atlantic Mailbox ERND <usarmy.aphill.imcom-atlantic.mbx.ernd@mail.mil>
Subject: [Non-DoD Source] EA for maintenance facility

Ladies and Gentlemen -

How will the Environmental Assessment and operational procedures deal with the issue of containment of oil, gasoline and other fluids and materials on the site. My concern is with run-off and seepage of fluids. This question pertains not only to the construction phase, but also during the full operation of the maintenance facility? Thank you very much for the opportunity to participate in this process.

Stephen Manster

Town Manager

Bowling Green

Molly Joseph Ward
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

David C. Dowling
Deputy Director of Soil and Water Conservation and Dam Safety

Thomas L. Smith
Deputy Director of Operations

September 15, 2016

NEPA Coordinator
Directorate of Public Works
Environmental and Natural Resources Division
19952 N. Range Road
Fort A.P Hill, VA 22427-3123

Re: Equipment Concentration Site Maintenance Facility, Fort A.P. Hill

Dear NEPA Coordinator:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Mill Creek Slopes Conservation Site is located within the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Mill Creek Slopes Conservation Site has been given a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resource of concern at this site is:

Coastal Plain / Outer Piedmont Acidic Seepage Swamp G3?/S3/NL/NL

The Coastal Plain / Outer Piedmont Acidic Seepage Swamp (*Acer rubrum – Nyssa sylvatica – Magnolia virginiana – Viburnum nudum – Osmunda cinnamomea – Woodwardia areolata* Forest) is an acidic groundwater saturated swamp forest that ranges from southeastern New York and New Jersey to southeastern Virginia, primarily on the Coastal Plain. In Virginia, it occurs mostly in the inner (western) portion of the Coastal Plain and the extreme eastern portion of the Piedmont. This community occurs in nutrient-poor soils in stream headwaters, where abundant groundwater is discharged in springs and seeps. The soil typically consists of muck or shallow peat over sandy mineral soil, with Sphagnum-covered hummocks and pools of standing water also present. The vegetation is a closed-canopy forest with red maple (*Acer rubrum*) and black gum (*Nyssa sylvatica*) typically dominant. Characteristic understory trees and shrubs include sweetbay magnolia (*Magnolia virginiana*), possum-haw (*Viburnum nudum*), and sweet pepperbush (*Clethra alnifolia*). The herbaceous flora is usually rich in sedges and ferns, especially cinnamon fern (*Osmunda cinnamomea*) and netted chain fern (*Woodwardia areolata*). Skunk-cabbage (*Symplocarpus foetidus*) forms large colonies early the growing season in many stands.

This uncommon wetland habitat is vulnerable to alteration or destruction by beavers and various anthropogenic activities including hydrologic modifications (NatureServe, 2010).

Furthermore, the TA22B Mill Creek Tributary Stream Conservation Unit (SCU) is located downstream of the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The TA22B Mill Creek Tributary SCU has been given a biodiversity ranking of B5, which represents a site of general significance. The natural heritage resource associated with this site is:

Epitheca spinosa	Robust baskettail	G4/S2S3/NL/NL

Robust baskettail, a state rare dragonfly, inhabit swamps with some water movement, and boggy ponds and lakes (Dunkle, 2000). It ranges from Oklahoma to New Jersey and southward to Louisiana and the Florida panhandle (NatureServe, 2009). In Virginia, it is known from the Piedmont and Coastal Plain physiographic regions.

Adult Odonata (dragonflies and damselflies), commonly seen flitting and hovering along the shores of most freshwater habitats, are accomplished predators. They lay their eggs on emergent vegetation or debris at the water's edge. Unlike the adults, the larvae are aquatic where they typically inhabit the sand and gravel of the substrates. Wingless and possessing gills, they crawl about the submerged leaf litter and debris stalking their insect prey. The larvae seize unsuspecting prey with a long, hinged "grasper" that folds neatly under their chin. When larval development is complete, the aquatic larvae crawl from the water to the bank, climb up the stalk of the shoreline vegetation, and the winged adult emerges (Hoffman 1991; Thorpe and Covich 1991).

Because of their aquatic lifestyle and limited mobility, the larvae are particularly vulnerable to shoreline disturbances that cause the loss of shoreline vegetation and siltation. They are also sensitive to alterations that result in poor water quality, aquatic substrate changes, and thermal fluctuations.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,

Alli Baird

Alli Baird, LA, ASLA
Coastal Zone Locality Liaison

Cc: Valerie Fulcher, DEQ

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Project: Proposed construction and operation of an equipment concentration site (ECS) at Fort A.P. Hill, Caroline County, Virginia.

CONCUR: The proposed undertaking will have no effects to historic properties.

SIGNATURE

VDHR File: 2016-3929

DATE

24OCT16

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
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February 9, 2017

Fort A.P. Hill Directorate of Public Works
Environmental and Natural Resources Division
NEPA Coordinator
19952 North Range Road, Bldg. 1220
Fort A.P. Hill, Virginia 22427-3123

RE: Environmental Assessment for the Construction of an Equipment Concentration Site, Fort A.P. Hill, Caroline County, DEQ 17-009F.

Dear Director:

The Commonwealth of Virginia has completed its review of the above-referenced document. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents submitted under the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating Virginia's review of federal consistency documents submitted pursuant to the Coastal Zone Management Act (CZMA) and providing the state's response. DEQ responded on January 12, 2017 under DEQ #16-225F to a Federal Consistency Determination submitted by the Department of the Army for the proposed project and found it consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management Program. This is in response to the December 2016 Environmental Assessment (EA) (received January 12, 2017) for the above-referenced project. The following agencies participated in this review:

Department of Environmental Quality
Department of Conservation and Recreation
Department of Game and Inland Fisheries
Department of Health

In addition, the Department of Historic Resources, Virginia Marine Resources Commission, Department of Agriculture and Consumer Services, Department of Forestry, George Washington Regional Commission, and Caroline County were invited to participate in the review.

PROJECT DESCRIPTION

The Department of the Army, U.S. Army Reserve (USAR) proposes to construct and operate an equipment concentration site (ECS) at Fort A.P. Hill in Caroline County, Virginia. The USAR would construct and operate the new ECS on approximately 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive. The site (Site 1) is wooded with a tank trail (Tator Trail) bisecting the site in a north/south direction and includes a concrete-vaulted latrine along the tank trail. The concrete latrine building would be demolished. The entrance to the proposed ECS would be from Shackleford Road. The ECS would include a 27,443-square-foot tactical equipment maintenance facility (TEMF), a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The project would also include construction of stormwater management features. Additional construction activities would consist of paving, fencing, making general site improvements, and extending utilities to serve the new facilities. The design will comply with the Leadership in Energy and Environmental Design Silver standard, feature low-impact development, and consider renewable energy initiatives.

CONCLUSION

Provided activities are performed in accordance with the recommendations which follow in the Environmental Impacts and Mitigation section of this report, this proposal is unlikely to have significant effects on ambient air quality, important farmland, forest resources, and wetlands. It is unlikely to adversely affect species of plants or insects listed by state agencies as rare, threatened, or endangered.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Surface Waters and Wetlands. According to the EA (pages 4-5), the Preferred Alternative would not result in direct impacts to surface waters or wetlands because none are present on site.

1(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations covering a variety of permits to include the Virginia Pollutant Discharge Elimination System Permit regulating point source discharges to surface waters, Virginia Pollution Abatement Permit regulating sewage sludge, storage and land application of biosolids, industrial wastes (sludge and wastewater), municipal wastewater, and animal wastes, the Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection (VWP) Permit regulating impacts to streams, wetlands, and other surface waters. The VWP permit is a state permit which governs wetlands, surface water, and surface water withdrawals and impoundments. It also serves as §401 certification of the federal Clean Water Act §404 permits for dredge and fill activities in waters of the U.S. The VWP Permit Program is under the Office of Wetlands and Stream Protection, within the DEQ Division of Water Permitting. In addition to central office staff that review and

issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities:

- Clean Water Act, §401;
- Section 404(b)(i) Guidelines Mitigation Memorandum of Agreement (2/90);
- State Water Control Law, Virginia Code section 62.1-44.15:20 *et seq.*; and
- State Water Control *Regulations*, 9 VAC 25-210-10.

1(b) Agency Findings. The Virginia Water Protection (VWP) Permit program at the DEQ Northern Regional Office (NRO) did not indicate that surface waters or wetlands would be impacted by the proposed ECS.

1(c) Requirements. A VWP permit from DEQ may be required should the project change and impacts to surface waters are anticipated. Upon receipt of a Joint Permit Application for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and guidance.

For additional information, contact DEQ-NRO, Trisha Beasley at (703) 583-3940.

2. Erosion and Sediment Control and Stormwater Management. According to the EA (page 3-7), an erosion and sediment control plan and stormwater management plan would be required under the Preferred Alternative. The contractor would develop and submit the plans to DEQ for review and approval. Once both plans are approved, DEQ would issue a Virginia Stormwater Management Program Permit to the contractor. The contractor would implement and maintain the approved plans for the duration of the project.

2(a) Agency Jurisdiction. The DEQ Office of Stormwater Management (OSWM) administers the following laws and regulations governing construction activities:

- Virginia Erosion and Sediment Control (ECS) Law (§ 62.1-44.15:51 *et seq.*) and Regulations (9 VAC 25-840);
- Virginia Stormwater Management Act (§ 62.1-44.15:24 *et seq.*);
- Virginia Stormwater Management Program (VSMP) regulation (9 VAC 25-870); and
- 2014 General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities (9 VAC 25-880).

In addition, DEQ is responsible for the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to Municipal Separate Storm Sewer Systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program (9 VAC 25-890-40).

2(b) Requirements. DEQ-OSWM did not respond to our request for comments. However, based on responses to similar projects, regulatory guidance for the control of non-point source pollution is presented below.

(i) Erosion and Sediment Control and Stormwater Management Plans

Federal agencies and their authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with the *Virginia Erosion and Sediment Control Law and Regulations* (*VESCL&R*) and *Virginia Stormwater Management Law and Regulations* (*VSWML&R*), including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, federal consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbing activities that result in the total land disturbance of equal to or greater than 2,500 square feet in lands analogous to Chesapeake Bay Preservation Areas would be regulated by *VESCL&R*. Accordingly, the applicant must prepare and implement an erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan is submitted to DEQ-NRO, which serves the area where the project is located, for review for compliance. The applicant is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL 62.1-44.15 *et seq.*]

(ii) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities (VAR10)

The operator or owner of a construction project involving land-disturbing activities equal to 1 acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the *VSMP Permit Regulations*. General information and registration forms for the General Permit are available on DEQ's website at http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/ConstructionGeneralPermit.aspx. [Reference: Virginia Stormwater Management *Act* 62.1-44.15 *et seq.*] *VSMP Permit Regulations* 9 VAC 25-870-10 *et seq.*].

3. Chesapeake Bay Preservation Areas. According to the EA (page 3-6), Fort AP Hill falls within the Chesapeake Bay watershed and, therefore, must comply with the Chesapeake Bay Preservation Act.

3(a) Agency Jurisdiction. The DEQ Office of Local Government Programs (OLGP) administers the Chesapeake Bay Preservation Act (Virginia Code §62.1-44.15:67 *et*

seq.) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (9 VAC 25-830-10 *et seq.*). Each Tidewater locality must adopt a program based on the Bay Act and *Regulations*. The Act and *Regulations* recognize local government responsibility for land use decisions and are designed to establish a framework for compliance without dictating precisely what local programs must look like. Local governments have flexibility to develop water quality preservation programs that reflect unique local characteristics and embody other community goals. Such flexibility also facilitates innovative and creative approaches in achieving program objectives. The regulations address nonpoint source pollution by identifying and protecting certain lands called Chesapeake Bay Preservation Areas. The regulations use a resource-based approach that recognizes differences between various land forms and treats them differently.

3(b) Agency Comments. In Caroline County, the areas protected by the Bay Act require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include:

- tidal wetlands;
- certain non-tidal wetlands;
- tidal shores; and
- a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow.

All areas of the County not included in the RPA are designated as RMA.

3(c) Agency Findings. DEQ-OLGP finds that there are no lands analogous to RPAs on the land proposed for the ECS. However, the site is located in lands analogous to RMA.

3(d) Requirements. Federal actions on installations located within the state's designated coastal zone must be consistent to the maximum extent practicable with the performance criteria of the *Regulations* on lands analogous to locally designated RPA and RMA, as provided in 9 VAC 25-830-130 and 140 of the *Regulations*, including:

- minimizing land disturbance (including access and staging areas);
- retaining existing vegetation;
- minimizing impervious cover;
- complying with the requirements of the *Virginia Erosion and Sediment Control Handbook* for land-disturbing activities equal to or greater than 2,500 square feet; and
- adhering to stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*.

3(e) Conclusion. The project is consistent with the Bay Act and *Regulations*, provided USAR obtains and complies with the conditions of the authorization.

4. Air Pollution Control. According to the EA (page 3-11), implementation of the Preferred Alternative would result in minor, direct, adverse impacts on overall air quality from the construction and operation of the new facility. The document concludes that since the area is a National Ambient Air Quality Standards (NAAQS) attainment area, the General Conformity Rule does not apply to the Preferred Alternative.

4(a) Agency Jurisdiction. The DEQ Air Division, on behalf of the State Air Pollution Control Board, is responsible for developing regulations that implement Virginia's Air Pollution Control Law (Virginia Code §10.1-1300 *et seq.*). DEQ is charged with carrying out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate DEQ regional office is directly responsible for the issuance of necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance.

The Air Division regulates emissions of air pollutants from industries and facilities and implements programs designed to ensure that Virginia meets national air quality standards. The most common regulations associated with major State projects are:

- Open burning: 9 VAC 5-130 *et seq.*
- Fugitive dust control: 9 VAC 5-50-60 *et seq.*
- Permits for fuel-burning equipment: 9 VAC 5-80-1100 *et seq.*

4(b) Agency Findings. According to the DEQ Air Division, the project site is located in an ozone (O_3) attainment area.

4(c) Recommendation. USAR is encouraged to take all reasonable precautions to limit emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), principally by controlling or limiting the burning of fossil fuels.

4(d) Requirements. The following regulatory requirements will apply to the proposed action.

(i) Fugitive Dust

During construction fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 *et seq.* of the *Regulations for the Control and Abatement of Air Pollution*. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;

- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

(ii) Open Burning

If project activities include the burning of construction or demolition material, this activity must meet the requirements under 9 VAC 5-130 *et seq.* of the *Regulations* for open burning, and it may require a permit. Should open burning or use of special incineration devices be employed in the disposal of land-clearing debris during construction, the operation would be subject to the *Open Burning Regulation* (9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100). The *Regulations* for open burning provide for, but do not require, the local adoption of a model ordinance concerning open burning. USAR should contact Caroline County fire officials to determine what local requirements, if any, exist.

(i) Fuel Burning Equipment

Should the structures require the installation of fuel burning equipment (e.g. boilers and generators), a permit may be required prior to beginning construction of the facility (9 VAC 5-80, Article 6, Permits for New and Modified Sources). USAR should contact DEQ-NRO for guidance on whether this provision applies.

5. Solid and Hazardous Wastes and Hazardous Materials. According to the EA (page 3-15), construction and facility operation is expected to have minor, direct, adverse impacts on the environment from the use of hazardous substances and the disposal of hazardous wastes. A spill prevention, control, and countermeasures plan would be prepared and followed to minimize occurrences of spills and provide procedures for cleaning up spills that may occur, per Fort AP Hill *Regulation 200-2.*

5(a) Agency Jurisdiction. On behalf of the Virginia Waste Management Board, the DEQ Division of Land Protection and Revitalization (DEQ-DLPR) is responsible for carrying out the mandates of the Virginia Waste Management Act (Virginia Code §10.1-1400 *et seq.*), as well as meeting Virginia's federal obligations under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation Liability Act (CERCLA), commonly known as Superfund.

Virginia:

- Virginia Waste Management Act, Virginia Code § 10.1-1400 *et seq.*
- *Virginia Solid Waste Management Regulations*, 9 VAC 20-81
- (9 VAC 20-81-620 applies to asbestos-containing materials)
- *Virginia Hazardous Waste Management Regulations*, 9 VAC 20-60
- (9 VAC 20-60-261 applies to lead-based paints)

- *Virginia Regulations for the Transportation of Hazardous Materials*, 9 VAC 20-110.

Federal:

- Resource Conservation and Recovery Act, 42 U.S. Code sections 6901 *et seq.*
- U.S. Department of Transportation *Rules for Transportation of Hazardous Materials*, 49 *Code of Federal Regulations*, Part 107
- Applicable rules contained in Title 40, *Code of Federal Regulations.*

DEQ-DLPR also administers laws and regulations on behalf of the State Water Control Board governing Petroleum Storage Tanks (Virginia Code §62.1-44.34:8 *et seq.*), including Aboveground Storage Tanks (9 VAC 25-91 *et seq.*) and Underground Storage Tanks (9 VAC 25-580 *et seq.* and 9 VAC 25-580-370 *et seq.*), also known as 'Virginia Tank Regulations', and § 62.1-44.34:14 *et seq.* which covers oil spills.

5(b) Agency Findings. DEQ-DLPR staff conducted a search (1,000-foot radius) of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR search did not identify any waste sites in close proximity which might impact the project activity. However, Fort A.P. Hill is listed as is a CERCLA waste site:

- VA2210020416, Fort A. P Hill, US Route 301, Bowling Green, VA 22427. Not on the National Priority List (NPL).

5(c) Recommendations.

(i) RCRA and CERCLA Waste Sites

Detailed RCRA and CERCLA hazardous waste site information may be accessed from the following Environmental Protection Agency (EPA) websites at:

- https://www3.epa.gov/enviro/;
- https://rcrainfopreprod.epa.gov/rcrainfoweb/action/main-menu/view; and
- https://www.epa.gov/superfund.

(ii) Pollution Prevention

Implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

5(d) Requirements.

(i) Waste Management

Any soil that is suspected of contamination or wastes that are generated during construction must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. All construction waste must be characterized in accordance with the *Virginia Hazardous Waste Management Regulations* prior to management at an appropriate facility. It is the applicant's responsibility to determine if a solid waste meets the criteria of a hazardous waste and be managed appropriately.

(ii) Petroleum Contamination

If evidence of a petroleum release is discovered during construction of this project, it must be reported to DEQ (Virginia Code §§ 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.*). Petroleum contaminated soils generated during construction of this project must be characterized and disposed of properly.

(iii) Petroleum Storage Tank Compliance and Inspections

The installation and use of an aboveground storage tank (AST) of greater than 660 gallons for temporary fuel storage of more than 120 days must follow the requirements in the *Facility and Aboveground Storage Tank Regulation* (9 VAC 25-91-10 *et seq.*)

If you have any other questions or need further information regarding waste comments, contact DEQ-DLPR, Katy Dacey at (804) 698-4274.

6. Natural Heritage Resources. The EA does not include a discussion of potential project impacts on natural heritage resources. However, the EA includes a letter dated September 15, 2016 from the Department of Conservation and Recreation, Division of Natural Heritage written in response to a request for scoping comments from USAR.

6(a) Agency Jurisdiction.

(i) The Virginia Department of Conservation and Recreation (DCR) Division of Natural Heritage (DNH)

DNH's mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act (Virginia Code §10.1-209 through 217) authorizes DCR to maintain a statewide database for conservation planning and project review, protect land for the conservation of biodiversity, and protect and ecologically manage the natural heritage resources of Virginia (the habitats of rare, threatened and endangered species, significant natural communities, geologic sites, and other natural features).

(ii) Virginia Department of Agriculture and Consumer Services (VDACS)

The Endangered Plant and Insect Species Act of 1979 (Virginia Code Chapter 39 §3.1-1020 through 1030) authorizes VDACS to conserve, protect and manage endangered and threatened species of plants and insects. Under a Memorandum of Agreement established between VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

6(b) Agency Findings.

(i) Mill Creek Slopes Conservation Site

According to the information currently in DCR files, the Mill Creek Slopes Conservation Site is located within the project site. The Conservation Site has been given a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resources of concern at this site are:

Helonias bullata	Swamp pink	G3/S2S3/LT/LE
Coastal Plain/Outer Piedmont Acidic Seepage Swamp		G3?/S3/NL/NL

See DCR-DNH comments attached for more detailed information on these resources.

(ii) TA22B Mill Creek Tributary Stream Conservation Unit

The TA22B Mill Creek Tributary Stream Conservation Unit (SCU) is located downstream of the project site. The TA22B Mill Creek Tributary SCU has been given a biodiversity ranking of B5, which represents a site of general significance. The natural heritage resource associated with this site is:

Epitheca spinosa	Robust baskettail	G4/S2S3/NL/NL

See DCR-DNH comments attached for more detailed information on this resource.

(iii)Threatened and Endangered Plant and Insect Species

DCR finds that the current activity will not affect any documented state-listed plants or insects.

(iv) State Natural Area Preserves

DCR files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction in the project vicinity.

6(c) Recommendations.

(i) Protection of the Aquatic Ecosystem

DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control and stormwater management laws and regulations to minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities.

(ii) Natural Heritage Resources

Contact DCR-DNH to secure updated information on natural heritage resources if the scope of the project changes or six months pass before the project is implemented, since new and updated information is continually added to the Biotics Data System.

7. Wildlife Resources and Protected Species. The EA (page 3-3) states that there are no known federally listed threatened or endangered plants or animals on site. Tri-colored bats were detected on site during acoustic surveys conducted on June 9 and 10, 2016. The document concludes that conservation measures apply to known maternity roost trees and winter hibernacula, which do not occur on site. According to the EA (page 3-10), the Preferred Alternative would result in minor, direct and indirect, long-term, and permanent adverse impacts to wildlife. Direct impacts could occur if wildlife were accidentally killed during construction. Indirect impacts would occur from habitat loss following conversion of approximately 35 acres of wooded and grassy areas to developed and landscaped areas.

7(a) Agency Jurisdiction. The Virginia Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code, Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S. Code §661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts. For more information, see the DGIF website at *www.dgif.virginia.gov*.

7(b) Agency Findings. DGIF documents the state-listed Endangered little brown bat and state-listed Endangered tri-colored bat from the project area. However, DGIF does not anticipate the project to result in adverse impacts upon the listed species and designated resources under its jurisdiction based on the scope and location of the proposed work.

7(c) Recommendations. DGIF offers the following recommendations to minimize the adverse impacts of the project development on wildlife resources:

- Coordinate with the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts upon federally-listed bats known from AP Hill.
- Adhere to the currently approved AP Hill Integrated Natural Resources Management Plan (INRMP).
- Avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable.
- Maintain wooded lots to the fullest extent possible.
- Adhere to a time-of-year restriction protective of resident and migratory songbird nesting from March 15 through August 15 of any year for all tree removal and ground clearing.
- Adhere to erosion and sediment controls during ground disturbance.
- Design stormwater controls to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

DGIF generally does not support proposals to mitigate wetland impacts through the construction of stormwater management ponds, nor does it support the creation of in-stream stormwater management ponds.

For additional information regarding these comments, contact DGIF, Amy Ewing at (804) 367-2211.

8. Public Water Supply. According to the EA (page 3), the proposed ECS would be connected to the existing water distribution system, which is supplied by a groundwater source.

8(a) Agency Jurisdiction. Virginia Department of Health (VDH) Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells, springs and surface water intakes). VDH administers both federal and state laws governing waterworks operation.

8(b) Agency Findings. VDH-ODW finds that there are four public groundwater wells within a 1-mile radius of the project site at AP Hill, including Well PWAT 34 Long Street, Well PWAT 36-Arena #1, Well PWAT 36-Arena #2, and Well PWAT 39-Davis #2. There are no surface water intakes located within a 5-mile radius of the project area and the project is not within the watershed of any public surface water intakes.

8(c) Requirement. Potential impacts to public water and wastewater distribution systems must be verified by the local utility.

8(d) Recommendation. VDH-ODW recommends that Best Management Practices (BMPs) should be employed on the project site including erosion and sediment controls and Spill Prevention Controls and Countermeasures (SPCCs).

8(e) Conclusion. There may be impacts to public drinking water sources due to this project if the mitigation efforts outlined above are not implemented.

For additional information, contact VDH-ODW, Arlene Fields Warren at (804) 864-7781.

9. Historic and Archaeological Resources. According to the EA (page 3-4), a cultural resources survey was conducted in May of 2016. Neither archaeological nor architectural resources were identified on site.

9(a) Agency Jurisdiction. The Virginia Department of Historic Resources (DHR) conducts reviews of both federal and state projects to determine their effect on historic properties. Under the federal process, DHR is the State Historic Preservation Office, and ensures that federal undertakings-including licenses, permits, or funding-comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. Section 106 requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. For state projects or activities on state lands, DHR is afforded an opportunity to review and comment on (1) the demolition of state property; (2) major state projects requiring an EIR; (3) archaeological investigations on state-controlled land; (4) projects that involve a landmark listed in the Virginia Landmarks Register; (5) the sale or lease of surplus state property; (6) exploration and recovery of underwater historic properties; and (7) excavation or removal of archaeological or historic features from caves. Please see DHR's website for more information about applicable state and federal laws and how to submit an application for review: http://www.dhr.virginia.gov/StateStewardship/Index.htm.

9(b) Agency Finding. DHR previously reviewed the project in consultation with USAR and in response to the Federal Consistency Determination submitted by USAR. Pursuant to Section 106 of the NHPA, as amended, and its implementing regulation 36 CFR Part 800 DHR concurs with USAR that no historic properties will be affected by the undertaking.

For additional information, contact DHR, Marc Holma at (804) 482-6090.

10. Pollution Prevention. DEQ advocates that principles of pollution prevention and sustainability be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices will help to ensure that environmental impacts are minimized. However, pollution prevention and sustainability techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

10(a) Recommendations. We have several pollution prevention recommendations that may be helpful in the construction and maintenance of the project:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed project is committed to complying with environmental regulations, reducing risk, minimizing environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes proponents with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for construction and design.
- Integrate pollution prevention techniques into maintenance and operations, to include inventory control for centralized storage of hazardous materials. Maintenance facilities should have sufficient and suitable space to allow for effective inventory control and preventive maintenance.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. If interested, please contact Meghann Quinn at (804) 698-4021.

11. Pesticides and Herbicides. Should construction or maintenance require the use of pesticides or herbicides for landscape maintenance, these chemicals should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used.

Contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

12. Energy Conservation. The proposed project should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. The Commonwealth encourages architectural and engineering designers to recognize and incorporate the energy, environmental, and sustainability concepts listed in the Leadership in Energy and Environmental Design (LEED) Green Building Rating System into the development and procurement of their projects.

12(a) Recommendations. The energy efficiency of the structure may be enhanced by maximizing the use of the following as applicable:

- thermally-efficient building shell components (roof, wall, floor, windows, and insulation);
- facility siting and orientation with consideration towards natural lighting and solar loads
- high efficiency heating, ventilation, air conditioning systems;
- high efficiency lighting systems and daylighting techniques; and
- energy-efficient machinery.

Contact the Department of Mines, Minerals and Energy, David Spears at (434) 951-6350, for assistance in meeting this challenge.

13. Water Conservation. The following recommendations will result in reduced water use associated with the operation of the facility.

- Grounds should be landscaped with hardy native plant species to conserve water as well as lessen the need to use fertilizers and pesticides.
- Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees.
- Low-flow toilets should be installed in new homes.
- Consider installing low flow restrictors and aerators to faucets.
- Improve irrigation practices by:
    - upgrading sprinkler clock; water at night, if possible, to reduce evapotranspiration (lawns need only 1 inch of water per week, and do not need to be watered daily; overwatering causes 85% of turf problems);
    - installing a rain shutoff device; and
    - collecting rainwater with a rain bucket or cistern system with drip lines.
- Check for and repair leaks (toilets and faucets) during regular routine maintenance activities.

