

ENVIRONMENTAL ASSESSMENT

FOR

A TIMBER HARVEST IN TRAINING AREAS (TA) 10A, 10C and 11A

AT

MARINE CORPS BASE QUANTICO,

PRINCE WILLIAM COUNTY, VIRGINIA
STAFFORD COUNTY, VIRGINIA



NCR

National Environmental Policy Act (NEPA) Coordination Program
Environmental Planning Section
Natural Resources and Environmental Affairs Branch
Installation and Environment Division
Marine Corps Base Quantico, Virginia

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Title of Proposed Action: Timber Harvest in TA10A, 10C and 11A
Project Location: Marine Corps Base Quantico, Virginia
Lead Agency for the EA: United States Marine Corps
Action Proponent: Marine Corps Base Quantico (MCBQ)- Natural Resources
Environmental Affairs (NREA) Forestry Program

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This Environmental Assessment is intended to meet NEPA requirements to perform a Timber Harvest in TA10A, 10C and 11C. The No Action Alternative (Alternative A) and the Action Alternative - Timber Harvest in TA10A, 10C and 11C (Alternative B) were evaluated. Alternative A would have no adverse effects on cultural resources, natural resources, or human health and the environment as the status quo would be maintained.

Alternative B involves thinning 300 acres of timber. There would be no significant impacts to land use, water resources, biological resources, cultural resources, air quality, noise, infrastructure, traffic, socioeconomic or hazardous waste issues. Temporary water quality impacts associated with soil disturbance resulting from tree and vegetation removal activities would be mitigated through the implementation of Best Management Practices (BMPs) per the Virginia BMP Field Guide (2009), the Virginia BMPs For Water Quality Technical Manual (2011) and the Virginia Erosion and Sediment Control Handbook (1992).

Alternative B is the preferred action and, if the stated mitigation measures are executed, would not have significant impacts on the human environment.

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- Appendix C: National Historic Preservation Act Section 106 Documentation
- Appendix D: Endangered Species Act Documentation
- Appendix E: Air Quality Methodology and Calculations
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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

This environmental assessment (EA) has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969; regulations of the Council on Environmental Quality (CEQ) 40 C.F.R. parts 1500-1508; and Marine Corps Order (MCO) P5090.2A Ch. 3, which documents the US Marine Corps' (USMC) internal operating instructions on how to implement NEPA. This EA is intended to meet NEPA requirements for a Timber Harvest in TA10A, 10C and 11A at Marine Corps Base Quantico (MCBQ).

CEQ regulations for implementing NEPA (40 C.F.R. part 1500) require documentation that succinctly describes the environment of the area or areas potentially affected by the alternatives

being considered under the proposed action, and discusses the impacts in proportion to their significance.

This EA also satisfies 36 C.F.R. part 800.6(a) which states that a federal agency when presented with the potential of an adverse effect as a result of its undertaking must "develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize or mitigate adverse effects on historic properties."

1.1 Introduction

MCBQ, a Command of the United States Marine Corps (USMC) proposes to thin 300 acres of trees in TA10, TA10C and TA11A. This action would likely take place no later than 2022. This action is necessary to satisfy the requirements under DoD Directive 4700.4 which states:

"DoD forest lands shall be managed for sustained yield of quality forest products, watershed protection, wildlife habitats, and other uses that can be made compatible with mission activities."

1.2 Background

The location of the proposed action is designated where significant amounts of training occur and will continue to occur in the future. The NREA Forestry Program desires to salvage and sell 300 acres of timber for full market value. Once these areas are utilized by Marines, trees may become contaminated with metals eliminating any market value it may have. Additionally, leaving this timber near this location where intense training occurs or is scheduled to occur may increase the chances of a fire hazard for the base.

1.3 Location

The proposed Timber Harvest will involve removing timber within two locations that are 170 and 130 acres in size respectively. The 130 acre location is located entirely within Stafford County, is traversed by Muddy Rd., and has Landing Zone (LZ) Wren within its footprint. This footprint is also located in portions of TA10 and 10C. The 170 acre footprint is located adjacent to Blackrock Rd. (SR-617) and a smaller portion of MCB-6. This location is situated entirely within TA11A. The northern section of the 170 acre footprint is within Prince William County while the remainder of the location is within

Stafford County. The proposed action locations are illustrated in Figure 2.2.1 and 2.2.2.