REGULATORY AND COORDINATION NEEDS

1. Nonpoint Source Pollution Control.

1(a) Erosion and Sediment Control and Stormwater Management Plans. Project activities must comply with Virginia's *Erosion and Sediment Control Law* (Virginia Code § 62.1-44.15:61) and *Regulations* (9 VAC 25-840-30 *et seq.*) and *Stormwater Management Law* (Virginia Code § 62.1-44.15:31) and *Regulations* (9 VAC 25-870-210 *et seq.*) as administered by DEQ. Activities that disturb 2,500 square feet or more in CBPAs would be regulated by *VESCL&R* and *VSWML&R*. Erosion and sediment control, and stormwater management requirements should be coordinated with DEQ-NRO, Kelly Vanover at (804) 837-1073.

1(b) General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10). For projects involving land-disturbing activities equal to or greater than one acre, USAR is required to apply for registration coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from

Construction Activities (VSMA §62.1-44.15:24 *et seq.*; VSMP 9 VAC 25-870-10 *et seq.*). Specific questions regarding the Stormwater Management Program requirements should be directed to DEQ-OSWM, Holly Sepety at (804) 698-4039.

2. Air Quality Regulations. This project is subject to air quality regulations administered by the Department of Environmental Quality. The following sections of Virginia Administrative Code are applicable:

- 9 VAC 5-50-60 *et seq.* governing fugitive dust emissions;
- 9 VAC 5-130 *et seq.*, for open burning; and
- 9 VAC 5-80, for fuel-burning equipment.

For more information contact DEQ-NRO, James LaFratta at (703) 583-3928. Also, should the project involve open burning, contact Caroline County fire officials for information on any local requirements.

3. Chesapeake Bay Preservation Areas. This project must be constructed and operated in a manner consistent with the Chesapeake Bay Preservation Act (Virginia Code §§ 62.1-44.15:67 *et seq.*) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (Virginia Code 9 VAC 25-830-10 *et seq.*). The project must comply with the conditions found in 9 VAC 25-830-130 and -140 for development in areas analogous to RMAs. For additional information and coordination, contact DEQ, Daniel Moore at (804) 698-4520.

4. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Contact DEQ-NRO, Richard Doucette at (703) 583-3813, for information on the location and availability of suitable waste management facilities in the project area or if free product, discolored soils, or other evidence of contaminated soils are encountered.

4(a) Petroleum Contamination. In accordance with Virginia Code §§ 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.*, contact DEQ-NRO, Randy Chapman at (703) 583-3816 if evidence of a petroleum release is discovered during construction of this project.

4(b) Petroleum Storage Tank Compliance/Inspections. In accordance with 9 VAC 25-91-10 *et seq.*, contact DEQ-NRO, Riaz Syed at (703) 583-3915 for additional information on the use of ASTs greater than 660 gallons to be used for temporary fuel storage over120 days.

5. Natural Heritage Resources. Contact DCR-DNH, Rene Hypes at (804) 371-2708, to secure updated information on natural heritage resources if the scope of the project changes and/or six months passes before the project is implemented, since new and updated information is continually added to the Biotics Data System.

6. Wildlife Resources and Protected Species. Coordinate with the USFWS Virginia Field Office (804) 693-6694 regarding potential project impacts upon federally-listed bats known from AP Hill.

In addition, contact DGIF, Amy Ewing at (804) 367-2211 for the development of project-specific measures to minimize project impacts upon wildlife resources.

7. Public Water Supply and Wastewater Treatment. Coordinate with American Water at (800) 452-6863 to ensure water and wastewater connections comply with utility requirements.

Thank you for the opportunity to comment on the Environmental Assessment for the Construction of an Equipment Concentration Site at Fort AP Hill. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Bettina Sullivan, Program Manager
Environmental Impact Review and Long-Range Priorities

Enclosures

Ec: Amy Ewing, DGIF
Robbie Rhur, DCR
Tony Watkinson, VMRC
Keith Tignor, VDACS
Susan Douglas, VDH
Roger Kirchen, DHR
Greg Evans, DOF
Charles Culley, Caroline County
Tim Ware, George Washington Regional Commission

Fisher, John (DEQ)

From: Burstein, Daniel (DEQ)
Sent: Thursday, January 26, 2017 8:10 AM
To: Fisher, John (DEQ)
Subject: Re: DOD/U.S. Army Reserve - Equipment Concentration Site, U.S. Army Reserve, Fort A.P. Hill, DEQ #17-009F- Review

NRO comments regarding the Environmental Assessment for the DOD/U.S. Army Reserve - Equipment Concentration Site, U.S. Army Reserve, Fort A.P. Hill, located in Caroline County, Virginia are as follows:

Land Protection Division – The project manager is reminded that if any solid or hazardous waste is generated/encountered during construction, the project manager would follow applicable federal, state, and county regulations for their disposal.

Air Compliance/Permitting - The project manager is reminded that during the construction phases that occur with this project; the project is subject to the Fugitive Dust/Fugitive Emissions Rule 9 VAC 5-50-60 through 9 VAC 5-50-120. In addition, should the project install fuel burning equipment (Boilers, Generators, Compressors, etc…), or any other air pollution emitting equipment, the project may be subject to 9 VAC 5-80, Article 6, Permits for New and Modified sources and as such the project manager should contact the Air Permit Manager DEQ-NRO prior to installation or construction, and operation, of fuel burning or other air pollution emitting equipment for a permitting determination. Lastly, should any open burning or use of special incineration devices be employed in the disposal of land clearing debris during demolition and construction, the operation would be subject to the Open Burning Regulation 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100.

Virginia Water Protection Permit (VWPP) Program – The project manager is reminded that a VWP permit from DEQ may be required should impacts to surface waters be necessary. DEQ VWP staff recommends that the avoidance and minimization of surface water impacts to the maximum extent practicable as well as coordination with the US Army Corps of Engineers. Upon receipt of a Joint Permit Application for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and current VWP permit program guidance.

Erosion and Sediment Control and Storm Water Management: DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local ordinances and State regulations. Additional information is available at http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality.

Daniel Burstein
Regional Enforcement Specialist, Senior II

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

MEMORANDUM

TO: John Fisher, DEQ Office of Environmental Impact Review

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: November 21, 2016

SUBJECT: DEQ #16-225F: Army - Fort A.P. Hill Equipment Concentration Site Maintenance Project

We have reviewed the scoping request and submitted information for the above-referenced project and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

In Caroline County, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include those areas of the County not included in the RPAs.

Under the Federal Consistency Regulations of the *Coastal Zone Management Act of 1972*, federal actions in Virginia must be conducted in a manner "consistent to the maximum extent practicable" with the enforceable policies of the Virginia Coastal Zone Management Program. Those enforceable policies are administered through the Chesapeake Bay Preservation Act and Regulations. Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated RPAs and RMAs, as provided in §9VAC25-830-130 and 140 of the Regulations, including the requirement to minimize land disturbance (including access and staging areas), retain existing vegetation and minimize impervious cover as well as including compliance with the requirements of the *Virginia Erosion and Sediment Control Handbook,* and stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*." For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion and Sediment Control Handbook.*

The Preferred Alternative referenced on page 1 of the submitted documentation indicates that the new Equipment Construction Site (ECS) would occupy 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive, in an area with no surface waters or wetlands. There are no lands analogous to RPAs on the land proposed for the ECS. Provided adherence to the above requirements, particularly as relates to minimizing land disturbance, retaining existing vegetation and minimizing impervious cover on lands analogous to RMAs, the proposed activity would be consistent with the *Chesapeake Bay Preservation Act and the* Regulations.

Please note: Table 4 (pages 7-9 of the submitted Coastal Zone Management Act Consistency Determination) incorrectly refers to Resource Protection Areas and Resource Management areas as Riparian Protection Areas and Riparian Management Areas.

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John E. Fisher **DEQ - OEIA PROJECT NUMBER: DEQ #17-009F**

PROJECT TYPE: ☐ STATE EA / EIR **X FEDERAL EA / EIS** ☐ SCC

☐ CONSISTENCY DETERMINATION

PROJECT TITLE: Equipment Concentration Site, U.S. Army Reserve, Fort A.P. Hill

PROJECT SPONSOR: DOD/U.S. Army Reserve

PROJECT LOCATION: **X OZONE ATTAINMENT AREA**

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: **X CONSTRUCTION**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. ☐ 9 VAC 5-45-760 et seq. – Asphalt Paving operations
3. **X 9 VAC 5-130 et seq. – Open Burning**
4. **X 9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
5. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to_____
6. ☐ 9 VAC 5-60-300 et seq. – Standards of Performance for Toxic Pollutants
7. ☐ 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the_____
8. ☐ 9 VAC 5-80-1100 et seq. of the regulations – Permits for Stationary Sources
9. ☐ 9 VAC 5-80-1605 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
10. ☐ 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
11. ☐ 9 VAC 5-80-800 et seq. Of the regulations – State Operating Permits. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

K. S. Narasimhan

(Kotur S. Narasimhan)
Office of Air Data Analysis

DATE: January 19, 2017

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: John Fisher, DEQ/EIR Environmental Program Planner

FROM: Katy Dacey, Division of Land Protection & Revitalization Review Coordinator

DATE: November 22, 2016

COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; file

SUBJECT: Environmental Impact Review: EIR Project No 16-225F Construction of an Equipment Concentration Site, Fort A.P. Hill, Caroline County, VA

The Division of Land Protection & Revitalization (DLPR) has completed its review of the EIR for the Construction of an Equipment Concentration Site located at Fort A.P. Hill at A.P. Hill Drive in Bowling Green, VA 22427.

Project Scope: construction and operation of a new equipment concentration site to include demolition of existing concrete latrine building and construction of warehouse, wash rack, loading ramp and parking areas

Solid wastes and Hazardous issues were not addressed in the submittal. The submittal did not indicate that a search of Federal and State environmental databases was conducted. DLPR staff conducted a search (1000 foot radius) of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR search did not identify any waste sites in close proximity which might impact the project activity. Additionally, the site itself is a waste site of possible concern. DLPR staff has reviewed the submittal and offers the following comments:

Hazardous Waste/RCRA Facilities* – *none in close proximity to the project area

CERCLA Sites* – *one is the site

VA2210020416, Fort A. P Hill, US Rte. 301, Bowling Green, VA 22427. Not on the NPL.

The above information related to hazardous wastes/RCRA/Cercla sites can be accessed from EPA's websites at https://www3.epa.gov/enviro/, https://rcrainfopreprod.epa.gov/rcrainfoweb/action/main-menu/view and https://www.epa.gov/superfund

Formerly Used Defense Sites (FUDS)* – *none

***Solid Waste* – none**

***Virginia Remediation Program (VRP)* – none**

***Petroleum Releases* none in close proximity to project area**

PROJECT SPECIFIC COMMENTS

None

GENERAL COMMENTS

Soil, Sediment, Groundwater, and Waste Management

Any soil, sediment or groundwater that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Part 107.

Asbestos and/or Lead-based Paint

All structures being demolished/renovated/removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-81-620 for ACM and 9VAC 20-60-261 for LBP must be followed. Questions may be directed to Kathryn Perszyk at the DEQ's Northern Regional Office at (703) 583-3856.

Pollution Prevention – Reuse - Recycling

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Katy Dacey at (804) 698-4274.

Molly Joseph Ward
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

David C. Dowling
Deputy Director of Soil and Water Conservation and Dam Safety

Thomas L. Smith
Deputy Director of Operations

MEMORANDUM

DATE: January 26, 2017

TO: John Fisher, DEQ

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 17-009F, Equipment Concentration Site, U.S. Army Reserve, Fort A.P. Hill EA

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Mill Creek Slopes Conservation Site is located within the project site, and the Cattlet Creek-Turkey Track Creek is located downstream from the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Mill Creek Slopes Conservation Site has been given a biodiversity significance ranking of B3, which represents a site of high significance, and Cattlet Creek-Turkey Track Creek has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resource of concern at these sites is:

Coastal Plain/Piedmont Acidic Seepage Swamp G3?/S3/NL/NL
Acer rubrum – Nyssa sylvatica – Magnolia virginiana –
Viburnum nudum – Osmunda cinnamomea – Woodwardia areolata Forest

The Coastal Plain / Outer Piedmont Acidic Seepage Swamp, is an acidic groundwater saturated swamp forest that ranges from southeastern New York and New Jersey to southeastern Virginia, primarily on the Coastal Plain. In Virginia, it occurs mostly in the inner (western) portion of the Coastal Plain and the extreme eastern portion of the Piedmont. This community occurs in nutrient-poor soils in stream headwaters, where abundant groundwater is discharged in springs and seeps. The soil typically consists of muck or shallow peat over sandy mineral soil, with Sphagnum-covered hummocks and pools of standing water also present. The vegetation is a closed-canopy forest with red maple (*Acer rubrum*) and black gum

(*Nyssa sylvatica*) typically dominant. Characteristic understory trees and shrubs include sweetbay magnolia (*Magnolia virginiana*), possum-haw (*Viburnum nudum*), and sweet pepperbush (*Clethra alnifolia*). The herbaceous flora is usually rich in sedges and ferns, especially cinnamon fern (*Osmunda cinnamomea*) and netted chain fern (*Woodwardia areolata*). Skunk-cabbage (*Symplocarpus foetidus*) forms large colonies early the growing season in many stands. This uncommon wetland habitat is vulnerable to alteration or destruction by beavers and various anthropogenic activities including hydrologic modifications (NatureServe, 2010).

In addition, the TA22B Mill Creek Tributary Stream Conservation Unit (SCU) is located downstream from the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The TA22B Mill Creek Tributary SCU has been given a biodiversity ranking of B5, which represents a site of general significance. The natural heritage resource associated with this site is:

Epitheca spinosa	Robust baskettail	G4/S2S3/NL/NL

Robust baskettail, a state rare dragonfly, inhabit swamps with some water movement, and boggy ponds and lakes (Dunkle, 2000). It ranges from Oklahoma to New Jersey and southward to Louisiana and the Florida panhandle (NatureServe, 2009). In Virginia, it is known from the Piedmont and Coastal Plain physiographic regions.

Adult Odonata (dragonflies and damselflies), commonly seen flitting and hovering along the shores of most freshwater habitats, are accomplished predators. They lay their eggs on emergent vegetation or debris at the water's edge. Unlike the adults, the larvae are aquatic where they typically inhabit the sand and gravel of the substrates. Wingless and possessing gills, they crawl about the submerged leaf litter and debris stalking their insect prey. The larvae seize unsuspecting prey with a long, hinged "grasper" that folds neatly under their chin. When larval development is complete, the aquatic larvae crawl from the water to the bank, climb up the stalk of the shoreline vegetation, and the winged adult emerges (Hoffman 1991; Thorpe and Covich 1991).

Because of their aquatic lifestyle and limited mobility, the larvae are particularly vulnerable to shoreline disturbances that cause the loss of shoreline vegetation and siltation. They are also sensitive to alterations that result in poor water quality, aquatic substrate changes, and thermal fluctuations.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Literature Cited

Dunkle, S. W. 2000. Dragonflies through binoculars: A field guide to dragonflies of North America. Oxford University Press. New York, NY. 266 pp.

Hoffman, R. 1991. Arthropods. Pp. 173 in: K. Terwilliger (ed.), Virginia's Endangered Species: proceedings of a symposium. The McDonald and Woodward Publishing Company, Blacksburg, VA.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: April 15, 2010).

NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: March 19, 2012).

Orr, R. 1998. Odonata of Maryland and Washington, D.C. http://www.abs.net/~dariuse/ maryland.html (7/22/99)

Thorpe, J.H., and A.P. Covich. 1991. Ecology and Classification of North American Freshwater Invertebrates. Academic Press, Inc., San, Diego, California.

Fisher, John (DEQ)

From: Ewing, Amy (DGIF)
Sent: Thursday, February 02, 2017 12:59 PM
To: Fisher, John (DEQ)
Cc: nhreview (DCR)
Subject: ESSLog# 37716_17-009F_FtApHillECS_DGIF_AME20170202

We document state Endangered little brown bats and state Endangered tri-colored bats from the project area. However, based on the scope and location of the proposed work, we do not anticipate it to result in adverse impacts upon these species.

We recommend coordination with the USFWS regarding possible impacts upon federally-listed bats known from Ft. AP Hill.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

To minimize overall impacts to wildlife and our natural resources, we offer the following comments about development activities: We recommend that the applicant avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable. We recommend maintaining wooded lots to the fullest extent possible. We generally do not support proposals to mitigate wetland impacts through the construction of stormwater management ponds, nor do we support the creation of in-stream stormwater management ponds.

We recommend that the stormwater controls for this project be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

We recommend that all tree removal and ground clearing adhere to a time of year restriction protective of resident and migratory songbird nesting from March 15 through August 15 of any year.

We recommend adherence to erosion and sediment controls during ground disturbance.

We recommend adherence to the currently approved INRMP for the installation.

Thanks, Amy

Amy M. Ewing

Environmental Services Biologist/FWIS Program Manager
Chair, Team WILD (Work, Innovate, Lead and Develop)
VA Department of Game and Inland Fisheries
7870 Villa Park Dr., Suite 400, PO Box 90778, Henrico, VA 23228
804-367-2211 www.dgif.virginia.gov

"That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics" Aldo Leopold, 1948

Fisher, John (DEQ)

From: Warren, Arlene (VDH)
Sent: Wednesday, January 25, 2017 1:33 PM
To: Fisher, John (DEQ)
Subject: RE: NEW PROJECT ARMY Equipment Concentration Site EA

Project Name: Equipment Concentration Site, U.S. Army Reserve, Fort A.P. Hill
Project #: 17-009F
UPC #: N/A
Location: **Caroline County**

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

The following public groundwater wells are located within a 1 mile radius of the project site:

PWS ID Number	City/County	System Name	Facility Name
6033256	CAROLINE	FT A P HILL - CENTRAL CAMPSITE	WELL PWAT 34 LONGSTREET
6033256	CAROLINE	FT A P HILL - CENTRAL CAMPSITE	WELL PWAT 36- ARENA #1
6033256	CAROLINE	FT A P HILL - CENTRAL CAMPSITE	WELL PWAT 37A- ARENA #2
6033256	CAROLINE	FT A P HILL - CENTRAL CAMPSITE	WELL PWAT 39- DAVIS #2

There are no surface water intakes located within a 5 mile radius of the project site.

The project is not within the watershed of any public surface water intakes.

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Best Regards,

Arlene Fields Warren
GIS Program Support Technician
Office of Drinking Water
Virginia Department of Health
109 Governor Street
Richmond, VA 23220
(804) 864-7781

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

From: Fulcher, Valerie (DEQ)
Sent: Thursday, January 19, 2017 10:03 AM
To: dgif-ESS Projects (DGIF); Tignor, Keith (VDACS); Rhur, Robbie (DCR); odwreview (VDH); Dacey, Katy (DEQ); Narasimhan, Kotur (DEQ); Gavan, Larry (DEQ); Moore, Daniel (DEQ); Sepety, Holly (DEQ); Burstein, Daniel (DEQ); Kirchen, Roger (DHR); Evans, Gregory (DOF); Watkinson, Tony (MRC); Ware, Tim; Culley, Charles

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

February 28, 2017

Northern Virginia Regulatory Section
NAO-2017-00289

U.S. Army Fort AP Hill
Attn: NEPA Coordinator
Headquarters, Director of Public Works
19952 N. Range Road
Fort AP Hill, VA 22427

Dear Sir or Madam:

This letter is in response to a letter dated January 9, 2017 concerning comments for the "Environmental Assessment Equipment Concentration Site U.S. Army Reserve Fort A.P. Hill, Virginia"**.** In accordance with the National Environmental Policy Act (NEPA), CH2M with Fort A.P. Hill Army Garrison (FAPH) has prepared an Environmental Assessment (EA) that is intended to meet regulatory requirements and ensure the successful management and protection of the Installation's natural and cultural resources.

Based on the review of the aforementioned EA, the preferred alternative 1 meets the criteria for the project and will not impact wetlands and streams. A preliminary study has found no wetlands and/or streams located within the Alternative 1 site and therefore would not require a Department of the Army permit.

Our regulations require that we consider a full range of public interest factors and conduct and alternatives analysis in order to identify the least environmentally damaging practicable alternative (LEDPA), which is the only alternative we can authorize. In addition to wetlands and waters impacted, we must consider factors such as land use (including displacements of homes and businesses), floodplain hazards and values, water supply and conservation, water quality, safety, cost, economics, threatened and endangered species, historic and cultural resources, and environmental justice.

Any projects that may affect historic and cultural resources, as per 36 CFR 800.2(a)(2), FAPH is hereby designated as the lead federal agency to fulfill the collective federal responsibilities under Section 106 of the National Historic Preservation Act for the undertaking. We authorize your agency to conduct Section 106 coordination on our behalf. Any Memorandum of Agreement prepared by your agency under 36 CFR 800.6 should include the following clause in the introductory text:

"WHEREAS, pursuant to Section 10 and/or Section 404 of the Clean Water Act, a Department of the Army permit will likely be required from the Corps of Engineers for this project, and the Corps has designated FAPH as the lead federal agency to fulfill federal responsibilities under Section 106;"

In addition, it is our understanding that FAPH will serve as the lead Federal agency for consultation in accordance with the Endangered Species Act.

Thank you for the opportunity to comment. If you have questions, you may contact Regena Bronson at (540) 548-2838 or regena.d.bronson@usace.army.mil.

Sincerely,

M Tucker Smith

Tucker Smith
Chief, Northern Virginia
Regulatory Section

Appendix B
Notice of 30-Day Period for Public Comment

PUBLIC NOTICE VERIFICATION SHEET

NOTICE OF 30-DAY PERIOD FOR PUBLIC COMMENT

An Environmental Assessment (EA) is being conducted to evaluate the potential environmental impacts of constructing and operating an equipment concentration site on Fort A.P. Hill. The proposed action includes construction of a tactical equipment maintenance facility, a general purpose warehouse, a vehicle wash rack, a loading ramp and adequate parking space for vehicles. Because the proposed project relies on federal funding and occurs on federal property, it must comply with the National Environmental Policy Act (NEPA) of 1969, as amended.

As a part of the NEPA process, the Army invites all interested members of the public to review and provide comments within 30 days of this notice. A copy of the EA and draft FNSI is available for review at the Caroline County Public Library's Bowling Green Branch, 17202 Richmond Turnpike, Milford, VA 22514 and Port Royal Branch, 419 King Street, Port Royal, VA 22535; and on the Fort A.P. Hill website at http://www.aphill.army.mil/ea.asp.

Notification letters have been provided to local elected leaders and appropriate organizations/ agencies in the region for comment. Written comments will be received and considered for up to 30 days from the publication of this notice and should be directed to the Fort A.P. Hill Directorate of Public Works, Environmental and Natural Resources Division, 19952 North Range Road, Bldg. 1220, Fort A.P. Hill, Virginia, 22427, or by email at usarmy.aphill.imcom-northeast.mail.emd@mail.mil.

The Caroline Progress

A member of Lakeway Publishers of VA

P.O. Box 69, Bowling Green, VA 22427

804-798-9031 • fax: 804-798-9036

I hereby certify that the notice attached appeared in The Caroline Progress on the following dates:

January 19, 2017

Julia Wiggonton

(Signature)

Graphic Designer

(Title)

1-19-17

(Date)

Appendix C
Coastal Zone Determination

Coastal Zone Management Act Consistency Determination – U.S. Army Reserve Center

This document provides the Commonwealth of Virginia with the U.S. Army Reserve's (USAR's) Consistency Determination under Coastal Zone Management Act (CZMA), Section 307(c)(1) and 15 *Code of Federal Regulations* (CFR) Part 930, sub-part C, for the proposed construction and operation of an equipment concentration site (ECS) at Fort A.P. Hill, Caroline County, Virginia. The information in this Consistency Determination is provided pursuant to 15 §CFR 930.39.

Under the Preferred Alternative, the USAR would construct and operate the new ECS on approximately 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive. The new ECS would be constructed on the parcel, hereafter referred to as "Site 1". Site 1 is wooded with a tank trail, the Tator Trail, bisecting Site 1 on a north/south line, and a concrete-vaulted latrine along the tank trail. The concrete latrine building would be demolished as part of the Preferred Alternative. No other structures are present on Site 1. The entrance to the proposed ECS would be from Shackleford Road. Stormwater management features would be constructed on Site 1. Lighting would meet the FAPH dark skies technologies requirements to prevent light pollution at night. The procedures in the FAPH Environmental Handbook, which outlines personnel responsibilities, policies and procedures, and guidance for managing environmental resources at FAPH, will be followed during construction and operation of the proposed ECS. A site figure is provided in Attachment 1.

The ECS would employ approximately 41 full-time civilian employees during the week. The estimated start date of construction is 2017, with construction completion approximately 24 months following the start date. Operation of the facility is anticipated to start after construction is completed.

The ECS would include a 27,443-square-foot tactical equipment maintenance facility (TEMF), a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The Proposed Action would also include construction of stormwater management features. The TEMF would include five drive-through work bays, administrative offices, locker rooms, toilets and showers, a classroom/break area, library, tool and parts room, welding shop, tire changing area, arms vault, and maintenance areas for in and out processing of military equipment. The warehouse would include space to store large items that need a climate-controlled environment. The design will comply with the Leadership in Energy and Environmental Design Silver standard, feature low-impact development, and consider renewable energy initiatives.

Additional construction activities would consist of paving, fencing, making general site improvements, and extending utilities to serve the new facilities. Some grading and leveling of land would be required onsite. Disturbed areas that are not within the footprint of the proposed buildings or parking areas would be landscaped and used to meet security setback requirements. Physical security measures or antiterrorism/force protection measures would be incorporated into the design. These would include setbacks from roads, parking areas, and vehicle unloading areas. Buildings would comply with the Americans with Disabilities Act.

Effects to Land, Water Uses, and Natural Resources of Virginia

The USAR has determined that the proposed construction and operation of an ECS on Site 1 would affect the land or water uses or natural resources of Virginia in the following manners.

Soils

The Preferred Alternative would have minor, direct, long-term, and permanent adverse impacts to soils as a result of construction of the proposed ECS. The Preferred Alternative would result in soil disturbance and compaction during site preparation and grading, and construction of building footings, access points, and parking areas. Construction and ground disturbance would take place on approximately 35 of the 41 acres on Site 1. Construction of the ECS would not be expected to have significant impacts to soils because proper erosion control procedures and construction best management practices (BMPs) would be implemented to minimize impacts to soils. BMPs could include installing silt fencing and sediment traps, applying water to disturbed soil, and revegetating disturbed areas as soon as possible after disturbance.

Floodplains

Implementation of the Preferred Alternative would not impact floodplains because Site 1 is not within a flood zone (FEMA, 2009a and 2009b).

Surface Water, Wetlands, and Groundwater

FAPH falls within the Chesapeake Bay watershed and, therefore must comply with the Chesapeake Bay Act. Caroline County is in Virginia's Coastal Zone Management Area (Virginia Department of Environmental Quality [VDEQ], 2016). Site 1 is within the Lower Rappahannock River Watershed (Hydrologic Unit Code 02080104; FAPH, 2016). A wetland delineation was conducted on Site 1 on May 23 and 24, 2016. No surface waters or wetlands were identified on Site 1. Site 1 is on the topographic divide between the Mill Creek watershed and the Turkey Track Creek watershed. During the wetland delineation, forested/shrub wetlands, associated with a tributary to Mill Creek, were identified to the east of Site 1; and a pond and emergent wetlands associated with a tributary to Turkey Track Creek were identified to the west of Site 1. Portions of Mill Creek are listed as impaired for the aquatic life use because pH values were not in the recommended range. Portions of the creek are also impaired recreational use because of the presence of *E. coli* bacteria (FAPH, 2016).

Under natural, undisturbed conditions, shallow groundwater flow generally follows the topography of the land surface. On this basis, the topography suggests that groundwater movement across the western portions of Site 1 is toward the pond located along the western boundary, while groundwater flow in the eastern portions of Site 1 is expected to flow east and northeast, in the direction of a tributary of Mill Creek (XCEL Engineering, Inc., 2016). Groundwater flow is affected by seasonal variations, nearby pumping wells, and/or other hydrologic influences; therefore, the presumed flow may not coincide with the actual flow in the subject area. Shallow groundwater at Site 1 is expected to be encountered at approximately 5 to 20 feet below ground surface (XCEL Engineering, Inc., 2016).

The Preferred Alternative would not result in direct impacts to surface waters or wetlands because none are present on Site 1. The Preferred Alternative could result in short-term, minor, adverse, indirect impacts to surface water quality during construction. Impacts to surface water quality could occur when soil particles in disturbed soils are transported through stormwater to receiving waters. An erosion and sediment control plan (ESCP) and stormwater management plan would be required under the Preferred Alternative. The contractor would develop and submit the plans to VDEQ for review and approval. Once

both plans are approved, VDEQ would issue a Virginia Stormwater Management Program (VSMP) Permit to the contractor. The contractor would implement and maintain the approved ESCP and stormwater pollution prevention plan for the duration of the project. Toward the end of the construction project's schedule, the stormwater management plan will be implemented.

The Preferred Alternative could result in long-term, minor, adverse, indirect impacts to surface water quality during operation of the ECS. Impacts to surface water quality could occur because a potential increase in stormwater runoff would result from an increase in impervious surface area. These impacts would be minimal because the USAR would comply with requirements of Section 438 of the Energy Independence and Security Act of 2007 and of the National Pollutant Discharge Elimination System to limit the potential impacts from development of Site 1. Strategies to reduce stormwater runoff could include green infrastructure and low-impact development practices, such as reducing impervious surfaces; using vegetative practices; or providing porous pavements, cisterns, or green roofs. Oil-water separators would be installed in areas where vehicle maintenance or vehicle washing would occur. This facility will be included the Installation's integrated discharge prevention and contingency plan.

Implementation of the Preferred Alternative would result in a long-term, minor, direct, adverse impact to local groundwater supply because groundwater would be used as a drinking water supply. The proposed ECS would be connected to the existing water distribution system, which is supplied by a groundwater source. This facility will be included the Installation's integrated discharge prevention and contingency plan to protect groundwater quality.

The Preferred Alternative could result in short-term, minor, direct, adverse impacts to groundwater if shallow groundwater is encountered during demolition of the latrine and construction activities. There would be a potential to temporarily impact groundwater from the suspension of sediments during excavation activities. If groundwater comes in contact with construction equipment and is exposed to oils on the equipment, there is potential for the shallow groundwater to be impacted. Shallow groundwater depths can fluctuate throughout the year, especially during spring when snow is melting and rains are heavy. Excavations deeper than 4 feet would be avoided during these times. If groundwater were to be encountered during construction activities, then activities would stop or, as needed, the water would be pumped out of the excavation area and treated and released, following the requirements of the National Pollutant Discharge Elimination System stormwater construction permit.

Vegetation and Wildlife

Site 1 is a homogenous mature oak/pine forest. Dominant tree species on Site 1 include southern red oak (*Quercus falcata*), blackjack oak (*Quercus marilandica*), willow oak (*Quercus phellos*), loblolly pine (*Pinus taeda*), Virginia pine (*Pinus virginiana*), and tulip tree (*Liriodendron tulipifera*). Shrubs included Japanese honeysuckle (*Lonicera japonica*), hillside blueberry (*Vaccinium pallidum*), and southern dwarf huckleberry (*Gaylussacia dumosa*). Vines include poison ivy (*Toxicodendron radicans*), common greenbriar (*Smilax rotundifolia*), whiteleaf greenbriar (*Smilax glauca*), trumpet creeper (*Campsis radicans*), and Virginia creeper (*Parthenocissus quinquefolia*).

Site 1 includes forested habitat that could support a variety of wildlife. Animals noticed by visual identification, listening, and observation of tracks and scat included eastern hognose snake (*Heterodon platirhinos*), eastern ratsnake (*Pantherophis alleghaniensis*), white-tailed deer (*Odocoileus virginianus*), pileated woodpecker (*Dryocopus pileatus*), fox, red bat (*Lasiurus borealis*), big brown bats (*Eptesicus fuscus*), evening bats (*Nycticeius humeralis*), turtles, frogs, lizards, and a variety of birds and insects. Site 1 provides forested areas that are suitable for nesting, and foraging habitat for birds regulated by the Migratory Bird Treaty Act. FAPH maintains records of bald eagle nests that occur on base. None are

known to occur on Site 1. None were observed when other surveys were conducted in May and June 2016.

The Preferred Alternative would result in minor, direct, long-term, permanent, adverse impacts to vegetation at Site 1. Approximately 35 of the 41 acres on Site 1 would be converted from wooded and grassy areas to developed and/or landscaped areas. Impacts from the loss of 41 acres of forest would not be significant when compared to the existing 65,000 acres of forests at FAPH (FAPH, 2016), because the loss of the wooded area would not negatively affect the regional population of plant species. Noxious weeds and invasive plants would be controlled through landscape maintenance. FAPH controls pest problems through the implementation of an integrated pest management plan (FAPH, 2016).

The Preferred Alternative would result in minor, direct and indirect, long-term, and permanent adverse impacts to wildlife. Direct impacts could occur if wildlife were accidentally killed during construction. Indirect impacts would occur from habitat loss following conversion of approximately 35 acres of wooded and grassy areas to developed and landscaped areas.

Implementing the Preferred Alternative would not affect nesting migratory birds that are protected under the Migratory Bird Treaty Act because their habitat would not be cleared during the nesting season (April 15 through July 1) (Brown, 2016a) without first conducting a preconstruction survey for nesting migratory birds. If vegetation needs to be cleared during the nesting season, then FAPH would conduct a preconstruction survey prior to any clearing activity to determine whether nesting birds are present. If nesting migratory birds are found during the preconstruction survey, then those areas of Site 1 containing nesting birds would not be disturbed or cleared until the young have naturally vacated the nest. Through coordination with the U.S. Fish and Wildlife Service, a buffer would be established around each nest to minimize potential for nest abandonment resulting from nearby construction activity. Areas within this buffer would not be cleared. Therefore, there would be no direct adverse impact on migratory birds. However, the Preferred Alternative would result in minor, indirect, long-term, and permanent adverse impacts to migratory bird nesting and foraging habitat from the conversion of wooded and grassy areas to developed and landscaped areas. The landscaped areas could provide nesting and foraging habitat for certain bird species.

Threatened and Endangered Species

Four federally listed species could occur on Site 1 based on known occurrences of these species elsewhere on FAPH. Table 1 lists these species.

Table 1. Federally Listed and Candidate Plants and Animals That Could Occur on Site 1

Scientific Name	Common Name	Federal Status
Helonias bullata	Swamp pink	Threatened
Isotria medeoloides	Small whorled pogonia	Threatened
Myotis sodalis	Indiana bat	Endangered
Myotis septentrionalis	Northern long-eared bat	Threatened
Stygobromus kenki	Kenk's amphipod	Candidate

CH2M conducted field surveys on Site 1 on June 1, 2016, to determine the presence or absence of federally listed plants that could occur. Field surveys for plants were conducted within Site 1 and in the areas immediately surrounding Site 1. Habitat for the swamp pink was not present on Site 1. Swamp

pink is known to occur in the vicinity of Site 1. The distance between the plants and Site 1 and established riparian buffers would prevent the Preferred Alternative from impacting the offsite swamp pink. Habitat for the small whorled pogonia was present on Site 1. These two plants species were not observed within or adjacent to Site 1 (CH2M, 2016). Presence/probability of absence surveys for Indiana bats and northern long-eared bats were conducted on June 9 and June 10, 2016. Negative results of the acoustic survey suggest that Indiana and northern long-eared bats are not likely using the project area during the summer months (Copperhead, 2016). Kenk's amphipod is a groundwater-dwelling amphipod that surfaces in seeps when groundwater rises and discharges. There are no groundwater seeps or wetlands within Site 1; and groundwater and wetlands would not be impacted by the Preferred Alternative.

Two state-listed plant species could occur on Site 1 based on known occurrences of these species elsewhere on FAPH. Table 2 lists these species.

Table 2. State-listed Plants and Animals That Could Occur on Site 1

Scientific Name	Common Name	Federal Status
Juncus caesariensis	New Jersey rush	Threatened
Panax quinquefolius	Ginseng	Threatened
Myotis lucifugus	Little Brown Bat	Endangered
Perimyotis subflavus	Tri-colored Bat	Endangered

CH2M conducted field surveys on Site 1 on June 1, 2016, to determine the presence or absence of the two state-listed plants that could occur. Habitat for the New Jersey Rush was not present on Site 1. Habitat for the ginseng was present on Site 1. These two plant species were not observed within or adjacent to Site 1 (CH2M, 2016). Little-brown bats were not detected during acoustic surveys conducted on June 9 and 10, 2016. Tri-colored bats were detected during acoustic surveys conducted on June 9 and 10, 2016. State conservation measures apply to known maternity roost trees and winter hibernaculum, which do not occur on Site 1. Therefore, the Preferred Alternative is unlikely to impact tri-colored bats.

In a response to an early scoping letter, the Virginia Department of Conservation and Recreation (VDCR) noted that an uncommon wetland habitat, the coastal plain/outer piedmont acidic seepage swamp, is located near Site 1 (Appendix A). In addition, the VDCR noted that the TA22B Mill Creek Tributary Stream Conservation Unit is downstream of Site 1. The VDCR indicated that a state rare dragonfly could occur near aquatic habitats in the piedmont and coastal regions. The distance between Site 1 and aquatic areas, as well as established riparian buffers on FAPH, would prevent the Preferred Alternative from impacting offsite state rare aquatic resources.

Air Quality

Site 1 is in Caroline County, Virginia, which is an attainment area for all federal and state air quality standards (FAPH, 2016). There is one structure currently located on Preferred Site (a concrete block latrine), which is not a source of air emissions. Sources of air emissions in the vicinity of Site 1 primarily consist of fuel combustion emissions from vehicular traffic on the surrounding roadways and fuel combustion emissions from stationary sources of nearby military facilities.

Implementation of the Preferred Alternative would result in minor, direct, short-term, adverse impacts on overall air quality from construction of the new facility. The operation of heavy construction equipment would increase exhaust emissions and generate dust and other construction-related particles

in the air during the construction phase. Emissions from construction vehicles would be minimized by requirements in the construction specifications that the contractor keep equipment properly maintained and operating. During construction, the construction contractor would implement dust-control measures. These control measures could include the application of water to areas of bare soil to reduce dust and particles in the air.

Implementation of the Preferred Alternative would result in minor, direct and long-term, adverse impacts on overall air quality from stationary source emissions associated with operation of the proposed ECS. Operation of the proposed facilities would include emissions associated with building operations, such as heating, ventilation, and air conditioning. No other new stationary sources of emissions are anticipated from the Preferred Alternative.

Implementation of the Preferred Alternative would result in minor, direct and long-term, beneficial impacts on overall air quality from mobile source emissions associated with operation of the proposed ECS. Impacts would be beneficial because units would no longer need to drive to Fort Pickett to pick up the military equipment and then transport it to FAPH and back, reducing emissions from vehicles. In addition, compliance with the Leadership in Energy and Environmental Design Silver standard would reduce utility needs as compared to the existing World War II-era buildings being used at Fort Pickett.

Table 3 summarizes the projected total air emissions from the Preferred Alternative, from sources associated with the action. A copy of the calculations used to develop these estimates is provided in Attachment 2.

Table 3. Summary of Proposed Action Emissions*

	Projected Annual Emissions (tons per year)						
Project Activities	**SO_2**	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**VOCs**	**HAPs**
Operational Sources							
Stationary Sources	0.005	0.85	0.66	0.065	0.065	0.047	0.016
Mobile Sources	0.006	0.6	4.24	0.07	0.033	0.12	0.009
Operational Sources Total	**0.01**	**1.44**	**4.91**	**0.13**	**0.10**	**0.17**	**0.025**
Construction Sources							
Construction Sources Total	**0.013**	**7.03**	**6.11**	**0.58**	**0.46**	**0.61**	**0.21**
PSD Thresholds	250	250	250	250	250	250	25
Non-attainment NSR Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A
General Conformity *de minimis* Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Activities	**GHG Emissions (metric tons)**			
	CO_2	**CH_4**	**N_2O**	**Total CO_2e**
Operational Sources	1,242	0.023	0.002	1,243
Construction Sources	1,010	0.082	0.012	1,016
GHG Thresholds				**25,000 tons CO_2e**

Table 3. Summary of Proposed Action Emissions*

Project Activities	Projected Annual Emissions (tons per year)						
	SO_2	NO_x	CO	PM_{10}	$PM_{2.5}$	VOCs	HAPs

Notes:

CH_4 = methane
CO = carbon monoxide
GHG = greenhouse gas
HAP = hazardous air pollutant
N_2O = nitrous oxide
NO_x = nitrogen oxide
NSR = New Source Review
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
PSD = prevention of significant deterioration
SO_2 = sulfur dioxide
VOC = volatile organic compound

The projected emissions have been estimated using typical equipment for similar construction. Actual specifications of fuel usages, construction equipment, and vehicle mileage have been estimated based on similar projects.

Based on the estimated emissions listed in Table 3, the emissions from the Preferred Alternative would be well below regulatory thresholds (also shown in Table 3). Therefore, the Preferred Alternative would not be subject to PSD or NSR requirements. Because the area is a National Ambient Air Quality Standards (NAAQS) attainment area, the General Conformity Rule does not apply to the Preferred Alternative.

The Preferred Alternative would not have a significant impact on GHG emissions because the operational and construction activities proposed at Site 1 are not expected to cause direct emissions of 25,000 metric tons of CO_2e or more per year. The Preferred Alternative would result in a decrease in GHG emissions because the reduction in vehicular trips would result in a beneficial impacts on climate change.

Virginia Coastal Zone Management Program

Table 2 identifies the enforceable policies of the Virginia Coastal Zone Management Program and whether the action would be consistent with those policies. For enforceable policies that would not apply to the action, Table 4 provides the justification for the non-applicable determination.

Table 4. Virginia Coastal Zone Management Program Enforcement Policies

Policy	Scope	Consistency
Fisheries Management (Virginia Code §28.2-200 through §28.2-713; §29.1-100 through §29.1-570; and §3.1-249.59 through §3.1-249.62)	Policy stresses the conservation and enhancement of finfish and shellfish resources and fisheries to maximize food production and recreational opportunities. Administered by the Virginia Marine Resources Commission (VMRC), Virginia Department of Game and Inland fisheries, and Virginia Department of Agriculture and Consumer Services.	Not applicable to the Preferred Alternative because Site 1 does not contain finfish or shellfish resources or fisheries.

Table 4. Virginia Coastal Zone Management Program Enforcement Policies

Policy	Scope	Consistency
Subaqueous Lands Management (Virginia Code §28.2-1200 through §28.2-1213)	Code establishes conditions for granting or denying permits to use state-owned bottomlands. Administered by VMRC.	Not applicable to the Preferred Alternative because Site 1 does not contain state-owned bottomlands.
Wetlands Management (Virginia Code §28.2-1301 through §28.2-1320 and § 62.1-44.15.5; and §401 of the Clean Water Act)	Program promotes preservation of tidal wetlands. The tidal wetlands program is administered by VMRC. The Virginia Water Protection Permit program is administered by VDEQ.	Not applicable to the Preferred Alternative because Site 1 does not contain tidal wetlands.
Dunes Management (Virginia Code §28.2-1400 through §28.2-1420)	Policy is intended to prevent destruction or alteration of primary dunes pursuant to the Coastal Primary Sand Dune Protection Act. The policy is administered by VMRC.	Not applicable to the Preferred Alternative because Site 1 does not contain dunes.
Non-point Source Pollution Control (Virginia Code §10.1-560 et. seq.)	Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by Virginia Department of Conservation and Recreation.	Caroline County, Fort A.P. Hill, and the project site are subject to the Chesapeake Bay Preservation Act and regulations. There are no Riparian Protection Areas or Riparian Management Areas on the project. Because the land disturbance for this project is greater than 2,500 square feet, the project will comply with VDEQ's erosion and sediment control and stormwater regulations An ESCP and stormwater management plan would be required under the Preferred Alternative. The contractor would develop and submit the plans to VDEQ for review and approval. Once both plans are approved, VDEQ would issue a VSMP ermit to the contractor. The contractor would implement and maintain the approved ESCP and stormwater pollution prevention plan for the duration of the project. Toward the end of the construction project's schedule, the stormwater management plan will be implemented. The Preferred Alternative would be consistent with this policy.
Point Source Pollution Control (Virginia Code §62.1-44.15)	Requires permits for all point source discharges to surface waters, pursuant to §402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System permit program by the VDEQ.	VDEQ would issue a VSMP permit to the contractor. Toward the end of the construction project's schedule, the stormwater management plan will be implemented. The Preferred Alternative would be consistent with this policy.
Shoreline Sanitation (Virginia Code §32.1-164 through §32.1-165)	Code regulates that installation of septic tanks, including standards concerning suitable soil types and minimum distances from water bodies. Administered by Virginia Department of Health.	Not applicable to the Preferred Alternative because the design would not include installation of a septic tank. The ECS would be connected to the local wastewater utility.

Table 4. Virginia Coastal Zone Management Program Enforcement Policies

Policy	Scope	Consistency
Air Pollution Control (Virginia Code §10.1-1300 through 10.1-1320)	Policy provides a legally enforceable State Implementation Plan for the attainment and maintenance of the NAAQS. This program is administered by the State Air Pollution Control Board.	The Preferred Alternative would result in air emissions from stationary and mobile sources; however, the Preferred Alternative would not result in significant impacts to air quality because the estimated emissions are well below regulatory thresholds. Therefore, the Preferred Alternative would be in compliance and consistent with the State Implementation Plan and NAAQS.
Coastal Lands Management (Virginia Code §§ 10.1-2100 through 10.1-2114)	This state-local cooperative is pursuant to the Chesapeake Bay Preservation Act to protect water quality in the Chesapeake Bay and its tributaries.	Caroline County, Fort A.P. Hill, and the project site are subject to the Chesapeake Bay Preservation Act and regulations. There are no Riparian Protection Areas or Riparian Management Areas on the project. Because the land disturbance for this project is greater than 2,500 square feet, the project will comply with VDEQ erosion and sediment control and stormwater regulations, and would be consistent with this policy.

Additional Supporting Information

An environmental assessment is being prepared for the Proposed Action. A copy of the environmental assessment will be available for agency review during the 30-day public review. Attachments include:

- Attachment 1: Site Figures
- Attachment 2: Air Quality Emissions Estimates

Based on the enclosed information, data, and analysis, the USAR finds that the proposed construction and operation of an ECS is consistent to the maximum extent practicable with the enforcement policies of the Virginia Coastal Zone Management Program.

Pursuant to 15 CFR Section 930.41, the Virginia Coastal Zone Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by the USAR on the 60th day from receipt of this determination. The Commonwealth's response should be sent to Fort A.P. Hill Directorate of Public Works, Environmental and Natural Resources Division, 19952 North Range Road, Bldg. 1220, Fort A.P. Hill, Virginia, 22427, or by email at usarmy.aphill.imcom-northeast.mail.ernd@mail.mil.

References

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Enclosure 1
Air Quality Emissions Calculations

Air Emissions Summary Tables
Fort A.P. Hill
Air Quality Emission Estimates

Operational Sources Summary

Operational Sources	Actual Criteria Pollutant Emissions (tpy)[1]							GHG Emissions (metric tons)			
	SO_2	NOx	CO	PM_{10}	$PM_{2.5}$	VOC	HAPs	CO_2	CH_4	N_2O	CO_2e^2
Stationary Sources											
Heating Units	0.005	0.85	0.66	0.065	0.065	0.047	0.016	952	0.018	0.002	953
Mobile Sources											
On-road Vehicles[6]	0.006	0.60	4.24	0.07	0.033	0.12	0.009	290	0.005	0.000	290
Total	**0.01**	**1.44**	**4.91**	**0.13**	**0.10**	**0.17**	**0.025**	**1,242**	**0.023**	**0.002**	**1,243**
PSD Thresholds[3,4]	250	250	250	250	250	250	25	N/A	N/A	N/A	N/A
Non-attainment NSR Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
General Conformity *de minimis* Thresholds[5]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] Lead is not a significant pollutant generated from this type of action. Any lead emissions generated from the proposed action have been included as part of the HAP emissions.

[2] Based on global warming potentials of 1 for CO2, 25 for CH4 and 298 for N2O effective as of 1/1/2014.

[3] PSD thresholds apply only to stationary sources.

[4] Threshold is 25 tpy for total HAPs or 10 tpy for any individual HAP.

[5] Caroline County is an attainment area for all pollutants under NAAQS. Non-attainment NSR and General Conformity de minimis thresholds do not apply to attainment pollutants.

[6] On-road vehicle emissions represent a decrease from current site operations vehicle emissions due to employees no longer having to drive to Fort Pickett to retrieve equipment. This decrease is detailed further in the table below.

Mobile Sources Decrease Details

Operational Sources	Actual Criteria Pollutant Emissions (tpy)[1]							GHG Emissions (metric tons)			
	SO_2	NOx	CO	PM_{10}	$PM_{2.5}$	VOC	HAPs	CO_2	CH_4	N_2O	CO_2e^2
Mobile Sources											
On-road Vehicles - Existing Condition	0.009	1.47	5.88	0.14	0.08	0.22	0.021	505	0.010	0.000	506
On-road Vehicles - Preferred Alternative	0.006	0.60	4.24	0.07	0.033	0.12	0.009	290	0.005	0.000	290
Decrease	**0.00**	**-0.88**	**-1.63**	**-0.07**	**-0.05**	**-0.10**	**-0.01**	**-215**	**-0.004**	**0.000**	**-216**

Construction Sources Summary

Construction Sources	Actual Criteria Pollutant Emissions (tons)							GHG Emissions (metric tons)			
	SO_2	NOx	CO	PM_{10}	$PM_{2.5}$	VOC	HAPs	CO_2	CH_4	N_2O	CO_2e^2
Construction Worker Commute	0.009	0.63	6.41	0.08	0.04	0.17	0.012	401	0.008	0.000	401
Paving (Asphalt)	--	--	--	--	--	0.018	--	--	--	--	--
Equipment	0.015	12.58	5.43	0.85	0.83	0.99	0.40	1,504	0.16	0.024	1,515
Material Hauling	0.001	0.85	0.38	0.065	0.047	0.047	0.000	115.60	0.000	0.000	115.60
Site Grading Fugitive Dust Emissions	--	--	--	0.16	0.02	--	--	--	--	--	--
Demolition Emissions	--	--	--	0.000	0.000	--	--	--	--	--	--
Dust from Travel on Unpaved Roads	--	--	--	0.000	0.000	--	--	--	--	--	--
Project Construction Totals (tons)	**0.025**	**14.06**	**12.22**	**1.16**	**0.93**	**1.22**	**0.41**	**2,020**	**0.16**	**0.024**	**2,032**
Construction Totals (tpy)[1]	**0.013**	**7.03**	**6.11**	**0.58**	**0.46**	**0.61**	**0.21**	**1,010**	**0.082**	**0.012**	**1,016**
General Conformity *de minimis* Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] Construction emissions calculated over 24 months. Total emissions have been divided by 2 to estimate the annual emissions.

[2] Based on global warming potentials of 1 for CO2, 25 for CH4 and 298 for N2O effective as of 1/1/2014.

Table 1
Fort A.P. Hill
Air Quality Emission Estimates-Heating Unit

NG Fired Units (MMBtu/hr)[1]	**1.75**
NG Fired Units (MMBtu/hr)[2]	**0.30**
Fuel Type	**Natural Gas**
Maximum Operation Limit (hrs/yr)	**8,760**
Heat Value of Fuel (Btu/scf)[3]	**1,050**

[1] Heat input assumes 1-1 MMBtu/hr boiler (TEMF Bldg.) and 1-750,000 Btu/hr boiler (Warehouse Bldg).

[2] Heat input assumes 1-300,000 Btu/hr water heater (TEMF Bldg).

[3] Natural Gas heating value (EPA AP-42, Appendix A, Miscellaneous Data & Conversion Factors)

	Uncontrolled Potential to Emit								
	Heating Units				Heat/Vents Units and Water Heaters				**Total Criteria Pollutant Emissions (ton/yr)**
Criteria Pollutant[1]	**Emission Factor ($lb/10^6$ scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Factor ($lb/10^6$ scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	
Total Particulate Matter (PM)[2]	7.60	0.013	111	0.055	7.60	0.002	19.02	0.010	0.065
Nitrogen Oxides (NOx)	100	0.17	1,460	0.73	94.00	0.027	235	0.12	0.85
Sulfur Oxides (SOx)	0.60	0.001	8.76	0.004	0.60	0.0002	1.50	0.001	0.005
Carbon Monoxide (CO)	84.00	0.14	1,226	0.61	40.00	0.011	100	0.05	0.66
VOC	5.50	0.009	80.30	0.040	5.50	0.002	13.77	0.007	0.047

[1] Criteria Pollutants, small uncontrolled boilers (EPA AP-42, Section 1.4 Natural Gas Combustion, Tables 1.4-1 and 1.4-2).

[2] PM emission factor is assumed to equal PM_{10} and $PM_{2.5}$

			Uncontrolled Potential to Emit		
Toxic Air Pollutants (Organic HAPs)[1,2]	**CAS No.**	**Emission Factor ($lb/10^6$ scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**
3-Methylchloranthrene	56-49-5	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Benzene	71-43-2	2.10E-03	4.10E-06	0.036	1.80E-05
Benzo(a)pyrene	50-32-8	1.20E-06	2.34E-09	2.05E-05	1.03E-08
Formaldehyde	50-00-0	7.50E-02	1.46E-04	1.28	0.001
Hexane	110-54-3	1.80E+00	0.004	30.79	0.015
Naphthalene	91-20-3	6.10E-04	1.19E-06	0.010	5.22E-06
Toluene	108-88-3	3.40E-03	6.64E-06	0.058	2.91E-05
2-Methylnaphthalene	91-57-6	2.40E-05	4.69E-08	4.10E-04	2.05E-07
7,12-Dimethylbenz(a)anthracene		1.60E-05	3.12E-08	2.74E-04	1.37E-07
Acenaphthene	83-32-9	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Acenaphthylene	203-96-8	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Anthracene	120-12-7	2.40E-06	4.69E-09	4.10E-05	2.05E-08
Benzo(a)anthracene	56-55-3	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Benzo(b)fluoranthene	205-82-3	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Benzo(g,h,i)perylene	191-24-2	1.20E-06	2.34E-09	2.05E-05	1.03E-08
Benzo(k)fluoranthene	205-82-3	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Chrysene	218-01-9	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	2.34E-09	2.05E-05	1.03E-08
Dichlorobenzene	25321-22-6	1.20E-03	2.34E-06	0.021	1.03E-05
Fluoranthene	206-44-0	3.00E-06	5.86E-09	5.13E-05	2.57E-08
Flourene	86-73-7	2.80E-06	5.47E-09	4.79E-05	2.39E-08
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Phenanathrene	85-01-8	1.70E-05	3.32E-08	2.91E-04	1.45E-07
Pyrene	129-00-0	5.00E-06	9.76E-09	8.55E-05	4.28E-08
Organic HAPs Total				**32.19**	**0.02**

[1] Toxic Air Pollutants (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-3).