1.4 Purpose of and Need for the Proposed Action

The purpose of the proposed action is to thin and harvest 300 acres of timber in two locations. The need for the proposed action is to significantly minimize the possibility of a forest fire due to training, as well as ensuring that the military is compensated to the full market value for merchantable timber prior to any possible contamination due to ammunition. This action is also necessary for compliance under Sikes Act Section 101 16 U.S.C. 670a and DoD Directive 4700.4.

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the action alternatives and the No Action Alternative. The environmental resource areas analyzed in this EA include: Air quality, water resources, geological resources, cultural resources, biological resources, land use, visual resources, military training and airspace, noise, infrastructure, transportation, public health and safety, hazardous materials and waste, socioeconomics, and environmental justice.

1.6 Key Documents

Key documents that are being utilized for this EA include the following:

- Atkins (2015). Marine Corps Base Quantico Master Plan Update. The Louis Berger Group.
- Natural Resources and Environmental Affairs Branch (NREA) 2015-2019 Integrated Natural Resources Management Plan for Marine Corps Base, Quantico, Virginia. Natural Resources and Environmental Affairs Branch, Marine Corps Base Quantico, VA
- Naval Facilities Engineering Command. (2012). Range Complex Management Plan, Marine Corps Base Quantico. Washington D.C.
- Virginia Tech Conservation Management Institute (VTCMI) 2017. 2017 Bat Survey for U.S. Marine Corps Base Quantico, Virginia Blacksburg, Virginia.

1.7 Relevant Laws and Regulations

The USMC has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] sections 4321-4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [C.F.R.] parts 1500-1508)
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- DoD Directive 4700.4. Natural Resources Management Program. 24 January 1989.
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. sections 703-712)
- Bald and Golden Eagle Protection Act (16 U.S.C. section 668-668d)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Sikes Act Section 101 16 U.S.C. 670a
- Toxic Substances Control Act (15 U.S.C. sections 2601-2629)
- Executive Order (EO) 11988, Floodplain Management
- EO 11990, Protection of Wetlands
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management
- EO 13693, Planning for Federal Sustainability in the Next Decade

A description of the Proposed Action's consistency with these laws, policies, and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 6.0 (Table 6-1).

1.8 Public and Agency Participation and Intergovernmental Coordination

Regulations from the Council on Environmental Quality (CEQ) direct agencies to involve the public in preparing and implementing their NEPA procedures.

The USMC has prepared this Draft EA to inform the public of the Proposed Action and to allow the opportunity for public review and comment. The Draft EA will also be made available on the following website:

<http://www.quantico.marines.mil/Offices-Staff/G-F-Installation-and-Environment/Natural-Resources-Environmental-Affairs/>

MCBQ has performed all of the necessary consultation with the U.S. Fish and Wildlife Service (USFWS), Virginia Department of Environmental Quality (VDEQ), Virginia Department of Game and Inland Fisheries and the Virginia State Historic Preservation Officer (SHPO) pertaining to this proposed action.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

MCBQ proposes thinning approximately 300 acres of timber within two locations in portions of TA10A, 10C and 11A. Thinning in these locations would help reduce the likelihood of a forest fire within this area of the base due to military training. The action would also allow the base to obtain full market value for all merchantable timber in these locations. The proposed action also allows MCBQ to remain in compliance with DoD Directive 4700.4 and Sikes Act Section 101 16 U.S.C. 670a.

2.2 Alternatives Carried Forward for Analysis

2.2.1 No Action Alternative - Alternative A

The No Action Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No

Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action, not simply conclude no impact, and will serve to establish a comparative baseline for analysis.

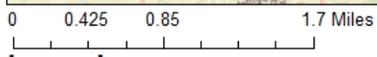
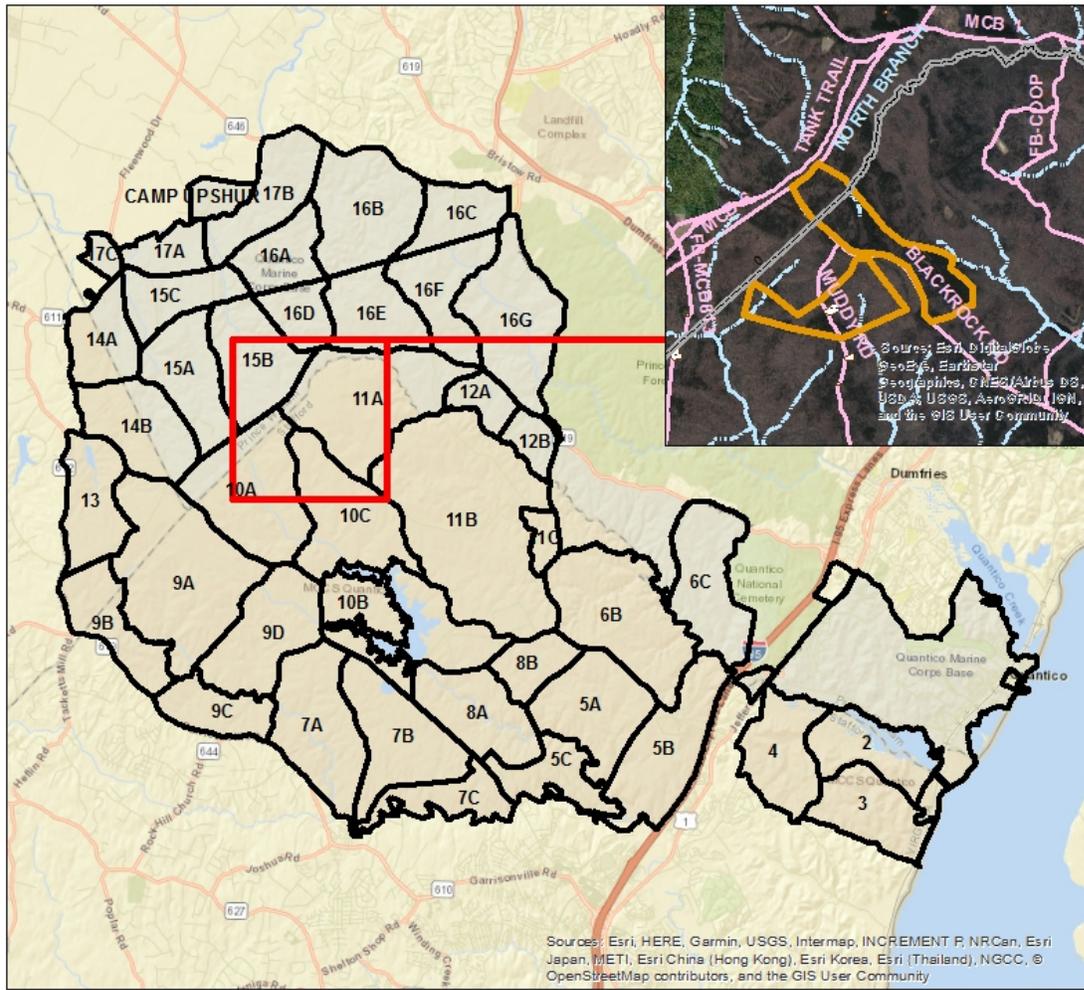
Under the No Action Alternative, the Proposed Action would not occur. The 300 acres of vegetation would remain undisturbed and would not be harvested. The timber would be contaminated due to training activities. Additionally, risk of a forest fire would remain.

The No Action Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action, not simply conclude no impact, and will serve to establish a comparative baseline for analysis.

2.2.2 Alternative B - Timber Harvest in TA10A, 10C and 11A

Under Alternative B, two locations totaling 300 acres would be thinned and have timber removed. The possibility of a wildfire in this location would be significantly reduced and the U.S. government would obtain full market value for merchantable timber. The proposed action locations are described in Figures 2.2.1 and 2.2.2 below.

Proposed Timber Harvest in TA10A, TA10C and TA11A



Legend

-  Proposed Timber Harvest
-  Cultural Resource Site
-  Intermittent Stream
-  Perennial Stream
-  Road
-  Training Area Boundary
-  County Boundary