[2] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

			Uncontrolled Potential to Emit		
Toxic Air Pollutants-Metals (Inorganic HAPs)[1,2]	**CAS Number**	**Emission Factor ($lb/10^6$ scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**
Arsenic	7440-38-2	2.00E-04	3.90E-07	0.003	1.71E-06
Barium	7440-39-3	4.40E-03	8.59E-06	0.075	3.76E-05
Beryllium	7440-41-7	1.20E-05	2.34E-08	2.05E-04	1.03E-07
Cadmium	7440-43-9	1.10E-03	2.15E-06	0.019	9.41E-06
Chromium	7440-47-3	1.40E-03	2.73E-06	0.024	1.20E-05
Cobalt	7440-48-4	8.40E-05	1.64E-07	0.001	7.18E-07
Copper	7440-50-8	8.50E-04	1.66E-06	0.015	7.27E-06
Lead		5.00E-04	9.76E-07	0.009	4.28E-06
Manganese	7439-96-5	3.80E-04	7.42E-07	0.006	3.25E-06
Mercury	7439-97-6	2.60E-04	5.08E-07	0.004	2.22E-06
Molybdenum	7439-98-7	1.10E-03	2.15E-06	0.019	9.41E-06
Nickel	7440-02-0	2.10E-03	4.10E-06	0.036	1.80E-05
Selenium	7782-49-2	2.40E-05	4.69E-08	4.10E-04	2.05E-07
Vanadium	1314-62-1	2.30E-03	4.49E-06	0.039	1.97E-05
Zinc	7440-66-6	2.90E-02	5.66E-05	0.50	2.48E-04
Inorganic HAPs Total				**0.75**	**3.74E-04**
HAPs Total				**32.94**	**0.016**

[1] Metals from Natural Gas Combustion (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-4; Lead from Table 1.4-2).

[2] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

Emission rate calculations for greenhouse gases - SCC Code 2103006000

GHG emission factors obtained from U.S. EPA Mandatory Reporting of GHGs, Final Rule; Tables C-1 and C-2

Constituent	**Emission Factor (lb/mmBtu)**	**Hourly Potential to Emit (lb/hr)**	**Annual Potential to Emit (lb/yr)**	**Annual Potential to Emit (metric tons per year)**	**CO2e (metric tons/yr)**
CO_2	116.9	239.6	2,099,092	952	952
CH_4	0.0022	0.0045	39.59	0.018	0.45
N_2O	0.00022	0.0005	3.96	0.002	0.54

[3] Based on global warming potentials of 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Table 2
Fort A.P. Hill
Air Quality Emission Estimates - Government and Personal Onroad Vehicles

Emissions from Worker Commuting

Emission factors for four vehicle categories were developed by running EPA's MOVES 2014a model using an average speed of 30 mph for all vehicle types and a default age distribution of vehicles. Vehicle type distributions within each category (see table below) were derived from the national average vehicle type distribution, obtained from Mobile6 and converted for use with MOVES (Source: http://www.epa.gov/otaq/models/moves/tools.htm). Mobile source emissions factors generally decrease with time; therefore, the 2016 emission factors can conservatively be used for analyses of projects occurring in years 2016 and later.

Vehicle Category	Vehicle Types included
Worker Commute	passenger cars and trucks (mix of diesel and gas from MOVES defaults)
Haul Truck	single-unit and combination long- and short-haul trucks (mix of diesel and gas from MOVES defaults)
Coach Bus	intercity buses (100% diesel)
GOV	light-duty trucks (100% diesel)

Calculation of Mileage for Government Owned Vehicles (GOVs)

Vehicle Type	# of vehicles	Total Mileage/ Year[1]	Mileage
GOVs Buses/Vans	10	1,200	12,000

[1] Assumes each government vehicle driving 50 mi/yr to site 2 weekends/mo 12 mo/year to take reservists to trainings

Calculation of Mileage for Privately Owned Vehicles (POVs)

	Estimated Vehicles Entering USARC /Year					Miles/Vehicle/ Day[3]	Total POVs per Year	Total Miles per Year
	Daily	Weekend	Annual[1]	% of Employees that drive to Property	Adjusted Vehicles per year[2]			
Daily Employee POVs	41	0	10,660	100%	10,660	50	41	533,000
Weekend Reservists POVs	0	48	1,152	100%	1,152	50	0	57,600
TOTAL (POVs)								**590,600**

[1] The annual number of vehicles entering the facility per year: 41 POV Employee Vehicles/Day x 5 (day/wk) x 52 (wks/yr) 48 Weekend Reservists POV vehicles/weekend x 2 weekends/mo x 12 mo/year

[2] Estimated maximum worst case scenario of 100% of employees commuting to the site in their personal vehicles

[3] 50 miles has been assumed to be the average distance traveled by employees in their personal vehicles commuting to and from work at Fort A.P. Hill, assuming most employees live within 25 miles of the property.

Calculation of Criteria Pollutant Emission Rates

				2016 Year Emission Factors														
				Fleet Vehicle Criteria Emission Factors (gm/mile)						Fleet Vehicle HAP Emission Factors (mg/mile)						GHG Emission Factors (gm/mile)		
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O
Weekend Reservists GOV Buses/Vans	2016 [1]	10	12,000	3.43	0.74	14.00	0.019	1.07	0.77	5.01	27.33	2.11	5.96	61.90	0.000	2182	0.032	0.000
Daily Employee POVs	2016 [2]	41	533,000	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000
Weekend Reservists POVs	2016 [2]	48	57,600	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000

[1] GOV Buses/Vans emission factors are based on coach bus emission factors (mix of diesel from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] Worker and reservists commute emission factors are based on passenger cars and trucks (mix of diesel and gas from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

				Actual Criteria Pollutant Emissions[1]						Actual HAP Emissions						GHG Emissions			
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetaldehyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O	CO_2e[2]
Weekend Reservists GOV Buses/Vans	2016	10	12,000	90	19.60	369.58	0.501	28.16	20.21	0.132	0.721	0.056	0.157	1.634	0.000	57,713	0.837	0.000	57,734
Daily Employee POVs	2016	41	533,000	7,580	195.83	743.72	10.31	100.17	41.57	0.15	2.33	1.05	7.28	2.97	0.000	524,934	10.04	0.000	525,185
Weekend Reservists POVs	2016	48	57,600	819	21	80.4	1.11	10.82	4.49	0.02	0.25	0.11	0.79	0.32	0.000	56,728	1.08	0.000	56,756
TOTAL EMISSIONS (lb/yr)				**8,489**	**237**	**1,194**	**11.9**	**139**	**66.27**	**0.30**	**3.30**	**1.22**	**8.23**	**4.92**	**0.000**	**639,376**	**11.96**	**0.000**	**639,675**
TOTAL EMISSIONS (tpy)				**4.2**	**0.12**	**0.60**	**0.006**	**0.07**	**0.03**	**1.51E-04**	**0.002**	**0.001**	**0.004**	**0.002**	**0.000**	--	--	--	
TOTAL GHG EMISSIONS (metric tons/yr)				--	--	--	--	--	--	--	--	--	--	--	--	**290**	**0.005**	**0.000**	**290**

[1] Actual Emissions (lb/yr) = Emission Factor (gm/mile) x Annual Mileage x 0.0022 (lb/gm).

[2] Based on global warming potentials of 1 for CO2, 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Table 3
Fort A.P. Hill
Air Quality Emission Estimates - Government and Personal Onroad Vehicles Existing Conditions

Emissions from Worker Commuting

Emission factors for four vehicle categories were developed by running EPA's MOVES 2014a model using an average speed of 30 mph for all vehicle types and a default age distribution of vehicles. Vehicle type distributions within each category (see table below) were derived from the national average vehicle type distribution, obtained from Mobile6 and converted for use with MOVES (Source: http://www.epa.gov/otaq/models/moves/tools.htm). Mobile source emissions factors generally decrease with time; therefore, the 2016 emission factors can conservatively be used for analyses of projects occurring in years 2016 and later.

Vehicle Category	Vehicle Types included
Worker Commute	passenger cars and trucks (mix of diesel and gas from MOVES defaults)
Haul Truck	single-unit and combination long- and short-haul trucks (mix of diesel and gas from MOVES defaults)
Coach Bus	intercity buses (100% diesel)
GOV	light-duty trucks (100% diesel)
2.60%	Combination Short-haul Truck
2.66%	Combination Long-haul Truck

Calculation of Mileage for Government Owned Vehicles (GOVs)

Vehicle Type	# of vehicles	Mileage[1]	Total Annual Mileage
GOVs	24	200	115,200
GOVs Buses/Vans	10	200	48,000

[1] Fort Pickett is approx. 100 miles from Fort A.P. Hill. Assumes each government vehicle and bus/van driven 200 miles from Fort Pickett to Fort A.P. Hill for training and back 2 weekends/mo 12 mos/year.

Calculation of Mileage for Privately Owned Vehicles (POVs)

	Estimated Vehicles Entering USARC /Year					Miles/Vehicle/ Day[3]	Total POVs per Year	Total Miles per Year
	Daily	Weekend	Annual[1]	% of Employees that drive to Property	Adjusted Vehicles per year[2]			
Daily Employee POVs	41	0	10,660	100%	10,660	50	41	533,000
Weekend Reservists POVs	0	150	3,600	100%	3,600	50	0	180,000
TOTAL (POVs)								**713,000**

[1] The annual number of vehicles entering the facility per year: 41 POV Employee Vehicles/Day x 5 (day/wk) x 52 (wks/yr)

[2] Estimated maximum worst case scenario of 100% of employees commuting to the site in their personal vehicles

[3] Assumes 41 daily employees commuting to work at Fort Pickett. Assumes 150 reservists driving 50 miles roundtrip to/from Fort Pickett to pickup equipment. POVs are then parked at Fort Pickett and GOV equipment and buses/vans are driven from Fort Pickett to Fort A.P. Hill and back for training.

Calculation of Criteria Pollutant Emission Rates

				2016 Year Emission Factors														
				Fleet Vehicle Criteria Emission Factors (gm/mile)						Fleet Vehicle HAP Emission Factors (mg/mile)						GHG Emission Factors (gm/mile)		
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O
Weekend Reservists GOVs	2016 [1]	24	115,200	4.93	0.38	1.87	0.006	0.15	0.09	2.60	14.22	1.08	3.09	32.43	0.000	713	0.020	0.000
Weekend Reservists' GOV Buses/Vans	2016 [2]	10	48,000	3.43	0.74	14.00	0.019	1.07	0.77	5.01	27.33	2.11	5.96	61.90	0.000	2182	0.032	0.000
Daily Employee POVs	2016 [3]	41	533,000	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000
Weekend Reservists POVs	2016 [3]	150	180,000	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000

[1] GOV emission factors are based on a mix of light duty truck factors (mix of diesel from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] GOV Buses/Vans emission factors are based on coach bus emission factors (mix of diesel from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[3] Worker commute emission factors are based on passenger cars and trucks (mix of diesel and gas from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

				Actual Criteria Pollutant Emissions[1]						Actual HAP Emissions						GHG Emissions			
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetaldehyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O	CO_2e^2
Weekend Reservists GOVs	2016	24	115,200	1,249	97.06	472.90	1.557	38.81	23.93	0.658	3.603	0.274	0.783	8.219	0.000	181,202	5.084	0.000	181,329
Weekend Reservists' GOV Buses/Vans	2016	10	48,000	362	78.39	1,478.32	2.003	112.63	80.85	0.529	2.886	0.223	0.629	6.537	0.000	230,851	3.347	0.000	230,934
Daily Employee POVs	2016	41	533,000	7,580	195.83	743.72	10.31	100.17	41.57	0.15	2.33	1.05	7.28	2.97	0.000	524,934	10.04	0.00	525,185
Weekend Reservists POVs	2016	150	180,000	2,560	66	251.2	3.48	33.83	14.04	0.05	0.79	0.35	2.46	1.00	0.000	177,276	3.39	0.00	177,361
TOTAL EMISSIONS (lb/yr)				**11,751**	**437**	**2,946**	**17.4**	**285**	**160.39**	**1.39**	**9.60**	**1.90**	**11.16**	**18.73**	**0.000**	**1,114,263**	**21.86**	**0.00**	**1,114,810**
TOTAL EMISSIONS (tpy)				**5.9**	**0.22**	**1.47**	**0.009**	**0.14**	**0.08**	**6.96E-04**	**0.005**	**0.001**	**0.006**	**0.009**	**0.000**	**--**	**--**	**--**	
TOTAL GHG EMISSIONS (metric tons/yr)				**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**505**	**0.010**	**0.000**	**506**

[1] Actual Emissions (lb/yr) = Emission Factor (gm/mile) x Annual Mileage x 0.0022 (lb/gm).

[2] Based on global warming potentials of 1 for CO2, 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Table 4
Fort A.P. Hill
Air Quality Emission Estimates- Construction

Emissions from Construction Worker Commuting

					Pollutant Emission Factors[1] (g/VMT)						HAP Emission Factors (mg/mile)						GHG Emission Factors (g/mi)			
Estimated Daily Commute Distance	Number of workers	Daily Commute Miles[3]	Months of Construction	Total Miles per Project[2]	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O	
Construction Worker[2]	30	50	24	900,000	6.46	0.63	0.17	0.09	0.04	0.009	0.13	1.99	0.90	6.2	2.53	0.000	447	0.009	0.000	
Total					Criteria Pollutant Emissions (tons)						HAP Emissions (Pounds)						GHG Emissions (metric tons)			
					CO	NOx	VOC	PM_{10}	$PM_{2.5}$	SO_2	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O	CO_2e[4]
					6.41	0.63	0.17	0.08	0.04	0.009	0.26	3.94	1.78	12.3	5.02	0.00	401	0.01	0.000	**401**
				Total	**6.41**	**0.63**	**0.17**	**0.08**	**0.04**	**0.009**	**0.26**	**3.94**	**1.78**	**12.3**	**5.02**	**0.00**	**401**	**0.01**	**0.000**	**401**

Notes:

[1] Worker commute emission factors are based on passenger cars and trucks (mix of diesel and gas from MOVES defaults) for year 2016 traveling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] Construction worker total miles calculated by: multiplying daily commute hours x months of construction x 25 (days per month); have assumed a 24-month construction period.

[3] Daily commute number includes both directions of commute

[4] Based on global warming potentials of 1 for CO2, 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Paving (Asphalt) Emissions

Acres to be paved	13.4	
Emissions Factor[1]	2.62	lbs ROG (VOC) /acre
Emissions from asphalt paving	**35.06**	**lbs VOC**
	0.018	**Tons VOC**

Note:

[1] Using equation in AP-42, Section 4.5, emissions factor from URBEMIS model.

Material Hauling

Material Hauling	Tons of Material	# of Trips[2]	Miles per Trip	Avg. Speed	Pollutant Emission Factors (g/VMT)[1] CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	HAP Emission Factors (mg/mile) Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	GHG Emission Factors (g/mi) CO_2	CH_4	N_2O
To Site	20	932	30	25	6.15	13.79	0.76	1.05	0.76	0.019	4.51	25.51	2.39	9.14	56.48	0.000	2,071	0.033	0.000
From Site	20	932	30	25	6.15	13.79	0.76	1.05	0.76	0.019	4.51	25.51	2.39	9.14	56.48	0.000	2,071	0.033	0.000

	Criteria Pollutant Emissions (Annual tons) CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	HAP Emissions (Pounds) Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	GHG Emissions (metric tons) CO_2	CH_4	N_2O	CO_2e[3]
To Site	0.189	0.42	0.023	0.032	0.023	5.87E-04	0.28	1.57	0.147	0.56	3.48	0.000	57.78	9.20E-04	0.000	**57.80**
From Site	0.189	0.42	0.023	0.032	0.023	5.87E-04	0.28	1.57	0.147	0.56	3.48	0.000	57.78	9.20E-04	0.000	**57.80**
Total	**0.38**	**0.85**	**0.047**	**0.065**	**0.047**	**0.001**	**0.56**	**3.14**	**0.29**	**1.13**	**6.96**	**0.000**	**115.56**	**0.002**	**0.000**	**115.60**

[1] Haul truck emission factors are based on single-unit and combination long- and short-haul trucks (mix of diesel and gas from MOVES defaults) for year 2016 travelling at an average speed of 25 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] Assumes service trucks (2) and delivery (2) trucks make 2 deliveries per week for approximately 24 months of the project, dump trucks (2) make 5 deliveries per day for 10 days, and concrete (1) and asphalt (1) trucks make 5 deliveries per day for 10 days over the project duration.

[3] Based on global warming potentials of 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Construction Activities - Fugitive Dust Emissions

	PM Tons/ Acre-month[1]	Acres worked	Months	PM10 Emissions (tons)[3]	PM2.5 Emissions (Ton)[4]
Average Conditions	0.11	1.46	1	0.16	0.02

[1] Emission factors from WRAP Fugitive Dust Handbook, September 2006, Table 3-2. Conservatively assumes no control measures will be used.
[2] Assumes 0.25 acres will be disturbed at a time for a total of approx. 35 acres disturbed over 24 months of construction.
[3] Emissions from Grading = Acres of Area Graded * Months of Grading * EF = Emissions from Grading
[4] The PM2.5/PM10 ratio for fugitive dust from construction and demolition activities is 0.1.(WRAP, section 3.4.1)

Demolition Emissions

	PM10 (tons/ac/mo)[1]	Acres worked[2]	Months of Construction	PM10 Emissions (tons)	PM2.5 Emissions (Ton)[3]
Demolition Emissions Average Condi	0.11	0.000125	1	0.0000	0.00000

Note:
[1] Emission factor from WRAP Fugitive Dust Handbook, September 2006, Table 3-2.
[2] Assumes 0.000125 acres disturbed at a time for a total of approx. 0.003 acres disturbed over 24 months of construction.
[3] The PM2.5/PM10 ratio for fugitive dust from construction and demolition activities is 0.1.(WRAP, section 3.4.1)

Construction Summary Table

	CO	NOx	VOC	PM_{10}	$PM_{2.5}$	SO_2	HAPs	CO_2	CH_4	N_2O	CO_2e
	tons	tons	tons	tons	tons	tons	tons	metric tons	metric tons	metric tons	metric tons
Construction Worker Commute	6.41	0.63	0.17	0.08	0.04	0.009	0.012	401	0.008	0.000	401.4
Paving (Asphalt)	--	--	0.018	--	--	--	--	--	--	--	--
Clearing	--	--	--	0.00	0.00	--	--	--	--	--	--
Equipment[1]	5.43	12.58	0.99	0.85	0.83	0.02	0.40	1,504	0.16	0.024	1,515
Material Hauling	0.38	0.85	0.047	0.065	0.047	1.17E-03	6.04E-03	115.56	0.002	0.0000	115.60
Fugitive Dust Emissions	--	--	--	0.16	0.02	--	--	--	--	--	--
Demolition Emissions	--	--	--	0.00	0.00	--	--	--	--	--	--
Project Construction Totals (tons)	**12.22**	**14.06**	**1.22**	**1.16**	**0.93**	**0.025**	**0.42**	**--**	**--**	**--**	**--**
Project Construction Totals (metric tons)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**2,020**	**0.17**	**0.024**	**2,032**

[1] Equipment emissions obtained from Table 4. Emissions have been multiplied by 2 to account for the 24 month construction period.

Table 5
Fort A.P. Hill
Air Quality Emission Estimates- Diesel Off-road Construction Vehicles
Calculation of Criteria Pollutant Emission Rates

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data[1]										*Emission Parameters*			*Criteria Pollutant Emissions Factors*[5]						*GHG Emission Factors*[5]			*Annual Actual Emissions*[7]									
Vehicle/Equipment Type	Equipment Category	Engine Type	Number of Units	Engine Rating (Per Unit) (hp)	Model Year	Model Year Site (S)/ Default (D)	Operating Time (Per unit) (hr/yr)	Total Operating Time[2] (hr/yr)	Source for Operating Time Site (S)/ Default (D)	Heat Input (MMBtu/yr)	Load Factor[3] (Percent of Max. Power)	SCC[4]	VOC Emission Factor (g/hp-hr)	CO Emission Factor (g/hp-hr)	NOx Emission Factor (g/hp-hr)	PM-10 Emission Factor (g/hp-hr)	PM-2.5 Emission Factor (g/hp-hr)	SO_2 Emission Factor (g/hp-hr)	CO_2 Emission Factor (kg/MMBtu)	CO_4 Emission Factor (g/MMBtu)	N_2O Emission Factor (g/MMBtu)	VOC Emissions (lb/yr)	CO Emissions (lb/yr)	NOx Emissions (lb/yr)	PM-10 Emissions (lb/yr)	PM-2.5 Emissions (lb/yr)	SO_2 Emissions (lb/yr)	CO_2 Emissions (metric tons/yr)	CO_4 Emissions (metric tons/yr)	N_2O Emissions (metric tons/yr)	CO_2e[8] (metric tons/yr)
Backhoe	Construction	Reciprocating Diesel	1	100	2013	D	1040	1040	D	728	21%	2270002066	1.11	6.57	5.41	0.97	0.94	0.006	73.96	4.00	0.6	53.45	316.4	260.5	46.71	45.31	0.30	11.31	0.003	4.37E-04	11.51
Compactor	Construction	Diesel	1	11	2013	D	1040	1040	D	80.08	43%	2270002009	0.71	4.51	5.12	0.52	0.50	0.005	73.96	4.00	0.6	7.70	48.92	55.54	5.64	5.47	0.059	2.55	0.000	4.80E-05	2.57
Dump Trucks	Construction	Diesel	1	175	2013	D	1040	1040	D	1,274	21%	2270002078	0.87	3.42	5.85	0.66	0.64	0.006	73.96	4.00	0.6	73.32	288.2	493.0	55.62	53.95	0.47	19.79	0.005	7.64E-04	20.14
Cranes	Construction	Diesel	1	300	2013	D	1040	1040	D	2,184	43%	2270002045	0.22	0.63	3.02	0.13	0.13	0.005	73.96	4.00	0.6	65.08	186.4	893.4	38.46	37.30	1.33	69.46	0.009	1.31E-03	70.07
Bulldozers	Construction	Diesel	1	1,000	2013	D	1040	1040	D	7,280	59%	2270002069	0.29	1.25	4.59	0.20	0.19	0.005	73.96	4.00	0.6	392.4	1,691	6,210	270.6	262.5	6.22	317.7	0.029	4.37E-03	319.7
Paving Machine	Construction	Diesel	1	175	2013	D	1040	1040	D	1,274	59%	2270002021	0.27	1.33	3.51	0.28	0.27	0.005	73.96	4.00	0.6	63.93	314.9	831.1	66.30	64.31	1.11	55.59	0.005	7.64E-04	55.95
Concrete Truck	Construction	Reciprocating	1	300	2013	D	1040	1040	D	2,184	59%	2270002051	0.16	0.63	1.98	0.12	0.12	0.004	73.96	4.00	0.6	64.94	255.7	803.7	48.71	47.25	1.66	95.30	0.009	1.31E-03	95.91
Air Compressor	Construction	Diesel	2	75	2013	D	1040	2080	D	1,092	43%	2270006015	0.36	2.41	4.34	0.34	0.33	0.005	73.96	4.00	0.6	53.25	356.5	641.9	50.29	48.78	0.78	34.73	0.004	6.55E-04	35.03
Front End Loader	Construction	Diesel	1	100	2013	D	1040	1040	D	728	59%	2270002060	0.32	3.23	3.68	0.43	0.42	0.005	73.96	4.00	0.6	43.30	437.0	497.9	58.18	56.43	0.70	31.77	0.003	4.37E-04	31.97
Skid Steer Loader	Construction	Reciprocating	1	50	2013	D	1040	1040	D	364	21%	2270002072	0.97	4.45	5.25	0.72	0.70	0.006	73.96	4.00	0.6	23.36	107.1	126.4	17.34	16.82	0.15	5.65	0.001	2.18E-04	5.75
Paver/Roller	Construction	Reciprocating	1	100	2013	D	1040	1040	D	728	59%	2270002003	0.30	3.17	3.56	0.41	0.40	0.005	73.96	4.00	0.6	40.59	428.9	481.7	55.47	53.81	0.69	31.77	0.003	4.37E-04	31.97
Clearing Equipment (Roller)	Construction	Reciprocating	1	100	2013	D	1040	1040	D	728	59%	2270002015	0.32	3.23	3.68	0.43	0.42	0.005	73.96	4.00	0.6	43.30	437.0	497.9	58.18	56.43	0.70	31.77	0.003	4.37E-04	31.97
Excavators	Construction	Reciprocating	1	100	2013	D	1040	1040	D	728	59%	2270002030	0.38	3.43	4.03	0.48	0.47	0.005	73.96	4.00	0.6	51.41	464.1	545.3	64.94	63.00	0.70	31.77	0.003	4.37E-04	31.97
Concrete Saw (Ramp and Lot)	Construction	Reciprocating	1	40	2013	B	1040	1040	D	291.2	59%	2270002039	0.28	1.75	4.47	0.30	0.29	0.005	73.96	4.00	0.6	15.15	94.71	241.9	16.24	15.75	0.29	12.71	0.001	1.75E-04	12.79
TOTAL EMISSIONS (lb/yr)																						**991**	**5,427**	**12,580**	**853**	**827**	**15.18**	--	--	--	--
TOTAL EMISSIONS (tpy)																						**0.50**	**2.71**	**6.29**	**0.43**	**0.41**	**0.008**	--	--	--	--
TOTAL EMISSIONS (metric tons/yr)																						--	--	--	--	--	--	**752**	**0.079**	**0.012**	**757**

[1] Though some welding may be done onsite, it will be minimal and the emissions have been ruled negligible

[2] Assumed each piece of equipment operates 4 hrs/day, 5 days per week, 52 weeks per year.

[3] Load factor is the fraction of available power at which the engine normally operates. Load factors obtained from the EPA Nonroad Model

[4] SCC obtained EPA Nonroad Model

[5] Emission factors are obtained from USEPA, NonRoad Model. Run July 6, 2013 for the year 2013 for the entire nation. Assumptions: Fuel RVP: 12.5, O wt.%: 0.0, Gas Sulfur %: 0.0257, Diesel

[6] Emission factors obtained from Mandatory Reporting of Greenhouse Gases; Final Rule, TABLE C–1 TO SUBPART C OF PART 98

[7] Annual Actual Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

[8] Based on global warming potentials of 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

2.0 HAP Emissions From Diesel

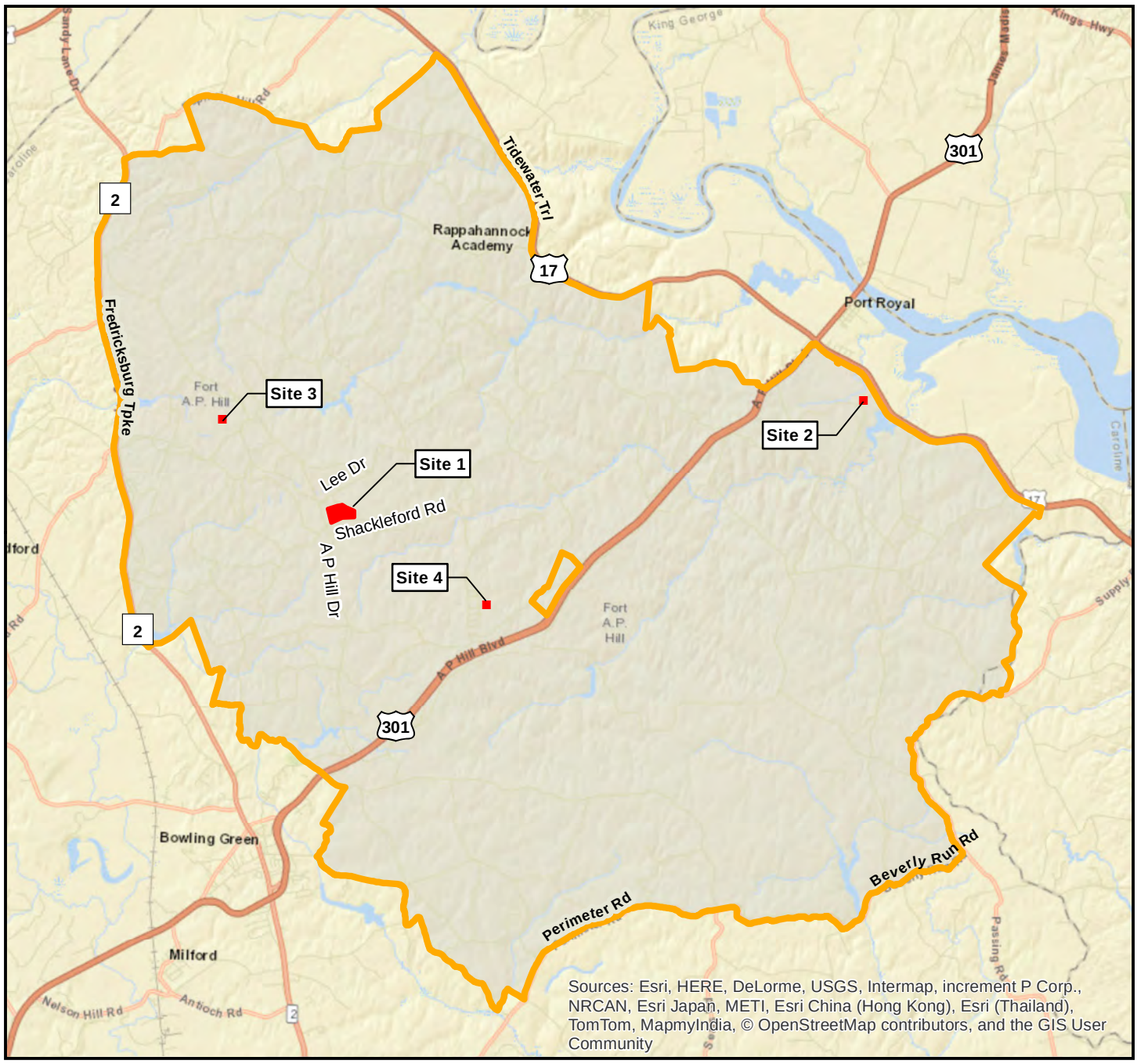
HAP constituent emission factors obtained from U.S. Environmental Protection Agency, SPECIATE Version 4.4 , Speciation for Medium Duty Trucks (Profile # 4674), Speciation based on tests preformed in 1996

Speciation for construction equipment was not available so the medium duty truck speciation has been used here to estimate HAP emissions. http://www.epa.gov/ttn/chief/software/speciate/index.html

Constituent CAS	Constituent Name	Factor	Actual[1]	Actual
		(Weight% VOC)	(lb/yr)	(tons/yr)
106-99-0	1,3-butadiene	0.12	**1.17**	**5.9E-04**
540-84-1	2,2,4-trimethylpentane	0.47	**4.69**	**2.3E-03**
75-07-0	Acetaldehyde	15.94	**158.0**	**7.9E-02**
107-02-8	Acrolein (2-propenal)	1.30	**12.85**	**6.4E-03**
71-43-2	Benzene	1.05	**10.36**	**5.2E-03**
100-41-4	Ethylbenzene	0.18	**1.78**	**8.9E-04**
50-00-0	Formaldehyde	8.51	**84.30**	**4.2E-02**
108-38-3; 106-42-3	M & p-xylene	0.89	**8.81**	**4.4E-03**
78-93-3	Methyl ethyl ketone (2-butanone)	2.86	**28.35**	**1.4E-02**
91-20-3	Naphthalene	0.24	**2.33**	**1.2E-03**
95-47-6	O-xylene	0.32	**3.14**	**1.6E-03**
123-38-6	Propionaldehyde	5.34	**52.9**	**2.6E-02**
108-88-3	Toluene	1.52	**15.05**	**7.5E-03**
132-64-9	Dibenzofuran , also noted as "DBZFUR"	0.011	**0.11**	**5.4E-05**
98-86-2	Acetophenone	1.95	**19.28**	**9.6E-03**
Total:			**403.1**	**0.20**

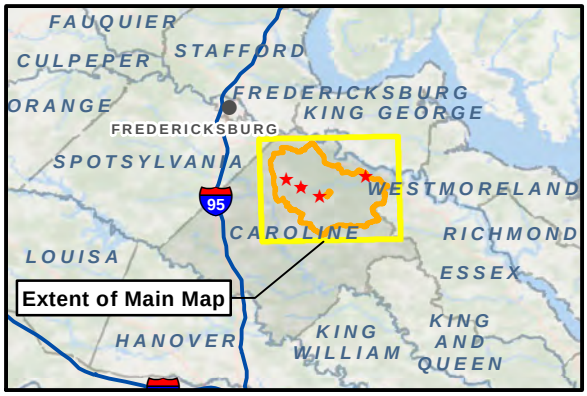
[1] Emission Factor (Weight% VOC) x VOC Emissions from Diesel Off-Road Equipment / 100 = Actual HAP Emission (lb/yr)

Enclosure 2
Figures



Legend

- Fort A. P. Hill Boundary
- Site Locations



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0 1 2 3 4 5 Miles

Figure 2-1
Proposed Project Locations
Fort A.P. Hill, Virginia

Legend

Site 1 Location

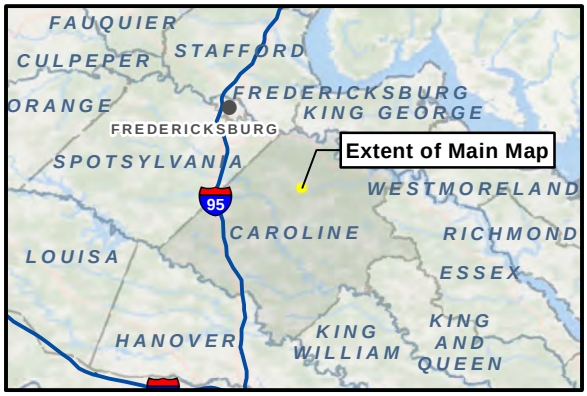

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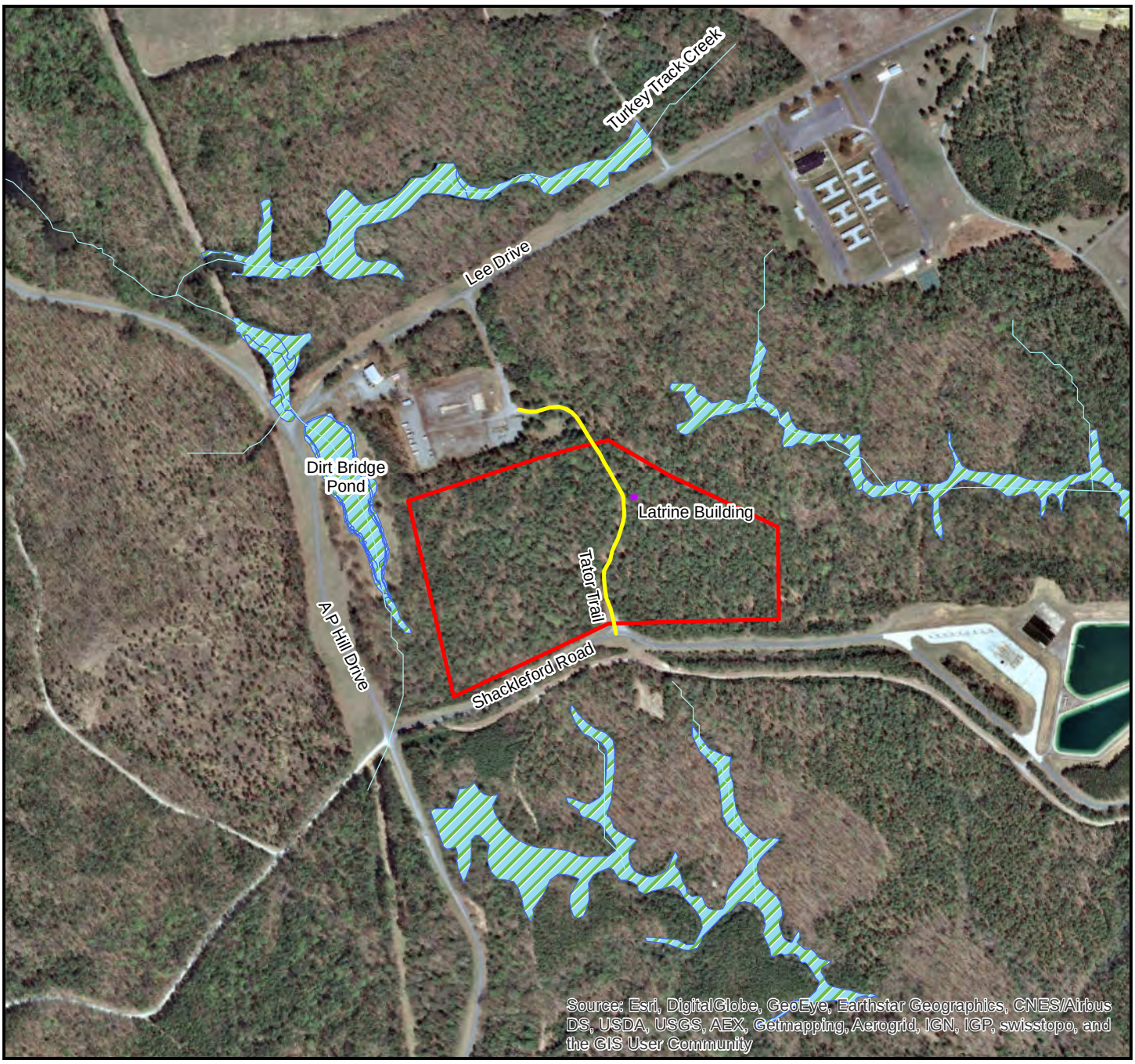
Figure 2-2
Proposed Site 1 Location
Fort A.P. Hill, Virginia



Legend

- Site 1 Location
- Streams
- Wetlands

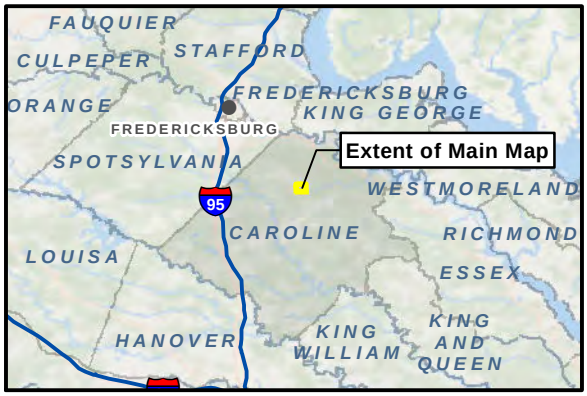


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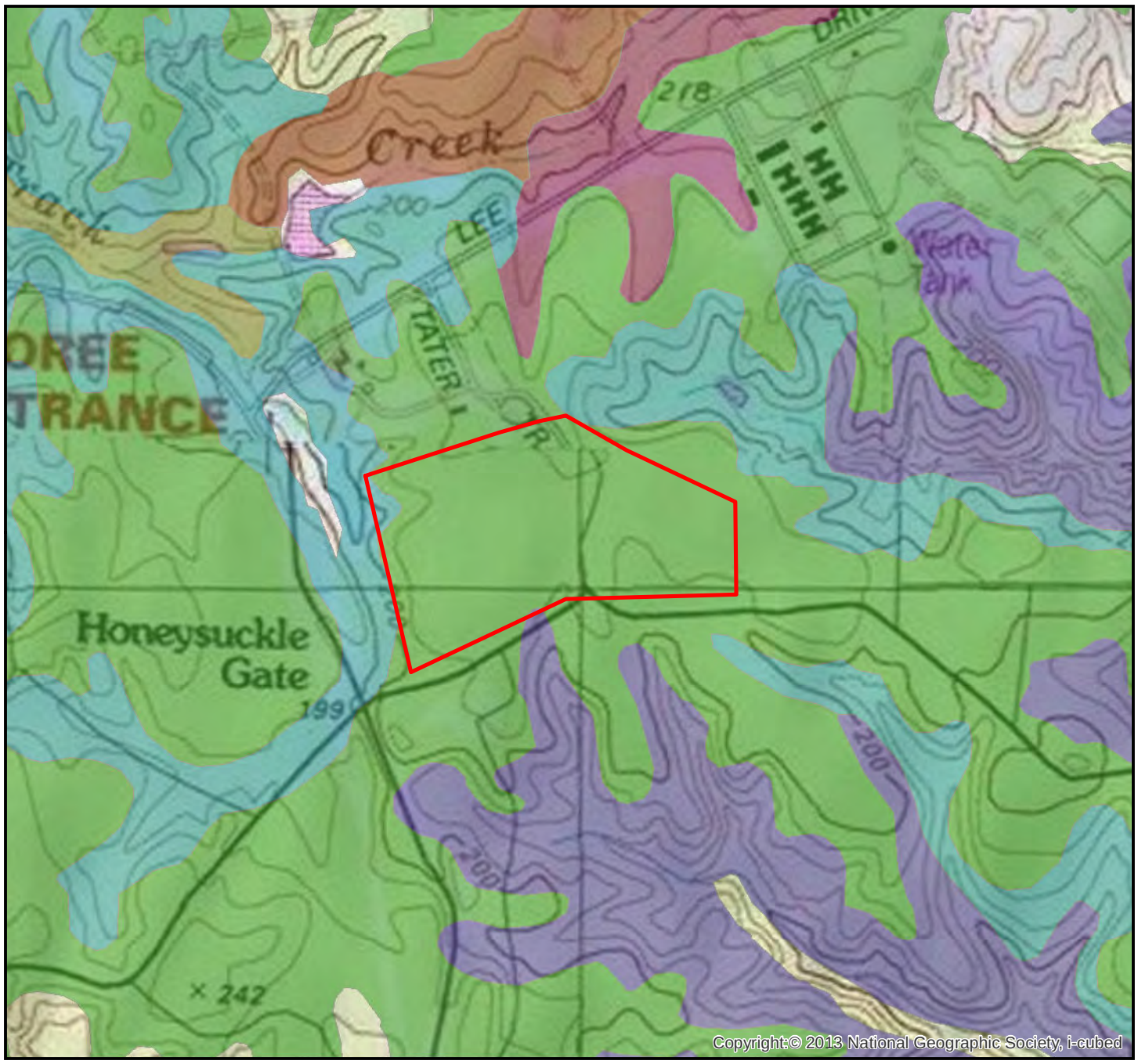
Figure 3
National Wetland Inventory Map
Fort A.P. Hill, Virginia



Legend

Site 1 Location

Soils

- 10E; Kempsville-Emporia-Remlik complex, 15 to 50 percent slopes
- 11B; Kempsville-Emporia complex, 2 to 6 percent slopes
- 11C; Kempsville-Emporia complex, 6 to 10 percent slopes
- 21C; Slagle-Kempsville complex, 2 to 15 percent slopes
- 22B; Slagle fine sandy loam, 2 to 6 percent slopes
- 4A; Bibb-Chastain complex, 0 to 2 percent slopes, frequently flooded

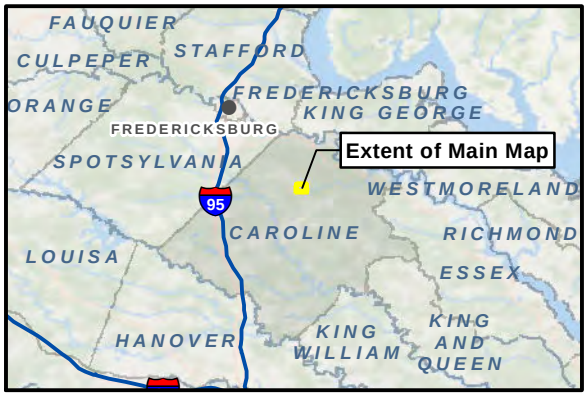


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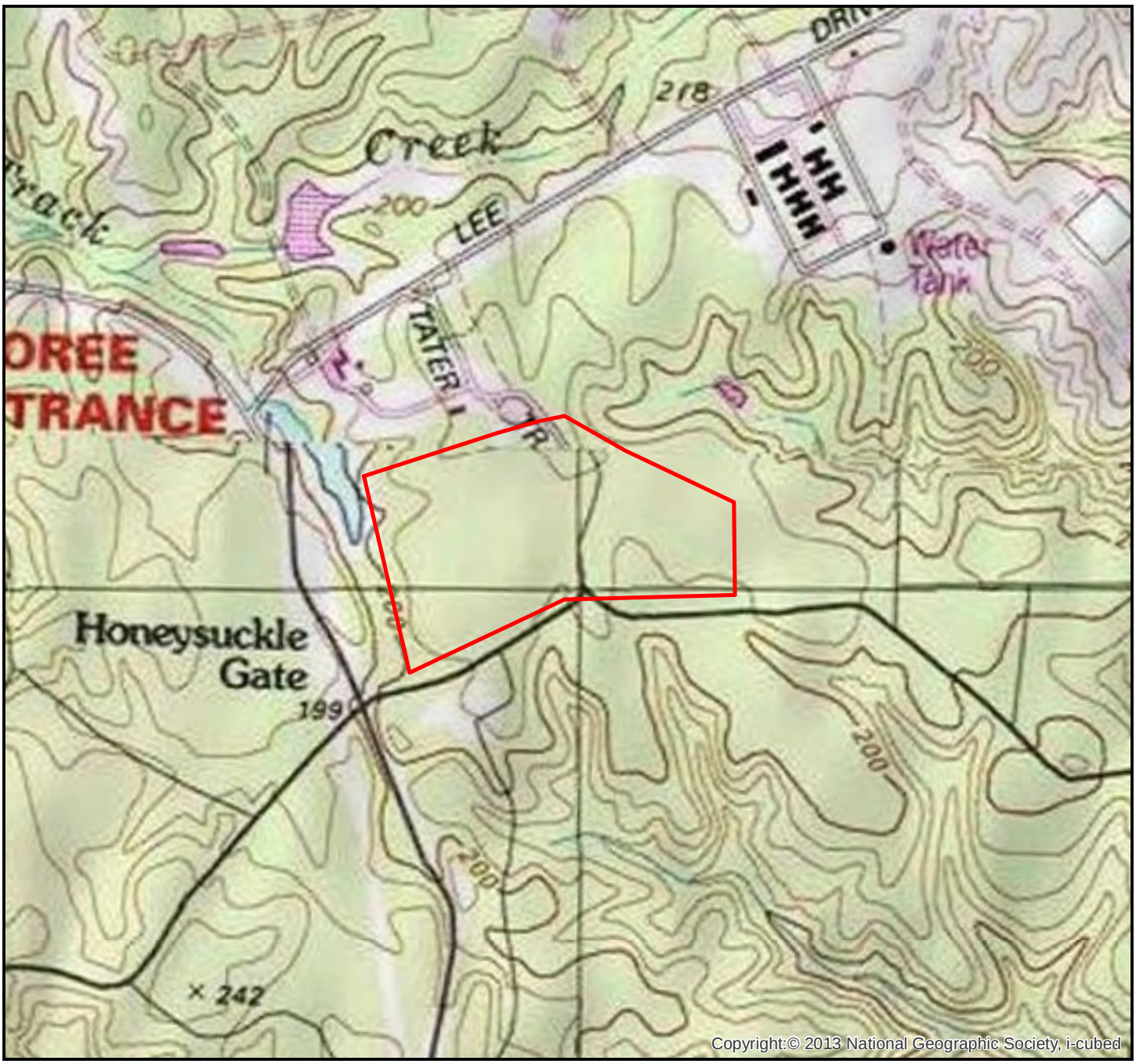
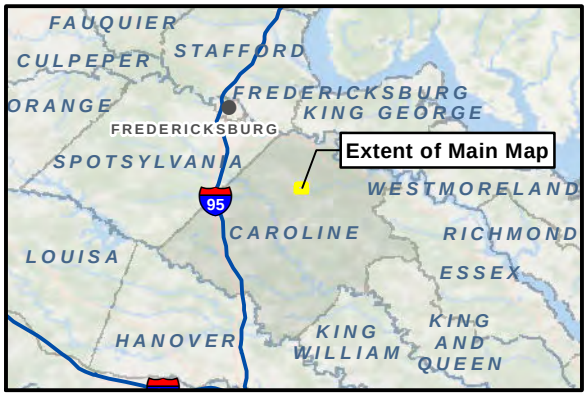
Figure 5
Natural Resources Conservation Service Soil Map
Fort A.P. Hill, Virginia



Legend

Site 1 Location



N

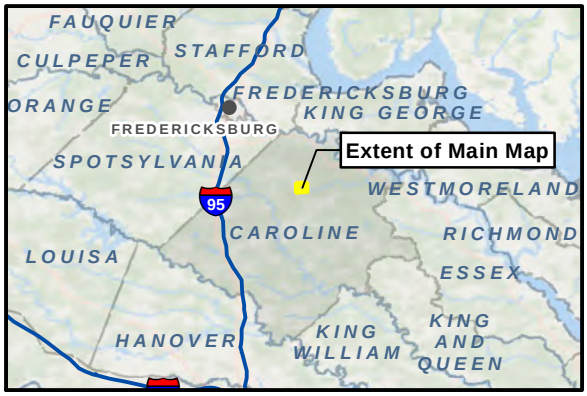
Bowling Green VA 7.5' USGS Quad 1949

0 250 500 750 1,000 Feet

Figure 4
U.S. Geological Survey Topographic Map
Fort A.P. Hill, Virginia

Legend

- Proposed Property Location
- Riparian Protection Area
- Endangered Plant Area



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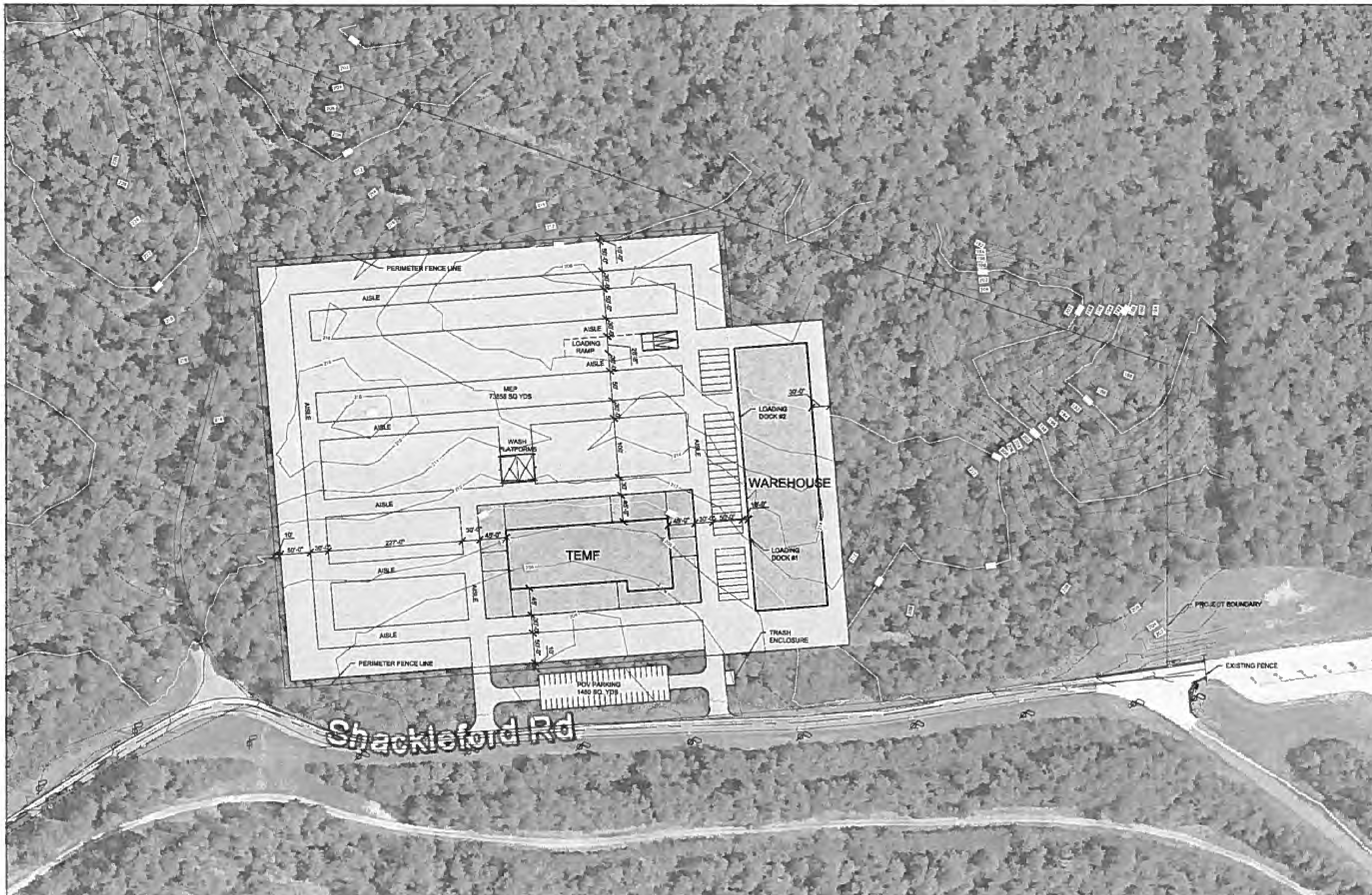
0 250 500 750 1,000 Feet

Riparian Protection Areas
Fort A.P. Hill, Virginia



1 CS101 CONCEPTUAL SITE LAYOUT PLAN
SCALE: 1"=80'

NORTH

0 40 80 160

US Army Corps of Engineers
Louisville District

MARK	DESCRIPTION	DATE	APPR	MARK	DESCRIPTION	DATE	APPR

DESIGNED BY: M STOUSLAND		DATE: 11/08/2018
DWN BY: R KLING	CKD BY:	SOLICITATION NO.: P2 457244
SUBMITTED BY:		CONTRACT NO.: CAR 19-77186
PLOT SCALE:		FILE NUMBER:
SIZE:		

U.S. ARMY CORPS OF ENGINEERS
LOUISVILLE DISTRICT
LOUISVILLE, KY

RSP Architects, Ltd.

ECS MAINTENANCE FACILITY/
GENERAL PURPOSE WAREHOUSE
FORT AP HILL, VIRGINIA
CAR 19-77186 P2 457244 FY2019

SHEET IDENTIFICATION
CS101

INTERIM SUBMITTAL

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

January 12, 2017

Fort A.P. Hill Directorate of Public Works
Environmental and Natural Resources Division
NEPA Coordinator
19952 North Range Road, Bldg. 1220
Fort A.P. Hill, Virginia 22427-3123

RE: Federal Consistency Determination for the Construction of an Equipment Concentration Site, Fort A.P. Hill, Caroline County, DEQ 16-225F.

Dear Director:

The Commonwealth of Virginia has completed its review of the Federal Consistency Determination (FCD) for the above-referenced project. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of FCDs and responding to appropriate officials on behalf of the Commonwealth. This letter is in response to your submission received on November 16, 2016 requesting concurrence with the FCD prepared by CH2M on behalf of the Department of the Army. The following agencies participated in this review:

Department of Environmental Quality
Department of Conservation and Recreation
Department of Game and Inland Fisheries
Department of Health
Department of Historic Resources

In addition, the Virginia Marine Resources Commission, Department of Agriculture and Consumer Services, Department of Forestry, George Washington Regional Commission, and Caroline County were invited to participate in the review.

PROJECT DESCRIPTION

The Department of the Army, U.S. Army Reserve (USAR) proposes to construct and operate an equipment concentration site (ECS) at Fort A.P. Hill in Caroline County, Virginia. The USAR would construct and operate the new ECS on approximately 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive. The

site (Site 1) is wooded with a tank trail (Tator Trail) bisecting the site in a north/south direction and includes a concrete-vaulted latrine along the tank trail. The concrete latrine building would be demolished. The entrance to the proposed ECS would be from Shackleford Road. The ECS would include a 27,443-square-foot tactical equipment maintenance facility (TEMF), a 55,000-square-foot general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles. The project would also include construction of stormwater management features. Additional construction activities would consist of paving, fencing, making general site improvements, and extending utilities to serve the new facilities. The design will comply with the Leadership in Energy and Environmental Design Silver standard, feature low-impact development, and consider renewable energy initiatives.