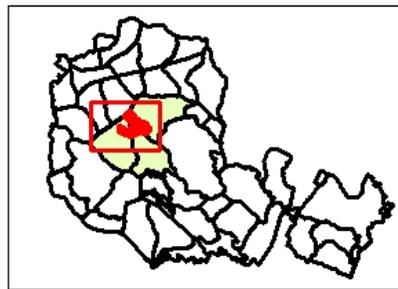
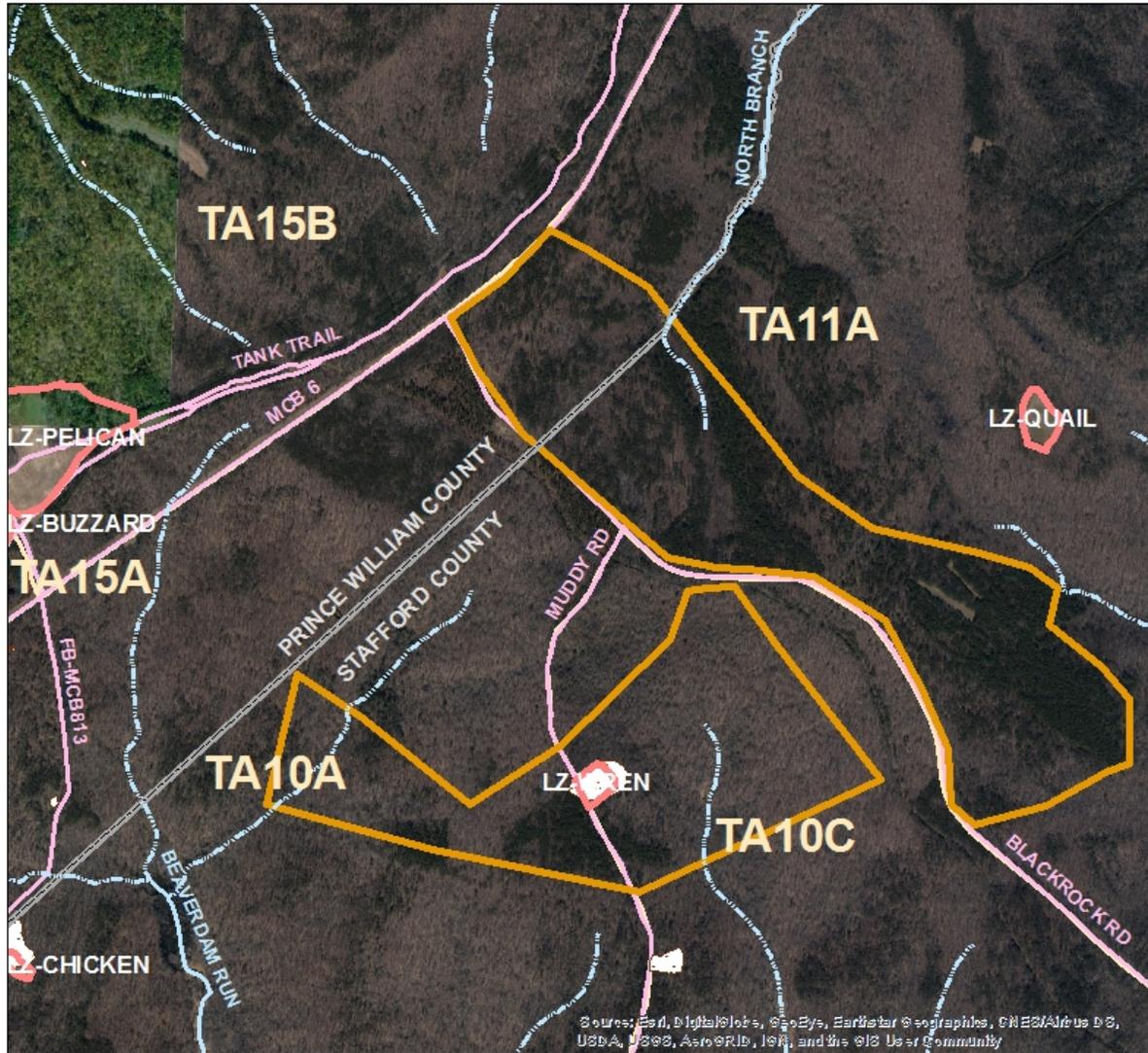


Figure 2.2.1

Proposed Timber Harvest in TA10A, TA10C and TA11A



0 0.1 0.2 0.4 Miles

Legend

- Proposed Timber Harvest
- Training Area Boundary
- Cultural Resource Site
- Landing Zone
- Intermittent Stream
- Perennial Stream
- Road
- County Boundary

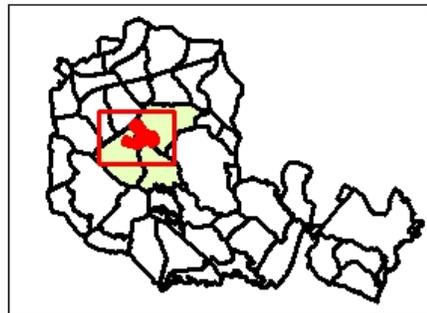


Figure 2.2.2

3.0 Affected Environment

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing any of the alternatives.

All potentially relevant environmental resource areas were initially considered for analysis in this EA. In compliance with NEPA, the CEQ, Department of the Navy (DoN), and USMC guidelines; the discussion of the affected environment (ie., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact. This section includes *air quality, water resources, geological resources, cultural resources, biological resources, land use, visual resources, military training and airspace, noise, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomics, and environmental justice.*

The potential impacts to the following resource areas are considered to be negligible or non-existent so they were not analyzed in detail in this EA:

Infrastructure:

Existing infrastructure will not be impacted as a result of the proposed action and no new infrastructure will be constructed.