FEDERAL CONSISTENCY PUBLIC PARTICIPATION

In accordance with Title 15, Code of Federal Regulations (CFR), §930.2, the public was invited to participate in the review of the FCC. Public notice of this proposed action was published in OEIR's Program Newsletter and on the DEQ website from November 18, 2016 through December 15, 2016. No public comments were received in response to the notice.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972 (§ 1456(c)), as amended, and the federal consistency regulations implementing the CZMA (15 CFR Part 930, Subpart C, § 930.30 *et seq.*) federal actions that can have reasonably foreseeable effects on Virginia's coastal uses or resources must be conducted in a manner which is consistent to the maximum extent practicable with the Virginia Coastal Zone Management (CZM) Program. The Virginia CZM Program is comprised of a network of programs administered by several agencies. In order to be consistent with the Virginia CZM Program, the applicant must obtain all the applicable permits and approvals listed under the enforceable policies of the Program prior to commencing the project.

FEDERAL CONSISTENCY CONCURRENCE

Based on our review of the FCD and the comments submitted by agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the proposal is consistent with the Virginia CZM Program provided it complies with all the applicable permits, approvals, and conditions of the enforceable policies of the Virginia CZM Program (see detailed discussions below). In addition, DEQ recommends that USAR consider the project's impacts on the advisory policies of the Virginia CZM Program (Attachment 2).

Other state approvals which may apply to this project are not included in this consistency concurrence. Therefore, USAR must ensure that this project is constructed

and operated in accordance with all applicable federal, state, and local laws and regulations.

FEDERAL CONSISTENCY ANALYSIS

According to information in the FCD, the proposed activity would have no effect on the following enforceable policies: fisheries management; subaqueous lands management; wetlands management; dunes management; point source pollution control; and shoreline sanitation. The resource agencies that are responsible for the administration of the enforceable policies of the Virginia CZM Program generally agree with USAR's determination. USAR must ensure that the proposed action is consistent with the aforementioned policies. The analysis which follows responds to USAR's discussion of the enforceable policies of the Virginia CZM Program that apply to this project and review comments submitted by agencies that administer the enforceable policies.

1. Fisheries Management. According to the FCD (page 2), no surface waters are present on Site 1. The document (page 7) concludes that the fisheries management enforceable policy would not be affected since the site does not contain finfish or shellfish resources or fisheries.

1(a) Agency Jurisdictions. The fisheries management enforceable policy is administered by the Department of Game and Inland Fisheries (Virginia Code §§29.1-100 to 29.1-570) and Virginia Marine Resources Commission (Virginia Code §§28.2-200 to 28.2-713) which have management authority for the conservation and enhancement of finfish and shellfish resources in the Commonwealth.

1(b) Agency Findings.

(i) Department of Game and Inland Fisheries

The Department of Game and Inland Fisheries (DGIF) did not indicate that fisheries resources under its jurisdiction would be impacted by the proposal.

(ii) Virginia Marine Resources Commission

The Virginia Marine Resources Commission (VMRC) did not respond to the request for comments on the FCD.

1(c) Conclusion. This project is consistent with the fisheries management enforceable policy of the Virginia CZM Program.

For additional information, contact VMRC, Randy Owen at (757) 247-2251, and/or DGIF, Amy Ewing at (804) 367-2211.

2. Subaqueous Lands Management. According to the FCD (page 2), no surface waters are present on Site 1.

2(a) Agency Jurisdiction. The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, tidal wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the Department of Environmental Quality. The program is administered by the Virginia Marine Resources Commission (Virginia Code §28.2-1200 to §28.2-1213).

2(b) Agency Findings. VMRC did not respond to the request for comments on the FCD.

2(c) Conclusion. The project is consistent with the subaqueous lands management enforceable policy of the Virginia CZM Program.

For additional information, contact VMRC, Randy Owen at (757) 247-2251.

3. Wetlands Management. According to the FCD (page 2), a wetland delineation was conducted on May 23 and 24, 2016. No surface waters or wetlands were identified on Site 1.

3(a) Agency Jurisdiction. The wetlands management enforceable policy is administered by the Virginia Marine Resources Commission (tidal wetlands) (Virginia Code §28.2-1301 through 28.2-1320) and the Department of Environmental Quality through the Virginia Water Protection Permit program (tidal and non-tidal wetlands) (Virginia Code §62.1-44.15:20 and Water Quality Certification pursuant to Section 401 of the Clean Water Act).

3(b) Agency Findings.

(i) Department of Environmental Quality

The Virginia Water Protection (VWP) Permit program at the DEQ Northern Regional Office (NRO) did not indicate that wetlands would be impacted by the proposed ECS.

(ii) Virginia Marine Resources Commission

VMRC did not respond to the request for comments on the FCD.

3(c) Conclusion. The project is consistent with the wetlands management enforceable policy of the Virginia CZM Program.

For additional information, contact DEQ-NRO, Trisha Beasley at (703) 583-3940 and/or VMRC, Randy Owen at (757) 247-2251.

4. Nonpoint Source Pollution Control. According to the FCD (page 8), because land disturbance for this project will be greater than 2,500 square feet, the project will comply with erosion and sediment control and stormwater regulations administered by DEQ.

4(a) Agency Jurisdiction. The DEQ Office of Stormwater Management (OSWM) administers the nonpoint source pollution control enforceable policy through the *Virginia Erosion and Sediment Control Law and Regulations* (*VESCL&R*) and *Virginia Stormwater Management Law and Regulations* (*VSWML&R*). In addition, DEQ is responsible for the issuance, denial, revocation, termination and enforcement of the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to municipal separate storm sewer systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land-disturbing activities under the Virginia Stormwater Management Program.

4(b) Requirements. DEQ-OSWM did not respond to our request for comments. However, based on responses to similar projects, regulatory guidance for the control of non-point source pollution is presented below.

(i) Erosion and Sediment Control and Stormwater Management Plans

According to DEQ, USAR and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with the *Virginia Erosion and Sediment Control Law and Regulations* (*VESCL&R*) and *Virginia Stormwater Management Law and Regulations* (*VSWML&R*), including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, federal consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbing activities that result in the total land disturbance of equal to or greater than 2,500 square feet in lands analogous to Chesapeake Bay Preservation Areas would be regulated by *VESCL&R*. Accordingly, the applicant must prepare and implement an erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan is submitted to DEQ-NRO, which serves the area where the project is located, for review for compliance. The applicant is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL 62.1-44.15 *et seq.*]

(ii) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities (VAR10)

The operator or owner of a construction project involving land-disturbing activities equal to 1 acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific stormwater

pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the *VSMP Permit Regulations*. General information and registration forms for the General Permit are available on DEQ's website at http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/ConstructionGeneralPermit.aspx. [Reference: Virginia Stormwater Management *Act* 62.1-44.15 *et seq.*] *VSMP Permit Regulations* 9 VAC 25-870-10 *et seq.*].

4(c) Conclusion. The proposed project is consistent with the nonpoint source pollution control enforceable policy of the Virginia CZM Program, provided USAR obtains and complies with applicable ESC and SWM authorizations and requirements.

5. Air Pollution Control. According to the FCD (page 9), construction would result in air emissions from stationary and mobile sources. However, the project would not result in significant impacts to air quality because the estimated emissions are well below regulatory thresholds. Therefore, the project would be in compliance and consistent with the State Implementation Plan and National Ambient Air Quality Standards (NAAQS).

5(a) Agency Jurisdiction. DEQ's Air Division implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (DEQ) (Virginia Code §10-1.1300 through §10.1-1320).

5(b) Agency Findings. According to the DEQ Air Division, the project site is located in an ozone (O_3) attainment area.

5(c) Recommendation. USAR is encouraged to take all reasonable precautions to limit emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), principally by controlling or limiting the burning of fossil fuels.

5(d) Requirements. The following regulatory requirements will apply to the proposed action.

(i) Fugitive Dust

During construction fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 *et seq.* of the *Regulations for the Control and Abatement of Air Pollution*. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and

- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

(ii) Open Burning

If project activities include the burning of construction or demolition material, this activity must meet the requirements under 9 VAC 5-130 *et seq.* of the *Regulations* for open burning, and it may require a permit. Should open burning or use of special incineration devices be employed in the disposal of land-clearing debris during construction, the operation would be subject to the *Open Burning Regulation* (9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100). The *Regulations* for open burning provide for, but do not require, the local adoption of a model ordinance concerning open burning. USAR should contact Caroline County fire officials to determine what local requirements, if any, exist.

(i) Fuel Burning Equipment

Should the structures require the installation of fuel burning equipment (e.g. boilers and generators), a permit may be required prior to beginning construction of the facility (9 VAC 5-80, Article 6, Permits for New and Modified Sources). USAR should contact DEQ-NRO for guidance on whether this provision applies.

5(e) Conclusion. The project is consistent with the air pollution control enforceable policy of the Virginia CZM Program provided USAR obtains and complies with all applicable approvals prior to implementation of the project.

6. Coastal Lands Management. According to the FCD (page 9), there are no Resource Protection Areas or Resource Management Areas on the project site. Because the land disturbance for this project is greater than 2,500 square feet, the project will comply with DEQ erosion and sediment control and stormwater regulations.

6(a) Agency Jurisdiction. The DEQ Office of Local Government Programs (OLGP) administers the coastal lands management enforceable policy through the Chesapeake Bay Preservation Act (Bay Act) (Virginia Code §62.1-44.15 *et seq.*) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (*Regulations*) (9 VAC 25-830-10 *et seq.*).

6(b) Agency Comments. In Caroline County, the areas protected by the Bay Act require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include:

- tidal wetlands;
- certain non-tidal wetlands;
- tidal shores; and

- a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow.

All areas of the County not included in the RPA are designated as RMA.

6(c) Agency Findings. DEQ-OLGP finds that there are no lands analogous to RPAs on the land proposed for the ECS. However, the site is located in lands analogous to RMA.

6(d) Requirements. Federal actions on installations located within the state's designated coastal zone must be consistent to the maximum extent practicable with the performance criteria of the *Regulations* on lands analogous to locally designated RPA and RMA, as provided in 9 VAC 25-830-130 and 140 of the *Regulations*, including:

- minimizing land disturbance (including access and staging areas);
- retaining existing vegetation;
- minimizing impervious cover;
- complying with the requirements of the *Virginia Erosion and Sediment Control Handbook* for land-disturbing activities equal to or greater than 2,500 square feet; and
- adhering to stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*.

6(e) Conclusion. The project is consistent with the coastal lands management enforceable policy of the Virginia CZM Program as administered by DEQ through the Bay Act and Regulations, provided USAR obtains and complies with the conditions of the authorization.

ADDITIONAL ENVIRONMENTAL CONSIDERATIONS

In addition to the enforceable policies of the Virginia CZM Program, comments were provided with respect to other applicable requirements and recommendations. The applicant must ensure that this project is constructed and operated in accordance with all applicable federal, state, and local laws and regulations.

1. Solid and Hazardous Waste Management.

1(a) Agency Jurisdiction. On behalf of the Virginia Waste Management Board, the DEQ Division of Land Protection and Revitalization (DEQ-DLPR) is responsible for carrying out the mandates of the Virginia Waste Management Act (Virginia Code §10.1-1400 *et seq.*), as well as meeting Virginia's federal obligations under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation Liability Act (CERCLA), commonly known as Superfund.

Virginia:

- Virginia Waste Management Act, Virginia Code § 10.1-1400 *et seq.*
- *Virginia Solid Waste Management Regulations*, 9 VAC 20-81
- (9 VAC 20-81-620 applies to asbestos-containing materials)
- *Virginia Hazardous Waste Management Regulations*, 9 VAC 20-60
- (9 VAC 20-60-261 applies to lead-based paints)
- *Virginia Regulations for the Transportation of Hazardous Materials*, 9 VAC 20-110.

Federal:

- Resource Conservation and Recovery Act, 42 U.S. Code sections 6901 *et seq.*
- U.S. Department of Transportation *Rules for Transportation of Hazardous Materials*, 49 *Code of Federal Regulations*, Part 107
- Applicable rules contained in Title 40, *Code of Federal Regulations.*

DEQ-DLPR also administers laws and regulations on behalf of the State Water Control Board governing Petroleum Storage Tanks (Virginia Code §62.1-44.34:8 *et seq.*), including Aboveground Storage Tanks (9 VAC 25-91 *et seq.*) and Underground Storage Tanks (9 VAC 25-580 *et seq.* and 9 VAC 25-580-370 *et seq.*), also known as 'Virginia Tank Regulations', and § 62.1-44.34:14 *et seq.* which covers oil spills.

1(b) Agency Findings. DEQ-DLPR staff conducted a search (1,000-foot radius) of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR search did not identify any waste sites in close proximity which might impact the project activity. However, Fort A.P. Hill is listed as is a CERCLA waste site:

- VA2210020416, Fort A. P Hill, US Route 301, Bowling Green, VA 22427. Not on the National Priority List (NPL).

1(c) Recommendations.

(i) RCRA and CERCLA Waste Sites

Detailed RCRA and CERCLA hazardous waste site information may be accessed from the following Environmental Protection Agency (EPA) websites at:

- https://www3.epa.gov/enviro/;
- https://rcrainfopreprod.epa.gov/rcrainfoweb/action/main-menu/view; and
- https://www.epa.gov/superfund.

(ii) Pollution Prevention

Implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

1(d) Requirements.

(i) Waste Management

Any soil that is suspected of contamination or wastes that are generated during construction must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. All construction waste must be characterized in accordance with the *Virginia Hazardous Waste Management Regulations* prior to management at an appropriate facility. It is the applicant's responsibility to determine if a solid waste meets the criteria of a hazardous waste and be managed appropriately.

(ii) Petroleum Contamination

If evidence of a petroleum release is discovered during construction of this project, it must be reported to DEQ (Virginia Code §§ 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.*). Petroleum contaminated soils generated during construction of this project must be characterized and disposed of properly.

(iii) Petroleum Storage Tank Compliance and Inspections

The installation and use of an aboveground storage tank (AST) of greater than 660 gallons for temporary fuel storage of more than 120 days must follow the requirements in the *Facility and Aboveground Storage Tank Regulation* (9 VAC 25-91-10 *et seq.*)

If you have any other questions or need further information regarding waste comments, contact DEQ-DLPR, Katy Dacey at (804) 698-4274.

2. Natural Heritage Resources.

2(a) Agency Jurisdiction.

(i) The Virginia Department of Conservation and Recreation (DCR) Division of Natural Heritage (DNH)

DNH's mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act (Virginia Code §10.1-209 through 217) authorizes DCR to maintain a statewide database for conservation planning and project review, protect land for the conservation of biodiversity, and protect and ecologically manage the natural heritage resources of Virginia (the habitats of rare,

threatened and endangered species, significant natural communities, geologic sites, and other natural features).

(ii) Virginia Department of Agriculture and Consumer Services (VDACS)

The Endangered Plant and Insect Species Act of 1979 (Virginia Code Chapter 39 §3.1-1020 through 1030) authorizes VDACS to conserve, protect and manage endangered and threatened species of plants and insects. Under a Memorandum of Agreement established between VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

2(b) Agency Findings.

(i) Mill Creek Slopes Conservation Site

According to the information currently in DCR files, the Mill Creek Slopes Conservation Site is located within the project site. The Conservation Site has been given a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resources of concern at this site are:

Helonias bullata	Swamp pink	G3/S2S3/LT/LE
Coastal Plain/Outer Piedmont Acidic Seepage Swamp		G3?/S3/NL/NL

See DCR-DNH comments attached for more detailed information on these resources.

(ii) TA22B Mill Creek Tributary Stream Conservation Unit

The TA22B Mill Creek Tributary Stream Conservation Unit (SCU) is located downstream of the project site. The TA22B Mill Creek Tributary SCU has been given a biodiversity ranking of B5, which represents a site of general significance. The natural heritage resource associated with this site is:

Epitheca spinosa	Robust baskettail	G4/S2S3/NL/NL

See DCR-DNH comments attached for more detailed information on this resource.

(iii)Threatened and Endangered Plant and Insect Species

DCR finds that the current activity will not affect any documented state-listed plants or insects.

(iv) State Natural Area Preserves

DCR files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction in the project vicinity.

2(c) Recommendations.

(i) Protection of the Aquatic Ecosystem

DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control and stormwater management laws and regulations to minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities.

(ii) Natural Heritage Resources

Contact DCR-DNH to secure updated information on natural heritage resources if the scope of the project changes or six months pass before the project is implemented, since new and updated information is continually added to the Biotics Data System.

3. Wildlife Resources and Protected Species.

3(a) Agency Jurisdiction. The Department of Game and Inland Fisheries, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (*Virginia Code* Title 29.1). The DGIF is a consulting agency under the *U.S. Fish and Wildlife Coordination Act* (16 U.S.C. sections 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

3(b) Agency Findings. DGIF does not anticipate the project to result in adverse impacts upon the listed species and designated resources under its jurisdiction based on the scope and location of the proposed work.

3(c) Recommendations. DGIF offers the following recommendations to minimize the adverse impacts of the project development on wildlife resources:

- Coordinate with the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts upon federally-listed bats known from AP Hill.
- Adhere to the currently approved AP Hill Integrated Natural Resources Management Plan (INRMP).

For additional information, contact DGIF, Amy Ewing at (804) 367-2211.

4. Public Water Supply.

4(a) Agency Jurisdiction. Virginia Department of Health (VDH) Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells, springs and surface water intakes). VDH administers both federal and state laws governing waterworks operation.

4(b) Agency Findings. VDH-ODW finds that there are four public groundwater wells within a 1-mile radius of the project site at AP Hill, including Well PWAT 34 Long Street, Well PWAT 36-Arena #1, Well PWAT 36-Arena #2, and Well PWAT 39-Davis #2. There are no surface water intakes located within a 5-mile radius of the project area and the project is not within the watershed of any public surface water intakes.

4(c) Requirement. Potential impacts to public water and wastewater distribution systems must be verified by the local utility.

4(d) Recommendation. VDH-ODW recommends that Best Management Practices (BMPs) should be employed on the project site including erosion and sediment controls and Spill Prevention Controls and Countermeasures (SPCCs).

4(e) Conclusion. There may be impacts to public drinking water sources due to this project if the mitigation efforts outlined above are not implemented.

For additional information, contact VDH-ODW, Arlene Fields Warren at (804) 864-7781.

5. Historic and Archaeological Resources.

5(a) Agency Jurisdiction. The Virginia Department of Historic Resources (DHR) conducts reviews of both federal and state projects to determine their effect on historic properties. Under the federal process, DHR is the State Historic Preservation Office, and ensures that federal undertakings-including licenses, permits, or funding-comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. Section 106 requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. For state projects or activities on state lands, DHR is afforded an opportunity to review and comment on (1) the demolition of state property; (2) major state projects requiring an EIR; (3) archaeological investigations on state-controlled land; (4) projects that involve a landmark listed in the Virginia Landmarks Register; (5) the sale or lease of surplus state property; (6) exploration and recovery of underwater historic properties; and (7) excavation or removal of archaeological or historic features from caves. Please see DHR's website for more information about applicable state and federal laws and how to submit an application for review: http://www.dhr.virginia.gov/StateStewardship/Index.htm.

5(b) Agency Finding. DHR previously reviewed the project pursuant to Section 106 of the NHPA, as amended, and its implementing regulation 36 CFR Part 800. DHR concurs with USAR that no historic properties will be affected by the undertaking.

For additional information, contact DHR, Marc Holma at (804) 482-6090.

6. Pollution Prevention. DEQ advocates that principles of pollution prevention and sustainability be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices will help to ensure that environmental impacts are minimized. However, pollution prevention and sustainability techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

6(a) Recommendations. We have several pollution prevention recommendations that may be helpful in the construction and maintenance of the project:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed project is committed to complying with environmental regulations, reducing risk, minimizing environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes proponents with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for construction and design.
- Integrate pollution prevention techniques into maintenance and operations, to include inventory control for centralized storage of hazardous materials. Maintenance facilities should have sufficient and suitable space to allow for effective inventory control and preventive maintenance.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. If interested, please contact Meghann Quinn at (804) 698-4021.

7. Pesticides and Herbicides. Should construction or maintenance require the use of pesticides or herbicides for landscape maintenance, these chemicals should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used.

Contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

8. Energy Conservation. The proposed project should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. The Commonwealth encourages architectural and engineering designers to recognize and incorporate the energy, environmental, and sustainability concepts listed in the Leadership in Energy and Environmental Design (LEED) Green Building Rating System into the development and procurement of their projects.

8(a) Recommendations. The energy efficiency of the structure may be enhanced by maximizing the use of the following as applicable:

- thermally-efficient building shell components (roof, wall, floor, windows, and insulation);
- facility siting and orientation with consideration towards natural lighting and solar loads
- high efficiency heating, ventilation, air conditioning systems;
- high efficiency lighting systems and daylighting techniques; and
- energy-efficient machinery.

Contact the Department of Mines, Minerals and Energy, David Spears at (434) 951-6350, for assistance in meeting this challenge.

9. Water Conservation. The following recommendations will result in reduced water use associated with the operation of the facility.

- Grounds should be landscaped with hardy native plant species to conserve water as well as lessen the need to use fertilizers and pesticides.
- Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees.
- Low-flow toilets should be installed in new homes.
- Consider installing low flow restrictors and aerators to faucets.
- Improve irrigation practices by:
    - upgrading sprinkler clock; water at night, if possible, to reduce evapotranspiration (lawns need only 1 inch of water per week, and do not need to be watered daily; overwatering causes 85% of turf problems);
    - installing a rain shutoff device; and
    - collecting rainwater with a rain bucket or cistern system with drip lines.
- Check for and repair leaks (toilets and faucets) during regular routine maintenance activities.

REGULATORY AND COORDINATION NEEDS

1. Nonpoint Source Pollution Control.

1(a) Erosion and Sediment Control and Stormwater Management Plans. Project activities must comply with Virginia's *Erosion and Sediment Control Law* (Virginia Code § 62.1-44.15:61) and *Regulations* (9 VAC 25-840-30 *et seq.*) and *Stormwater Management Law* (Virginia Code § 62.1-44.15:31) and *Regulations* (9 VAC 25-870-210 *et seq.*) as administered by DEQ. Activities that disturb 2,500 square feet or more in CBPAs would be regulated by *VESCL&R* and *VSWML&R*. Erosion and sediment control, and stormwater management requirements should be coordinated with DEQ-NRO, Kelly Vanover at (804) 837-1073.

1(b) General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10). For projects involving land-disturbing activities equal to or greater than one acre, USAR is required to apply for registration coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from Construction Activities (VSMA §62.1-44.15:24 *et seq.*; VSMP 9 VAC 25-870-10 *et seq.*). Specific questions regarding the Stormwater Management Program requirements should be directed to DEQ-OSWM, Holly Sepety at (804) 698-4039.

2. Air Pollution Control. This project is subject to air quality regulations administered by the Department of Environmental Quality. The following sections of Virginia Administrative Code are applicable:

- 9 VAC 5-50-60 *et seq.* governing fugitive dust emissions;
- 9 VAC 5-130 *et seq.*, for open burning; and
- 9 VAC 5-80, for fuel-burning equipment.

For more information contact DEQ-NRO, James LaFratta at (703) 583-3928. Also, should the project involve open burning, contact Caroline County fire officials for information on any local requirements.

3. Coastal Lands Management. This project must be consistent to the maximum extent practicable with the coastal lands management enforceable policy of the Virginia CZM Program as administered by DEQ through the Chesapeake Bay Preservation Act (Virginia Code §§ 62.1-44.15:67 *et seq.*) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (Virginia Code 9 VAC 25-830-10 *et seq.*). The project must be implemented in a manner which is consistent with the conditions found in 9 VAC 25-830-130 and -140 for development in areas analogous to RMAs. For additional information and coordination, contact DEQ, Daniel Moore at (804) 698-4520.

4. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Contact DEQ-NRO, Richard Doucette at (703) 583-3813, for information on the location and availability of suitable waste management facilities in the

project area or if free product, discolored soils, or other evidence of contaminated soils are encountered.

4(a) Petroleum Contamination. In accordance with Virginia Code §§ 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.*, contact DEQ-NRO, Randy Chapman at (703) 583-3816 if evidence of a petroleum release is discovered during construction of this project.

4(b) Petroleum Storage Tank Compliance/Inspections. In accordance with 9 VAC 25-91-10 *et seq.*, contact DEQ-NRO, Riaz Syed at (703) 583-3915 for additional information on the use of ASTs greater than 660 gallons to be used for temporary fuel storage over120 days.

5. Natural Heritage Resources. Contact DCR-DNH, Rene Hypes at (804) 371-2708, to secure updated information on natural heritage resources if the scope of the project changes and/or six months passes before the project is implemented, since new and updated information is continually added to the Biotics Data System.

6. Wildlife Resources and Protected Species. Coordinate with the USFWS Virginia Field Office (804) 693-6694 regarding potential project impacts upon federally-listed bats known from AP Hill.

7. Public Water Supply and Wastewater Treatment. Coordinate with American Water at (800) 452-6863 to ensure water and wastewater connections comply with utility requirements.

Thank you for the opportunity to comment on the FCD for the Construction of an Equipment Concentration Site at Fort AP Hill. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Bettina Sullivan, Program Manager
Environmental Impact Review and Long-Range Priorities

Enclosures

Ec: Amy Ewing, DGIF
Robbie Rhur, DCR
Tony Watkinson, VMRC
Keith Tignor, VDACS

Arlene Warren, VDH
Roger Kirchen, DHR
Greg Evans, DOF
Charles Culley, Caroline County
Tim Ware, George Washington Regional Commission
Laura Haught, CH2M

COMMONWEALTH of VIRGINIA

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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

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Attachment 2

Advisory Policies for Geographic Areas of Particular Concern

a. Coastal Natural Resource Areas - These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. Such areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of special consideration in any planning or resources management process and include the following resources:

a) Wetlands
b) Aquatic Spawning, Nursery, and Feeding Grounds
c) Coastal Primary Sand Dunes
d) Barrier Islands
e) Significant Wildlife Habitat Areas
f) Public Recreation Areas
g) Sand and Gravel Resources
h) Underwater Historic Sites.

b. Coastal Natural Hazard Areas - This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are as follows:

i) Highly Erodible Areas
ii) Coastal High Hazard Areas, including flood plains.

c. Waterfront Development Areas - These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are as follows:

i) Commercial Ports
ii) Commercial Fishing Piers
iii) Community Waterfronts

Although the management of such areas is the responsibility of local government and some regional authorities, designation of these areas as Waterfront Development Areas of Particular Concern (APC) under the VCP is encouraged.

Designation will allow the use of federal CZMA funds to be used to assist planning for such areas and the implementation of such plans. The VCP recognizes two broad classes of priority uses for waterfront development APC:

i) water access dependent activities;
ii) activities significantly enhanced by the waterfront location and complementary to other existing and/or planned activities in a given waterfront area.

Advisory Policies for Shorefront Access Planning and Protection

a. Virginia Public Beaches - Approximately 25 miles of public beaches are located in the cities, counties, and towns of Virginia exclusive of public beaches on state and federal land. These public shoreline areas will be maintained to allow public access to recreational resources.

b. Virginia Outdoors Plan - Planning for coastal access is provided by the Department of Conservation and Recreation in cooperation with other state and local government agencies. The Virginia Outdoors Plan (VOP), which is published by the Department, identifies recreational facilities in the Commonwealth that provide recreational access. The VOP also serves to identify future needs of the Commonwealth in relation to the provision of recreational opportunities and shoreline access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

c. Parks, Natural Areas, and Wildlife Management Areas - Parks, Wildlife Management Areas, and Natural Areas are provided for the recreational pleasure of the citizens of the Commonwealth and the nation by local, state, and federal agencies. The recreational values of these areas should be protected and maintained.

d. Waterfront Recreational Land Acquisition - It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth.

e. Waterfront Recreational Facilities - This policy applies to the provision of boat ramps, public landings, and bridges which provide water access to the citizens of the Commonwealth. These facilities shall be designed, constructed, and maintained to provide points of water access when and where practicable.

f. Waterfront Historic Properties - The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Department of Historic Resources. Buildings, structures, and sites of historical, architectural, and/or archaeological interest are significant resources for the citizens of the Commonwealth. It is the policy of the Commonwealth and the VCP to enhance the protection of buildings, structures, and sites of historical, architectural, and archaeological significance from damage or destruction when practicable.

Fisher, John (DEQ)

From: Burstein, Daniel (DEQ)
Sent: Tuesday, November 29, 2016 8:56 AM
To: Fisher, John (DEQ)
Subject: Re: Army - Construction of an Equipment Concentration Site, Fort A.P. Hill, DEQ #16-225F-Review

NRO comments regarding the Federal Consistency Determination for the Army - Construction of an Equipment Concentration Site, Fort A.P. Hill Project, located in Caroline County, Virginia are as follows:

Land Protection Division – The project manager is reminded that if any solid or hazardous waste is generated/encountered during construction, the project manager would follow applicable federal, state, and county regulations for their disposal.

Air Compliance/Permitting - The project manager is reminded that during the construction phases that occur with this project; the project is subject to the Fugitive Dust/Fugitive Emissions Rule 9 VAC 5-50-60 through 9 VAC 5-50-120. In addition, should the project install fuel burning equipment (Boilers, Generators, Compressors, etc…), or any other air pollution emitting equipment, the project may be subject to 9 VAC 5-80, Article 6, Permits for New and Modified sources and as such the project manager should contact the Air Permit Manager DEQ-NRO prior to installation or construction, and operation, of fuel burning or other air pollution emitting equipment for a permitting determination. Lastly, should any open burning or use of special incineration devices be employed in the disposal of land clearing debris during demolition and construction, the operation would be subject to the Open Burning Regulation 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100.

Virginia Water Protection Permit (VWPP) Program – The project manager is reminded that a VWP permit from DEQ may be required should impacts to surface waters be necessary. DEQ VWP staff recommends that the avoidance and minimization of surface water impacts to the maximum extent practicable as well as coordination with the US Army Corps of Engineers. Upon receipt of a Joint Permit Application for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and current VWP permit program guidance.

Erosion and Sediment Control and Storm Water Management: DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local ordinances and State regulations. Additional information is available at http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality.

Daniel Burstein
Regional Enforcement Specialist, Senior II

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John E. Fisher **DEQ - OEIA PROJECT NUMBER: DEQ #16-225F**

PROJECT TYPE: ☐ STATE EA / EIR **X FEDERAL EA / EIS** ☐ SCC

X CONSISTENCY DETERMINATION

PROJECT TITLE: Construction of an Equipment Concentration Site, Fort A.P. Hill

PROJECT SPONSOR: Department of the Army

PROJECT LOCATION: **X OZONE ATTAINMENT AREA**

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: **X CONSTRUCTION**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. ☐ 9 VAC 5-45-760 et seq. – Asphalt Paving operations
3. **X** **9 VAC 5-130 et seq. – Open Burning**
4. **X** **9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
5. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to_____
6. ☐ 9 VAC 5-60-300 et seq. – Standards of Performance for Toxic Pollutants
7. ☐ 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the_____
8. ☐ 9 VAC 5-80-1100 et seq. of the regulations – Permits for Stationary Sources
9. ☐ 9 VAC 5-80-1605 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
10. ☐ 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
11. ☐ 9 VAC 5-80-800 et seq. Of the regulations – State Operating Permits. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

K. S. Narasimhan

(Kotur S. Narasimhan)
Office of Air Data Analysis

DATE: November 21, 2016

COMMONWEALTH of VIRGINIA

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Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

MEMORANDUM

TO: John Fisher, DEQ Office of Environmental Impact Review

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: November 21, 2016

SUBJECT: DEQ #16-225F: Army - Fort A.P. Hill Equipment Concentration Site Maintenance Project

We have reviewed the scoping request and submitted information for the above-referenced project and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

In Caroline County, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include those areas of the County not included in the RPAs.

Under the Federal Consistency Regulations of the *Coastal Zone Management Act of 1972*, federal actions in Virginia must be conducted in a manner "consistent to the maximum extent practicable" with the enforceable policies of the Virginia Coastal Zone Management Program. Those enforceable policies are administered through the Chesapeake Bay Preservation Act and Regulations. Federal actions on installations located within Tidewater Virginia are required to be consistent with the performance criteria of the Regulations on lands analogous to locally designated RPAs and RMAs, as provided in §9VAC25-830-130 and 140 of the Regulations, including the requirement to minimize land disturbance (including access and staging areas), retain existing vegetation and minimize impervious cover as well as including compliance with the requirements of the *Virginia Erosion and Sediment Control Handbook,* and stormwater management criteria consistent with water quality protection provisions of the *Virginia Stormwater Management Regulations*." For land disturbance over 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion and Sediment Control Handbook.*

The Preferred Alternative referenced on page 1 of the submitted documentation indicates that the new Equipment Construction Site (ECS) would occupy 41 acres of land northwest of the intersection of Shackleford Road and A.P. Hill Drive, in an area with no surface waters or wetlands. There are no lands analogous to RPAs on the land proposed for the ECS. Provided adherence to the above requirements, particularly as relates to minimizing land disturbance, retaining existing vegetation and minimizing impervious cover on lands analogous to RMAs, the proposed activity would be consistent with the *Chesapeake Bay Preservation Act and the* Regulations.

Please note: Table 4 (pages 7-9 of the submitted Coastal Zone Management Act Consistency Determination) incorrectly refers to Resource Protection Areas and Resource Management areas as Riparian Protection Areas and Riparian Management Areas.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: John Fisher, DEQ/EIR Environmental Program Planner

FROM: Katy Dacey, Division of Land Protection & Revitalization Review Coordinator

DATE: November 22, 2016

COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; file

SUBJECT: Environmental Impact Review: EIR Project No 16-225F Construction of an Equipment Concentration Site, Fort A.P. Hill, Caroline County, VA

The Division of Land Protection & Revitalization (DLPR) has completed its review of the EIR for the Construction of an Equipment Concentration Site located at Fort A.P. Hill at A.P. Hill Drive in Bowling Green, VA 22427.

Project Scope: construction and operation of a new equipment concentration site to include demolition of existing concrete latrine building and construction of warehouse, wash rack, loading ramp and parking areas

Solid wastes and Hazardous issues were not addressed in the submittal. The submittal did not indicate that a search of Federal and State environmental databases was conducted. DLPR staff conducted a search (1000 foot radius) of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR search did not identify any waste sites in close proximity which might impact the project activity. Additionally, the site itself is a waste site of possible concern. DLPR staff has reviewed the submittal and offers the following comments:

Hazardous Waste/RCRA Facilities – none in close proximity to the project area

CERCLA Sites – one is the site

VA2210020416, Fort A. P Hill, US Rte. 301, Bowling Green, VA 22427. Not on the NPL.

The above information related to hazardous wastes/RCRA/Cercla sites can be accessed from EPA's websites at https://www3.epa.gov/enviro/, https://rcrainfopreprod.epa.gov/rcrainfoweb/action/main-menu/view and https://www.epa.gov/superfund

Formerly Used Defense Sites (FUDS) – none

Solid Waste* – *none

Virginia Remediation Program (VRP)* – *none

Petroleum Releases* *none in close proximity to project area

PROJECT SPECIFIC COMMENTS

None

GENERAL COMMENTS

Soil, Sediment, Groundwater, and Waste Management

Any soil, sediment or groundwater that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Part 107.

Asbestos and/or Lead-based Paint

All structures being demolished/renovated/removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-81-620 for ACM and 9VAC 20-60-261 for LBP must be followed. Questions may be directed to Kathryn Perszyk at the DEQ's Northern Regional Office at (703) 583-3856.

Pollution Prevention – Reuse - Recycling

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Katy Dacey at (804) 698-4274.

Molly Joseph Ward
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

David C. Dowling
Deputy Director of Soil and Water Conservation and Dam Safety

Thomas L. Smith
Deputy Director of Operations

MEMORANDUM

DATE: December 15, 2016

TO: John Fisher, DEQ

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 16-225F, Construction of an Equipment Concentration Site, Fort AP Hill

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Mill Creek Slopes Conservation Site is located within the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Mill Creek Slopes Conservation Site has been given a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resources of concern at this site are:

Helonias bullata,	Swamp pink	G3/S2S3/LT/LE
Coastal Plain / Outer Piedmont Acidic Seepage Swamp		G3?/S3/NL/NL

Swamp-pink, a perennial herb, inhabits groundwater-influenced, perennially saturated, nutrient-poor headwater wetlands and is sensitive to hydrologic alterations to its habitat. The major direct threat to this species is habitat loss. Indirect threats result from activities that affect the hydrologic regime including such upslope activities as timber harvesting, land clearing and development, and agriculture. Downstream threats to the hydrology of a swamp-pink habitat arise from flooding caused by road crossings with culverts that become blocked and beaver activity (Van Alstine, 1994). In Virginia, swamp-pink is mostly found in the western Coastal Plain, but disjunct populations occur in Augusta County near the edge between the Ridge and Valley and Northern Blue Ridge regions.

The optimal survey time period for swamp-pink is late April 15-May 31 when the inflorescences may be present, the emerging, bright green, young basal rosettes are highly evident before the competing herbaceous vegetation has fully expanded, and light levels are high before canopy leaf-out. The basal leaves of swamp pink are present all year, making it possible to find swamp-pink rosettes in June 1-September 30, but surveys during this time frame are much more difficult due to the density of competing herbaceous vegetation, such as skunk cabbage, in the swamp forest and the deep shade after canopy leaf-out. Surveys in October-March are unreliable as older leaves expand, lie on the ground, turn brownish-red, and possibly become covered after leaf-fall (U.S. Fish and Wildlife Service, 1991).

Please note that this species is currently classified as threatened by the United States Fish and Wildlife Service (USFWS) and as endangered by the Virginia Department of Agriculture and Consumer Services (VDACS).

The Coastal Plain / Outer Piedmont Acidic Seepage Swamp (***Acer rubrum – Nyssa sylvatica – Magnolia virginiana – Viburnum nudum – Osmunda cinnamomea – Woodwardia areolata* Forest**) is an acidic groundwater saturated swamp forest that ranges from southeastern New York and New Jersey to southeastern Virginia, primarily on the Coastal Plain. In Virginia, it occurs mostly in the inner (western) portion of the Coastal Plain and the extreme eastern portion of the Piedmont. This community occurs in nutrient-poor soils in stream headwaters, where abundant groundwater is discharged in springs and seeps. The soil typically consists of muck or shallow peat over sandy mineral soil, with Sphagnum-covered hummocks and pools of standing water also present. The vegetation is a closed-canopy forest with red maple (*Acer rubrum*) and black gum (*Nyssa sylvatica*) typically dominant. Characteristic understory trees and shrubs include sweetbay magnolia (*Magnolia virginiana*), possum-haw (*Viburnum nudum*), and sweet pepperbush (*Clethra alnifolia*). The herbaceous flora is usually rich in sedges and ferns, especially cinnamon fern (*Osmunda cinnamomea*) and netted chain fern (*Woodwardia areolata*). Skunk-cabbage (*Symplocarpus foetidus*) forms large colonies early the growing season in many stands. This uncommon wetland habitat is vulnerable to alteration or destruction by beavers and various anthropogenic activities including hydrologic modifications (NatureServe, 2010).

Furthermore, the TA22B Mill Creek Tributary Stream Conservation Unit (SCU) is located downstream of the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The TA22B Mill Creek Tributary SCU has been given a biodiversity ranking of B5, which represents a site of general significance. The natural heritage resource associated with this site is:

Epitheca spinosa	Robust baskettail	G4/S2S3/NL/NL

Robust baskettail, a state rare dragonfly, inhabit swamps with some water movement, and boggy ponds and lakes (Dunkle, 2000). It ranges from Oklahoma to New Jersey and southward to Louisiana and the Florida panhandle (NatureServe, 2009). In Virginia, it is known from the Piedmont and Coastal Plain physiographic regions.

Adult Odonata (dragonflies and damselflies), commonly seen flitting and hovering along the shores of most freshwater habitats, are accomplished predators. They lay their eggs on emergent vegetation or debris at the water's edge. Unlike the adults, the larvae are aquatic where they typically inhabit the sand and gravel of the substrates. Wingless and possessing gills, they crawl about the submerged leaf litter and debris stalking their insect prey. The larvae seize unsuspecting prey with a long, hinged "grasper" that folds neatly under their chin. When larval development is complete, the aquatic larvae crawl from the water to the bank, climb up the stalk of the shoreline vegetation, and the winged adult emerges (Hoffman 1991; Thorpe and Covich 1991).

Because of their aquatic lifestyle and limited mobility, the larvae are particularly vulnerable to shoreline disturbances that cause the loss of shoreline vegetation and siltation. They are also sensitive to alterations that result in poor water quality, aquatic substrate changes, and thermal fluctuations.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Literature Cited

Dunkle, S. W. 2000. Dragonflies through binoculars: A field guide to dragonflies of North America. Oxford University Press. New York, NY. 266 pp.

Hoffman, R. 1991. Arthropods. Pp. 173 in: K. Terwilliger (ed.), Virginia's Endangered Species: proceedings of a symposium. The McDonald and Woodward Publishing Company, Blacksburg, VA.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: April 15, 2010).

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Fisher, John (DEQ)

From: Ewing, Amy (DGIF)
Sent: Thursday, December 22, 2016 1:30 PM
To: Fisher, John (DEQ)
Subject: ESSLog# 37590_16-225F_APHillEquipmentConcentrationSite_DGIF_AME20161222

Based on the scope and location of the proposed work, we do not anticipate it to result in adverse impacts upon listed species and designated resources under our jurisdiction. We recommend coordination with the USFWS regarding potential impacts upon federally-listed bats known from AP Hill associated with development of the site. We recommend adherence to the currently approved INRMP for AP Hill.

Assuming adherence to erosion and sediment controls, we find this project consistent with the Fisheries Management Section of the CZMA.

Thanks, Amy

Amy M. Ewing

Environmental Services Biologist/FWIS Biologist Supervisor
Chair, Team WILD (Work, Innovate, Lead and Develop)
VA Department of Game and Inland Fisheries
7870 Villa Park Dr., Suite 400, PO Box 90778, Henrico, VA 23228
804-367-2211 www.dgif.virginia.gov

Fisher, John (DEQ)

From: Warren, Arlene (VDH)
Sent: Tuesday, November 29, 2016 5:27 PM
To: Fisher, John (DEQ)
Subject: RE: NEW PROJECT Equipment Concentration Site 16-225F

Project Name: Construction of an Equipment Concentration Site, Fort A.P. Hill
Project #: 16-225 F
UPC #: N/A
Location: Caroline Co.

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

The following public groundwater wells are located within a 1 mile radius of the project site.

PWS ID Number	City/County	System Name	Facility Name
6033256	CAROLINE	FT A P HILL – CENTRAL CAMPSITE	WELL PWAT 34 LONG ST
6033256	CAROLINE	FT A P HILL – CENTRAL CAMPSITE	WELL PWAT 36 – ARENA #1
6033256	CAROLINE	FT A P HILL – CENTRAL CAMPSITE	WELL PWAT 36 – ARENA #2
6033256	CAROLINE	FT A P HILL – CENTRAL CAMPSITE	WELL PWAT 39 – DAVIS #2

There are no surface water intakes located within a 5 mile radius of the project site.

The project is not within the watershed of any public surface water intakes.

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren
Office of Drinking Water
Virginia Department of Health
109 Governor Street
Richmond, VA 23220
(804) 864-7781

Fisher, John (DEQ)

From: Holma, Marc (DHR)
Sent: Tuesday, November 29, 2016 8:42 AM
To: Fisher, John (DEQ)
Subject: Construction of an Equipment Concentration Site, Fort A.P. Hill, Caroline Co. (DHR # 2016-3929; DEQ #16-225F) | e-Mail #00747

John,

DHR previously reviewed the above referenced project pursuant to Section 106 of the National Historic Preservation Act, as amended, and its implementing regulation 36 CFR Part 800. We concurred with the Army that No Historic Properties will be Affected by the undertaking.

Sincerely,
Marc Holma

Appendix D
Air Quality Emission Estimates and Record of Non-Applicability

Appendix D - Air Emissions Summary Tables
Fort A.P. Hill
Air Quality Emission Estimates

Operational Sources Summary

Operational Sources	Actual Criteria Pollutant Emissions (tpy)[1]							GHG Emissions (metric tons)			
	SO_2	NOx	CO	PM_{10}	$PM_{2.5}$	VOC	HAPs	CO_2	CH_4	N_2O	CO_2e^2
Stationary Sources											
Heating Units	0.005	0.85	0.66	0.065	0.065	0.047	0.016	952	0.018	0.002	953
Mobile Sources											
On-road Vehicles[6]	0.006	0.60	4.24	0.07	0.033	0.12	0.009	290	0.005	0.000	290
Total	**0.01**	**1.44**	**4.91**	**0.13**	**0.10**	**0.17**	**0.025**	**1,242**	**0.023**	**0.002**	**1,243**
PSD Thresholds[3,4]	250	250	250	250	250	250	25	N/A	N/A	N/A	N/A
Non-attainment NSR Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
General Conformity *de minimis* Thresholds[5]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] Lead is not a significant pollutant generated from this type of action. Any lead emissions generated from the proposed action have been included as part of the HAP emissions.

[2] Based on global warming potentials of 1 for CO2, 25 for CH4 and 298 for N2O effective as of 1/1/2014.

[3] PSD thresholds apply only to stationary sources.

[4] Threshold is 25 tpy for total HAPs or 10 tpy for any individual HAP.

[5] Caroline County is an attainment area for all pollutants under NAAQS. Non-attainment NSR and General Conformity de minimis thresholds do not apply to attainment pollutants.

[6] On-road vehicle emissions represent a decrease from current site operations vehicle emissions due to employees no longer having to drive to Fort Pickett to retrieve equipment. This decrease is detailed further in the table below.

Mobile Sources Decrease Details

Operational Sources	Actual Criteria Pollutant Emissions (tpy)[1]							GHG Emissions (metric tons)			
	SO_2	NOx	CO	PM_{10}	$PM_{2.5}$	VOC	HAPs	CO_2	CH_4	N_2O	CO_2e^2
Mobile Sources											
On-road Vehicles - Existing Condition	0.009	1.47	5.88	0.14	0.08	0.22	0.021	505	0.010	0.000	506
On-road Vehicles - Preferred Alternative	0.006	0.60	4.24	0.07	0.033	0.12	0.009	290	0.005	0.000	290
Decrease	**0.00**	**-0.88**	**-1.63**	**-0.07**	**-0.05**	**-0.10**	**-0.01**	**-215**	**-0.004**	**0.000**	**-216**

Construction Sources Summary

Construction Sources	Actual Criteria Pollutant Emissions (tons)							GHG Emissions (metric tons)			
	SO_2	NOx	CO	PM_{10}	$PM_{2.5}$	VOC	HAPs	CO_2	CH_4	N_2O	CO_2e^2
Construction Worker Commute	0.009	0.63	6.41	0.08	0.04	0.17	0.012	401	0.008	0.000	401
Paving (Asphalt)	--	--	--	--	--	0.018	--	--	--	--	--
Equipment	0.015	12.58	5.43	0.85	0.83	0.99	0.40	1,504	0.16	0.024	1,515
Material Hauling	0.001	0.85	0.38	0.065	0.047	0.047	0.000	115.60	0.000	0.000	115.60
Site Grading Fugitive Dust Emissions	--	--	--	0.16	0.02	--	--	--	--	--	--
Demolition Emissions	--	--	--	0.000	0.000	--	--	--	--	--	--
Dust from Travel on Unpaved Roads	--	--	--	0.000	0.000	--	--	--	--	--	--
Project Construction Totals (tons)	**0.025**	**14.06**	**12.22**	**1.16**	**0.93**	**1.22**	**0.41**	**2,020**	**0.16**	**0.024**	**2,032**
Construction Totals (tpy)[1]	**0.013**	**7.03**	**6.11**	**0.58**	**0.46**	**0.61**	**0.21**	**1,010**	**0.082**	**0.012**	**1,016**
General Conformity *de minimis* Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] Construction emissions calculated over 24 months. Total emissions have been divided by 2 to estimate the annual emissions.

[2] Based on global warming potentials of 1 for CO2, 25 for CH4 and 298 for N2O effective as of 1/1/2014.

Appendix D - Table 1
Fort A.P. Hill
Air Quality Emission Estimates-Heating Unit

NG Fired Units (MMBtu/hr)[1]	**1.75**
NG Fired Units (MMBtu/hr)[2]	**0.30**
Fuel Type	**Natural Gas**
Maximum Operation Limit (hrs/yr)	**8,760**
Heat Value of Fuel (Btu/scf)[3]	**1,050**

[1] Heat input assumes 1-1 MMBtu/hr boiler (TEMF Bldg.) and 1-750,000 Btu/hr boiler (Warehouse Bldg).

[2] Heat input assumes 1-300,000 Btu/hr water heater (TEMF Bldg).

[3] Natural Gas heating value (EPA AP-42, Appendix A, Miscellaneous Data & Conversion Factors)

	Uncontrolled Potential to Emit								
	Heating Units				Heat/Vents Units and Water Heaters				**Total Criteria Pollutant Emissions (ton/yr)**
Criteria Pollutant[1]	**Emission Factor (lb/10^6 scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Factor (lb/10^6 scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	
Total Particulate Matter (PM)[2]	7.60	0.013	111	0.055	7.60	0.002	19.02	0.010	0.065
Nitrogen Oxides (NOx)	100	0.17	1,460	0.73	94.00	0.027	235	0.12	0.85
Sulfur Oxides (SOx)	0.60	0.001	8.76	0.004	0.60	0.0002	1.50	0.001	0.005
Carbon Monoxide (CO)	84.00	0.14	1,226	0.61	40.00	0.011	100	0.05	0.66
VOC	5.50	0.009	80.30	0.040	5.50	0.002	13.77	0.007	0.047

[1] Criteria Pollutants, small uncontrolled boilers (EPA AP-42, Section 1.4 Natural Gas Combustion, Tables 1.4-1 and 1.4-2).

[2] PM emission factor is assumed to equal PM_{10} and $PM_{2.5}$

			Uncontrolled Potential to Emit		
Toxic Air Pollutants (Organic HAPs)[1,2]	**CAS No.**	**Emission Factor (lb/10^6 scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**
3-Methylchloranthrene	56-49-5	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Benzene	71-43-2	2.10E-03	4.10E-06	0.036	1.80E-05
Benzo(a)pyrene	50-32-8	1.20E-06	2.34E-09	2.05E-05	1.03E-08
Formaldehyde	50-00-0	7.50E-02	1.46E-04	1.28	0.001
Hexane	110-54-3	1.80E+00	0.004	30.79	0.015
Naphthalene	91-20-3	6.10E-04	1.19E-06	0.010	5.22E-06
Toluene	108-88-3	3.40E-03	6.64E-06	0.058	2.91E-05
2-Methylnaphthalene	91-57-6	2.40E-05	4.69E-08	4.10E-04	2.05E-07
7,12-Dimethylbenz(a)anthracene		1.60E-05	3.12E-08	2.74E-04	1.37E-07
Acenaphthene	83-32-9	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Acenaphthylene	203-96-8	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Anthracene	120-12-7	2.40E-06	4.69E-09	4.10E-05	2.05E-08
Benzo(a)anthracene	56-55-3	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Benzo(b)fluoranthene	205-82-3	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Benzo(g,h,i)perylene	191-24-2	1.20E-06	2.34E-09	2.05E-05	1.03E-08
Benzo(k)fluoranthene	205-82-3	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Chrysene	218-01-9	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	2.34E-09	2.05E-05	1.03E-08
Dichlorobenzene	25321-22-6	1.20E-03	2.34E-06	0.021	1.03E-05
Fluoranthene	206-44-0	3.00E-06	5.86E-09	5.13E-05	2.57E-08
Flourene	86-73-7	2.80E-06	5.47E-09	4.79E-05	2.39E-08
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	3.51E-09	3.08E-05	1.54E-08
Phenanathrene	85-01-8	1.70E-05	3.32E-08	2.91E-04	1.45E-07
Pyrene	129-00-0	5.00E-06	9.76E-09	8.55E-05	4.28E-08
Organic HAPs Total				**32.19**	**0.02**

[1] Toxic Air Pollutants (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-3).

[2] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

			Uncontrolled Potential to Emit		
Toxic Air Pollutants-Metals (Inorganic HAPs)[1,2]	**CAS Number**	**Emission Factor ($lb/10^6$ scf)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**
Arsenic	7440-38-2	2.00E-04	3.90E-07	0.003	1.71E-06
Barium	7440-39-3	4.40E-03	8.59E-06	0.075	3.76E-05
Beryllium	7440-41-7	1.20E-05	2.34E-08	2.05E-04	1.03E-07
Cadmium	7440-43-9	1.10E-03	2.15E-06	0.019	9.41E-06
Chromium	7440-47-3	1.40E-03	2.73E-06	0.024	1.20E-05
Cobalt	7440-48-4	8.40E-05	1.64E-07	0.001	7.18E-07
Copper	7440-50-8	8.50E-04	1.66E-06	0.015	7.27E-06
Lead		5.00E-04	9.76E-07	0.009	4.28E-06
Manganese	7439-96-5	3.80E-04	7.42E-07	0.006	3.25E-06
Mercury	7439-97-6	2.60E-04	5.08E-07	0.004	2.22E-06
Molybdenum	7439-98-7	1.10E-03	2.15E-06	0.019	9.41E-06
Nickel	7440-02-0	2.10E-03	4.10E-06	0.036	1.80E-05
Selenium	7782-49-2	2.40E-05	4.69E-08	4.10E-04	2.05E-07
Vanadium	1314-62-1	2.30E-03	4.49E-06	0.039	1.97E-05
Zinc	7440-66-6	2.90E-02	5.66E-05	0.50	2.48E-04
Inorganic HAPs Total				**0.75**	**3.74E-04**
HAPs Total				**32.94**	**0.016**

[1] Metals from Natural Gas Combustion (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-4; Lead from Table 1.4-2).

[2] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

Emission rate calculations for greenhouse gases - SCC Code 2103006000

GHG emission factors obtained from U.S. EPA Mandatory Reporting of GHGs, Final Rule; Tables C-1 and C-2

Constituent	**Emission Factor (lb/mmBtu)**	**Hourly Potential to Emit (lb/hr)**	**Annual Potential to Emit (lb/yr)**	**Annual Potential to Emit (metric tons per year)**	**CO2e (metric tons/yr)**
CO_2	116.9	239.6	2,099,092	952	952
CH_4	0.0022	0.0045	39.59	0.018	0.45
N_2O	0.00022	0.0005	3.96	0.002	0.54

[3] Based on global warming potentials of 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Appendix D - Table 2
Fort A.P. Hill
Air Quality Emission Estimates - Government and Personal Onroad Vehicles

Emissions from Worker Commuting

Emission factors for four vehicle categories were developed by running EPA's MOVES 2014a model using an average speed of 30 mph for all vehicle types and a default age distribution of vehicles. Vehicle type distributions within each category (see table below) were derived from the national average vehicle type distribution, obtained from Mobile6 and converted for use with MOVES (Source: http://www.epa.gov/otaq/models/moves/tools.htm). Mobile source emissions factors generally decrease with time; therefore, the 2016 emission factors can conservatively be used for analyses of projects occurring in years 2016 and later.

Vehicle Category	Vehicle Types included
Worker Commute	passenger cars and trucks (mix of diesel and gas from MOVES defaults)
Haul Truck	single-unit and combination long- and short-haul trucks (mix of diesel and gas from MOVES defaults)
Coach Bus	intercity buses (100% diesel)
GOV	light-duty trucks (100% diesel)

Calculation of Mileage for Government Owned Vehicles (GOVs)

Vehicle Type	# of vehicles	Total Mileage/ Year[1]	Mileage
GOVs Buses/Vans	10	1,200	12,000

[1] Assumes each government vehicle driving 50 mi/yr to site 2 weekends/mo 12 mo/year to take reservists to trainings

Calculation of Mileage for Privately Owned Vehicles (POVs)

	Estimated Vehicles Entering USARC /Year					Miles/Vehicle/ Day[3]	Total POVs per Year	Total Miles per Year
	Daily	Weekend	Annual[1]	% of Employees that drive to Property	Adjusted Vehicles per year[2]			
Daily Employee POVs	41	0	10,660	100%	10,660	50	41	533,000
Weekend Reservists POVs	0	48	1,152	100%	1,152	50	0	57,600
TOTAL (POVs)								**590,600**

[1] The annual number of vehicles entering the facility per year: 41 POV Employee Vehicles/Day x 5 (day/wk) x 52 (wks/yr) 48 Weekend Reservists POV vehicles/weekend x 2 weekends/mo x 12 mo/year

[2] Estimated maximum worst case scenario of 100% of employees commuting to the site in their personal vehicles

[3] 50 miles has been assumed to be the average distance traveled by employees in their personal vehicles commuting to and from work at Fort A.P. Hill, assuming most employees live within 25 miles of the property.

Calculation of Criteria Pollutant Emission Rates

				2016 Year Emission Factors														
				Fleet Vehicle Criteria Emission Factors (gm/mile)						Fleet Vehicle HAP Emission Factors (mg/mile)						GHG Emission Factors (gm/mile)		
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O
Weekend Reservists GOV Buses/Vans	2016 [1]	10	12,000	3.43	0.74	14.00	0.019	1.07	0.77	5.01	27.33	2.11	5.96	61.90	0.000	2182	0.032	0.000
Daily Employee POVs	2016 [2]	41	533,000	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000
Weekend Reservists POVs	2016 [2]	48	57,600	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000

[1] GOV Buses/Vans emission factors are based on coach bus emission factors (mix of diesel from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] Worker and reservists commute emission factors are based on passenger cars and trucks (mix of diesel and gas from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

				Actual Criteria Pollutant Emissions[1]						Actual HAP Emissions						GHG Emissions			
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetaldehyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O	CO_2e[2]
Weekend Reservists GOV Buses/Vans	2016	10	12,000	90	19.60	369.58	0.501	28.16	20.21	0.132	0.721	0.056	0.157	1.634	0.000	57,713	0.837	0.000	57,734
Daily Employee POVs	2016	41	533,000	7,580	195.83	743.72	10.31	100.17	41.57	0.15	2.33	1.05	7.28	2.97	0.000	524,934	10.04	0.000	525,185
Weekend Reservists POVs	2016	48	57,600	819	21	80.4	1.11	10.82	4.49	0.02	0.25	0.11	0.79	0.32	0.000	56,728	1.08	0.000	56,756
TOTAL EMISSIONS (lb/yr)				**8,489**	**237**	**1,194**	**11.9**	**139**	**66.27**	**0.30**	**3.30**	**1.22**	**8.23**	**4.92**	**0.000**	**639,376**	**11.96**	**0.000**	**639,675**
TOTAL EMISSIONS (tpy)				**4.2**	**0.12**	**0.60**	**0.006**	**0.07**	**0.03**	**1.51E-04**	**0.002**	**0.001**	**0.004**	**0.002**	**0.000**	--	--	--	
TOTAL GHG EMISSIONS (metric tons/yr)				--	--	--	--	--	--	--	--	--	--	--	--	**290**	**0.005**	**0.000**	**290**

[1] Actual Emissions (lb/yr) = Emission Factor (gm/mile) x Annual Mileage x 0.0022 (lb/gm).

[2] Based on global warming potentials of 1 for CO2, 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Appendix D -Table 3
Fort A.P. Hill
Air Quality Emission Estimates - Government and Personal Onroad Vehicles Existing Conditions

Emissions from Worker Commuting

Emission factors for four vehicle categories were developed by running EPA's MOVES 2014a model using an average speed of 30 mph for all vehicle types and a default age distribution of vehicles. Vehicle type distributions within each category (see table below) were derived from the national average vehicle type distribution, obtained from Mobile6 and converted for use with MOVES (Source: http://www.epa.gov/otaq/models/moves/tools.htm). Mobile source emissions factors generally decrease with time; therefore, the 2016 emission factors can conservatively be used for analyses of projects occurring in years 2016 and later.

Vehicle Category	Vehicle Types included
Worker Commute	passenger cars and trucks (mix of diesel and gas from MOVES defaults)
Haul Truck	single-unit and combination long- and short-haul trucks (mix of diesel and gas from MOVES defaults)
Coach Bus	intercity buses (100% diesel)
GOV	light-duty trucks (100% diesel)
2.60%	Combination Short-haul Truck
2.66%	Combination Long-haul Truck

Calculation of Mileage for Government Owned Vehicles (GOVs)

Vehicle Type	# of vehicles	Mileage[1]	Total Annual Mileage
GOVs	24	200	115,200
GOVs Buses/Vans	10	200	48,000

[1] Fort Pickett is approx. 100 miles from Fort A.P. Hill. Assumes each government vehicle and bus/van driven 200 miles from Fort Pickett to Fort A.P. Hill for training and back 2 weekends/mo 12 mos/year.

Calculation of Mileage for Privately Owned Vehicles (POVs)

	Estimated Vehicles Entering USARC /Year					Miles/Vehicle/ Day[3]	Total POVs per Year	Total Miles per Year
	Daily	Weekend	Annual[1]	% of Employees that drive to Property	Adjusted Vehicles per year[2]			
Daily Employee POVs	41	0	10,660	100%	10,660	50	41	533,000
Weekend Reservists POVs	0	150	3,600	100%	3,600	50	0	180,000
TOTAL (POVs)								**713,000**

[1] The annual number of vehicles entering the facility per year: 41 POV Employee Vehicles/Day x 5 (day/wk) x 52 (wks/yr)

[2] Estimated maximum worst case scenario of 100% of employees commuting to the site in their personal vehicles

[3] Assumes 41 daily employees commuting to work at Fort Pickett. Assumes 150 reservists driving 50 miles roundtrip to/from Fort Pickett to pickup equipment. POVs are then parked at Fort Pickett and GOV equipment and buses/vans are driven from Fort Pickett to Fort A.P. Hill and back for training.

Calculation of Criteria Pollutant Emission Rates

				2016 Year Emission Factors														
				Fleet Vehicle Criteria Emission Factors (gm/mile)						Fleet Vehicle HAP Emission Factors (mg/mile)						GHG Emission Factors (gm/mile)		
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O
Weekend Reservists GOVs	2016 [1]	24	115,200	4.93	0.38	1.87	0.006	0.15	0.09	2.60	14.22	1.08	3.09	32.43	0.000	713	0.020	0.000
Weekend Reservists' GOV Buses/Vans	2016 [2]	10	48,000	3.43	0.74	14.00	0.019	1.07	0.77	5.01	27.33	2.11	5.96	61.90	0.000	2182	0.032	0.000
Daily Employee POVs	2016 [3]	41	533,000	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000
Weekend Reservists POVs	2016 [3]	150	180,000	6.46	0.17	0.63	0.009	0.09	0.04	0.13	1.99	0.90	6.21	2.53	0.000	447	0.009	0.000

[1] GOV emission factors are based on a mix of light duty truck factors (mix of diesel from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] GOV Buses/Vans emission factors are based on coach bus emission factors (mix of diesel from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[3] Worker commute emission factors are based on passenger cars and trucks (mix of diesel and gas from MOVES defaults) for year 2016 travelling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

				Actual Criteria Pollutant Emissions[1]						Actual HAP Emissions						GHG Emissions			
Vehicle Category	Modeled Year	Number of Vehicles	Annual Mileage	CO	VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$	Acrolein	Acetaldehyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O	CO_2e^2
Weekend Reservists GOVs	2016	24	115,200	1,249	97.06	472.90	1.557	38.81	23.93	0.658	3.603	0.274	0.783	8.219	0.000	181,202	5.084	0.000	181,329
Weekend Reservists' GOV Buses/Vans	2016	10	48,000	362	78.39	1,478.32	2.003	112.63	80.85	0.529	2.886	0.223	0.629	6.537	0.000	230,851	3.347	0.000	230,934
Daily Employee POVs	2016	41	533,000	7,580	195.83	743.72	10.31	100.17	41.57	0.15	2.33	1.05	7.28	2.97	0.000	524,934	10.04	0.00	525,185
Weekend Reservists POVs	2016	150	180,000	2,560	66	251.2	3.48	33.83	14.04	0.05	0.79	0.35	2.46	1.00	0.000	177,276	3.39	0.00	177,361
TOTAL EMISSIONS (lb/yr)				**11,751**	**437**	**2,946**	**17.4**	**285**	**160.39**	**1.39**	**9.60**	**1.90**	**11.16**	**18.73**	**0.000**	**1,114,263**	**21.86**	**0.00**	**1,114,810**
TOTAL EMISSIONS (tpy)				**5.9**	**0.22**	**1.47**	**0.009**	**0.14**	**0.08**	**6.96E-04**	**0.005**	**0.001**	**0.006**	**0.009**	**0.000**	**--**	**--**	**--**	
TOTAL GHG EMISSIONS (metric tons/yr)				**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**505**	**0.010**	**0.000**	**506**

[1] Actual Emissions (lb/yr) = Emission Factor (gm/mile) x Annual Mileage x 0.0022 (lb/gm).

[2] Based on global warming potentials of 1 for CO2, 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Appendix D - Table 4
Fort A.P. Hill
Air Quality Emission Estimates- Construction

Emissions from Construction Worker Commuting

					Pollutant Emission Factors[1] (g/VMT)						HAP Emission Factors (mg/mile)						GHG Emission Factors (g/mi)		
Estimated Daily Commute Distance	Number of workers	Daily Commute Miles[3]	Months of Construction	Total Miles per Project[2]	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O
Construction Worker	30	50	24	900,000	6.46	0.63	0.17	0.09	0.04	0.009	0.13	1.99	0.90	6.2	2.53	0.000	447	0.009	0.000

Total	Criteria Pollutant Emissions (tons)						HAP Emissions (Pounds)						GHG Emissions (metric tons)			
	CO	NOx	VOC	PM_{10}	$PM_{2.5}$	SO_2	Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	CO_2	CH_4	N_2O	CO_2e[4]
	6.41	0.63	0.17	0.08	0.04	0.009	0.26	3.94	1.78	12.3	5.02	0.00	401	0.01	0.000	**401**
Total	**6.41**	**0.63**	**0.17**	**0.08**	**0.04**	**0.009**	**0.26**	**3.94**	**1.78**	**12.3**	**5.02**	**0.00**	**401**	**0.01**	**0.000**	**401**

Notes:

[1] Worker commute emission factors are based on passenger cars and trucks (mix of diesel and gas from MOVES defaults) for year 2016 traveling at an average speed of 30 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] Construction worker total miles calculated by: multiplying daily commute hours x months of construction x 25 (days per month); have assumed a 24-month construction period.

[3] Daily commute number includes both directions of commute

[4] Based on global warming potentials of 1 for CO2, 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Paving (Asphalt) Emissions

Acres to be paved	13.4	
Emissions Factor[1]	2.62	lbs ROG (VOC) /acre
Emissions from asphalt paving	**35.06**	**lbs VOC**
	0.018	**Tons VOC**

Note:

[1] Using equation in AP-42, Section 4.5, emissions factor from URBEMIS model.

Material Hauling

Material Hauling	Tons of Material	# of Trips[2]	Miles per Trip	Avg. Speed	Pollutant Emission Factors (g/VMT)[1] CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	HAP Emission Factors (mg/mile) Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	GHG Emission Factors (g/mi) CO_2	CH_4	N_2O
To Site	20	932	30	25	6.15	13.79	0.76	1.05	0.76	0.019	4.51	25.51	2.39	9.14	56.48	0.000	2,071	0.033	0.000
From Site	20	932	30	25	6.15	13.79	0.76	1.05	0.76	0.019	4.51	25.51	2.39	9.14	56.48	0.000	2,071	0.033	0.000

	Criteria Pollutant Emissions (Annual tons) CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	SO_2	HAP Emissions (Pounds) Acrolein	Acetalde-hyde	1,3-Butadiene	Benzene	Formalde-hyde	MTBE	GHG Emissions (metric tons) CO_2	CH_4	N_2O	CO_2e[3]
To Site	0.189	0.42	0.023	0.032	0.023	5.87E-04	0.28	1.57	0.147	0.56	3.48	0.000	57.78	9.20E-04	0.000	**57.80**
From Site	0.189	0.42	0.023	0.032	0.023	5.87E-04	0.28	1.57	0.147	0.56	3.48	0.000	57.78	9.20E-04	0.000	**57.80**
Total	**0.38**	**0.85**	**0.047**	**0.065**	**0.047**	**0.001**	**0.56**	**3.14**	**0.29**	**1.13**	**6.96**	**0.000**	**115.56**	**0.002**	**0.000**	**115.60**

[1] Haul truck emission factors are based on single-unit and combination long- and short-haul trucks (mix of diesel and gas from MOVES defaults) for year 2016 travelling at an average speed of 25 mph. Assumptions documented here:
Summer emission factors assume an afternoon temperature and humidity of 86°F and 68.1%RH, respectively, gas RVP of 8.8, and diesel sulfur of 15ppm.
Winter emission factors assume a morning temperature and humidity of 0.4°F and 84.8%RH, respectively, gas RVP of 13.73, and diesel sulfur of 15ppm.
The higher of the summer and winter emission factor for each pollutant was used.

[2] Assumes service trucks (2) and delivery (2) trucks make 2 deliveries per week for approximately 24 months of the project, dump trucks (2) make 5 deliveries per day for 10 days, and concrete (1) and asphalt (1) trucks make 5 deliveries per day for 10 days over the project duration.

[3] Based on global warming potentials of 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

Construction Activities - Fugitive Dust Emissions

	PM Tons/ Acre-month[1]	Acres worked	Months	PM10 Emissions (tons)[3]	PM2.5 Emissions (Ton)[4]
Average Conditions	0.11	1.46	1	0.16	0.02

[1] Emission factors from WRAP Fugitive Dust Handbook, September 2006, Table 3-2. Conservatively assumes no control measures will be used.
[2] Assumes 0.25 acres will be disturbed at a time for a total of approx. 35 acres disturbed over 24 months of construction.
[3] Emissions from Grading = Acres of Area Graded * Months of Grading * EF = Emissions from Grading
[4] The PM2.5/PM10 ratio for fugitive dust from construction and demolition activities is 0.1.(WRAP, section 3.4.1)

Demolition Emissions

	PM10 (tons/ac/mo)[1]	Acres worked[2]	Months of Construction	PM10 Emissions (tons)	PM2.5 Emissions (Ton)[3]
Demolition Emissions Average Condi	0.11	0.000125	1	0.0000	0.00000

Note:
[1] Emission factor from WRAP Fugitive Dust Handbook, September 2006, Table 3-2.
[2] Assumes 0.000125 acres disturbed at a time for a total of approx. 0.003 acres disturbed over 24 months of construction.
[3] The PM2.5/PM10 ratio for fugitive dust from construction and demolition activities is 0.1.(WRAP, section 3.4.1)

Construction Summary Table

	CO	NOx	VOC	PM_{10}	$PM_{2.5}$	SO_2	HAPs	CO_2	CH_4	N_2O	CO_2e
	tons	tons	tons	tons	tons	tons	tons	metric tons	metric tons	metric tons	metric tons
Construction Worker Commute	6.41	0.63	0.17	0.08	0.04	0.009	0.012	401	0.008	0.000	401.4
Paving (Asphalt)	--	--	0.018	--	--	--	--	--	--	--	--
Clearing	--	--	--	0.00	0.00	--	--	--	--	--	--
Equipment[1]	5.43	12.58	0.99	0.85	0.83	0.02	0.40	1,504	0.16	0.024	1,515
Material Hauling	0.38	0.85	0.047	0.065	0.047	1.17E-03	6.04E-03	115.56	0.002	0.0000	115.60
Fugitive Dust Emissions	--	--	--	0.16	0.02	--	--	--	--	--	--
Demolition Emissions	--	--	--	0.00	0.00	--	--	--	--	--	--
Project Construction Totals (tons)	**12.22**	**14.06**	**1.22**	**1.16**	**0.93**	**0.025**	**0.42**	**--**	**--**	**--**	**--**
Project Construction Totals (metric tons)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**2,020**	**0.17**	**0.024**	**2,032**

[1] Equipment emissions obtained from Table 4. Emissions have been multiplied by 2 to account for the 24 month construction period.

Appendix D - Table 5
Fort A.P. Hill
Air Quality Emission Estimates- Diesel Off-road Construction Vehicles
Calculation of Criteria Pollutant Emission Rates

Emissions Estimate Based on Engine Rating and Operating Time (All Diesel-fired Equipment)

Equipment Data[1]										*Emission Parameters*			*Criteria Pollutant Emissions Factors*[5]						*GHG Emission Factors*[5]			*Annual Actual Emissions*[7]									
Vehicle/Equipment Type	Equipment Category	Engine Type	Number of Units	Engine Rating (Per Unit) (hp)	Model Year	Model Year Site (S)/ Default (D)	Operating Time (Per unit) (hr/yr)	Total Operating Time[2] (hr/yr)	Source for Operating Time Site (S)/ Default (D)	Heat Input (MMBtu/yr)	Load Factor[3] (Percent of Max. Power)	SCC[4]	VOC Emission Factor (g/hp-hr)	CO Emission Factor (g/hp-hr)	NOx Emission Factor (g/hp-hr)	PM-10 Emission Factor (g/hp-hr)	PM-2.5 Emission Factor (g/hp-hr)	SO_2 Emission Factor (g/hp-hr)	CO_2 Emission Factor (kg/MMBtu)	CO_4 Emission Factor (g/MMBtu)	N_2O Emission Factor (g/MMBtu)	VOC Emissions (lb/yr)	CO Emissions (lb/yr)	NOx Emissions (lb/yr)	PM-10 Emissions (lb/yr)	PM-2.5 Emissions (lb/yr)	SO_2 Emissions (lb/yr)	CO_2 Emissions (metric tons/yr)	CO_4 Emissions (metric tons/yr)	N_2O Emissions (metric tons/yr)	CO_2e[8] (metric tons/yr)
Backhoe	Construction	Reciprocating Diesel	1	100	2013	D	1040	1040	D	728	21%	2270002066	1.11	6.57	5.41	0.97	0.94	0.006	73.96	4.00	0.6	53.45	316.4	260.5	46.71	45.31	0.30	11.31	0.003	4.37E-04	11.51
Compactor	Construction	Diesel	1	11	2013	D	1040	1040	D	80.08	43%	2270002009	0.71	4.51	5.12	0.52	0.50	0.005	73.96	4.00	0.6	7.70	48.92	55.54	5.64	5.47	0.059	2.55	0.000	4.80E-05	2.57
Dump Trucks	Construction	Diesel	1	175	2013	D	1040	1040	D	1,274	21%	2270002078	0.87	3.42	5.85	0.66	0.64	0.006	73.96	4.00	0.6	73.32	288.2	493.0	55.62	53.95	0.47	19.79	0.005	7.64E-04	20.14
Cranes	Construction	Diesel	1	300	2013	D	1040	1040	D	2,184	43%	2270002045	0.22	0.63	3.02	0.13	0.13	0.005	73.96	4.00	0.6	65.08	186.4	893.4	38.46	37.30	1.33	69.46	0.009	1.31E-03	70.07
Bulldozers	Construction	Diesel	1	1,000	2013	D	1040	1040	D	7,280	59%	2270002069	0.29	1.25	4.59	0.20	0.19	0.005	73.96	4.00	0.6	392.4	1,691	6,210	270.6	262.5	6.22	317.7	0.029	4.37E-03	319.7
Paving Machine	Construction	Diesel	1	175	2013	D	1040	1040	D	1,274	59%	2270002021	0.27	1.33	3.51	0.28	0.27	0.005	73.96	4.00	0.6	63.93	314.9	831.1	66.30	64.31	1.11	55.59	0.005	7.64E-04	55.95
Concrete Truck	Construction	Reciprocating	1	300	2013	D	1040	1040	D	2,184	59%	2270002051	0.16	0.63	1.98	0.12	0.12	0.004	73.96	4.00	0.6	64.94	255.7	803.7	48.71	47.25	1.66	95.30	0.009	1.31E-03	95.91
Air Compressor	Construction	Diesel	2	75	2013	D	1040	2080	D	1,092	43%	2270006015	0.36	2.41	4.34	0.34	0.33	0.005	73.96	4.00	0.6	53.25	356.5	641.9	50.29	48.78	0.78	34.73	0.004	6.55E-04	35.03
Front End Loader	Construction	Diesel	1	100	2013	D	1040	1040	D	728	59%	2270002060	0.32	3.23	3.68	0.43	0.42	0.005	73.96	4.00	0.6	43.30	437.0	497.9	58.18	56.43	0.70	31.77	0.003	4.37E-04	31.97
Skid Steer Loader	Construction	Reciprocating	1	50	2013	D	1040	1040	D	364	21%	2270002072	0.97	4.45	5.25	0.72	0.70	0.006	73.96	4.00	0.6	23.36	107.1	126.4	17.34	16.82	0.15	5.65	0.001	2.18E-04	5.75
Paver/Roller	Construction	Reciprocating	1	100	2013	D	1040	1040	D	728	59%	2270002003	0.30	3.17	3.56	0.41	0.40	0.005	73.96	4.00	0.6	40.59	428.9	481.7	55.47	53.81	0.69	31.77	0.003	4.37E-04	31.97
Clearing Equipment (Roller)	Construction	Reciprocating	1	100	2013	D	1040	1040	D	728	59%	2270002015	0.32	3.23	3.68	0.43	0.42	0.005	73.96	4.00	0.6	43.30	437.0	497.9	58.18	56.43	0.70	31.77	0.003	4.37E-04	31.97
Excavators	Construction	Reciprocating	1	100	2013	D	1040	1040	D	728	59%	2270002030	0.38	3.43	4.03	0.48	0.47	0.005	73.96	4.00	0.6	51.41	464.1	545.3	64.94	63.00	0.70	31.77	0.003	4.37E-04	31.97
Concrete Saw (Ramp and Lot)	Construction	Reciprocating	1	40	2013	B	1040	1040	D	291.2	59%	2270002039	0.28	1.75	4.47	0.30	0.29	0.005	73.96	4.00	0.6	15.15	94.71	241.9	16.24	15.75	0.29	12.71	0.001	1.75E-04	12.79
TOTAL EMISSIONS (lb/yr)																						**991**	**5,427**	**12,580**	**853**	**827**	**15.18**	--	--	--	--
TOTAL EMISSIONS (tpy)																						**0.50**	**2.71**	**6.29**	**0.43**	**0.41**	**0.008**	--	--	--	--
TOTAL EMISSIONS (metric tons/yr)																						--	--	--	--	--	--	**752**	**0.079**	**0.012**	**757**

[1] Though some welding may be done onsite, it will be minimal and the emissions have been ruled negligible

[2] Assumed each piece of equipment operates 4 hrs/day, 5 days per week, 52 weeks per year.

[3] Load factor is the fraction of available power at which the engine normally operates. Load factors obtained from the EPA Nonroad Model

[4] SCC obtained EPA Nonroad Model

[5] Emission factors are obtained from USEPA, NonRoad Model. Run July 6, 2013 for the year 2013 for the entire nation. Assumptions: Fuel RVP: 12.5, O wt.%: 0.0, Gas Sulfur %: 0.0257, Diesel

[6] Emission factors obtained from Mandatory Reporting of Greenhouse Gases; Final Rule, TABLE C–1 TO SUBPART C OF PART 98

[7] Annual Actual Emissions (lb/yr) = Engine Rating (hp) x Loading Factor (%) x Operating Time per Unit (hr/yr) x Number of Units x Emission Factor (g/hp-hr) x Conversion Factor (0.002205 lb/g)

[8] Based on global warming potentials of 25 for CH_4 and 298 for N_2O effective as of 1/1/2014.

2.0 HAP Emissions From Diesel

HAP constituent emission factors obtained from U.S. Environmental Protection Agency, SPECIATE Version 4.4 , Speciation for Medium Duty Trucks (Profile # 4674), Speciation based on tests preformed in 1996

Speciation for construction equipment was not available so the medium duty truck speciation has been used here to estimate HAP emissions. http://www.epa.gov/ttn/chief/software/speciate/index.html

Constituent CAS	Constituent Name	Factor	Actual[1]	Actual
		(Weight% VOC)	(lb/yr)	(tons/yr)
106-99-0	1,3-butadiene	0.12	**1.17**	**5.9E-04**
540-84-1	2,2,4-trimethylpentane	0.47	**4.69**	**2.3E-03**
75-07-0	Acetaldehyde	15.94	**158.0**	**7.9E-02**
107-02-8	Acrolein (2-propenal)	1.30	**12.85**	**6.4E-03**
71-43-2	Benzene	1.05	**10.36**	**5.2E-03**
100-41-4	Ethylbenzene	0.18	**1.78**	**8.9E-04**
50-00-0	Formaldehyde	8.51	**84.30**	**4.2E-02**
108-38-3; 106-42-3	M & p-xylene	0.89	**8.81**	**4.4E-03**
78-93-3	Methyl ethyl ketone (2-butanone)	2.86	**28.35**	**1.4E-02**
91-20-3	Naphthalene	0.24	**2.33**	**1.2E-03**
95-47-6	O-xylene	0.32	**3.14**	**1.6E-03**
123-38-6	Propionaldehyde	5.34	**52.9**	**2.6E-02**
108-88-3	Toluene	1.52	**15.05**	**7.5E-03**
132-64-9	Dibenzofuran , also noted as "DBZFUR"	0.011	**0.11**	**5.4E-05**
98-86-2	Acetophenone	1.95	**19.28**	**9.6E-03**
Total:			**403.1**	**0.20**

[1] Emission Factor (Weight% VOC) x VOC Emissions from Diesel Off-Road Equipment / 100 = Actual HAP Emission (lb/yr)

Record of Non-Applicability (RONA) Concerning the General Conformity Rule (40 CFR Part 51)

Name of Project: U.S. Army Reserve Equipment Concentration Site

Location: Caroline County, Virginia

The Proposed Action consists of the construction of a new equipment concentration site. The new equipment concentration site will consist of a tactical equipment maintenance facility, a general purpose warehouse, a vehicle wash rack platform, a bi-level equipment loading ramp, and parking areas for military equipment and privately owned vehicles.

Guidance dictates that a Record of Non-Applicability (RONA) be prepared for federal actions where proposed emissions are clearly *de minimis* in order to comply with the General Conformity Rule (40 *Code of Federal Regulations* [CFR] 51, Subpart W) and the National Environmental Policy Act (NEPA 42 U.S. Code 4231 et seq.).

Conformity under the Clean Air Act, Section 176, has been evaluated for the proposed action in accordance with 40 CFR Part 51. The requirements of this rule are not applicable to this project because both the Preferred Site and the Alternate Site are within an attainment area for all criteria pollutants.

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Jeffrey M. Hrzic
Chief, Environmental Division
99th Regional Support Command, DPW
U.S. Army Reserve

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Date