Transportation:

Any impacts on existing roads or trails will be non-existent and negligible at best. Any traffic generated by the proposed action would involve logging trucks traveling to and from the proposed action location.

Hazardous Materials and Wastes:

The proposed action is not being implemented either within or near a known hazardous waste site.

Visual Resources:

The proposed action involves thinning of forest. Densely populated forested locations will be made less dense. Merchantable timber as well as dead, diseased, or damaged trees

will be removed. However, it does not involve a significant change in land use (such as clear cutting) or conversion into a non-natural structure. The Quantico Marine Corps Base Historic District (QMCBHD) will also not be impacted by the proposed action and there will be no impacts to viewsheds. Consequently, visual resources will not be analyzed within this EA.

Socioeconomics:

The proposed action is a forest management action that would be occurring on the base. Effects on demographics, employment characteristics, schools, housing occupancy status and economic activity either on MCBQ or within Prince William or Stafford Counties will be negligible or non-existent.

Environmental Justice:

The United States Environmental Protection Agency (USEPA) defines Environmental Justice as the fair treatment and meaningful involvement of all people regardless of race, color, natural origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies (USEPA 2014).

Executive Order (EO) 12898, Federal Actions to address Environmental Justice in Minority Populations and Low-income Populations, was issued in 1994. This order directs agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement of any adverse effects from federal policies and actions on these groups.

EO 13045, Protection of Children from Environmental Health and safety Risk, was issued in 1997. This order requires agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. The proposed action will not involve effects specific to children.

The proposed action will not significantly alter current environmental conditions and any effects to low-income, minority groups or children will be non-existent. All tree removal will occur inside of the boundary of MCBQ where similar activities have occurred in the past. As a result, environmental justice was not analyzed in detail in this EA.

3.1 Air Quality

3.1.1 Regulatory Setting

3.1.1.1 National Ambient Air Quality Standards and Criteria Pollutants

The U.S. Environmental Protection Agency (EPA) defines ambient air as "that portion of the atmosphere, external to buildings, to which the general public has access" (40 C.F.R. part 50). In compliance with the Clean Air Act (CAA) (42 U.S.C. §7401 et seq.) the EPA promulgated the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM), ozone, nitrogen dioxide (NO_x), and lead. States are required to develop a State Implementation Plan (SIP) to attain and maintain the NAAQS, with specific requirements for areas that do not meet the NAAQS, called non-attainment areas. The proposed action is being implemented in counties either within or adjacent to the Metropolitan Washington (DC) Region. Prince William County has been designated as non-attainment area for 8-hour ozone NAAQS whereas Stafford County has been designated as being in attainment for 8-hour ozone NAAQS. Both Prince William and Stafford Counties are in attainment for PM_{2.5}. NO_x and volatile organic compounds (VOCs) are precursors to ozone formation and are regulated to control ozone pollution.

3.1.1.2 General Conformity

To ensure that actions taken by federal agencies in a Non-attainment area do not interfere with a state's plan for attainment of the NAAQS, EPA promulgated the General Conformity rule [CAA section 176(c)(4)]. The General Conformity rule requires federal actions, whose emissions exceed *de minimis* thresholds of criteria pollutants and their precursors, to undergo a Conformity Determination. A Conformity Determination is a detailed analysis the action's impact on regional air quality. *De minimis* levels in the DC region are:

- NO_x: 100 tons per year (tpy)
- VOC: 50 tpy
- PM_{2.5}: 100 tpy

An Applicability Analysis is the first step in the Conformity process, used to determine if a full Conformity Determination must support the action. Proposed actions may be exempt from a Conformity Determination by two means:

1. If EPA identifies the action in 40 C.F.R. part 93.153(c)(2) as resulting in no emissions increase or an increase that is clearly *de minimis*.
2. If emissions from the action, including construction and post construction activities, are calculated and determined to fall below the *de minimis* emission rates.

If the Conformity Analysis indicates that the action falls into one of the listed actions, or the emissions are below *de minimis* thresholds, no further action is necessary. For actions that exceed *de minimis* thresholds and are not exempt, a Conformity Determination is required.

A Conformity Determination requires detailed direct and indirect emissions estimates, dispersion modeling analysis, and mitigation of air quality impacts, and an opportunity for public comment prior to approval.

3.1.1.3 Permitting

Title V (Operating Permit)

Generally, major sources of pollution are required to obtain federal operating permits issued under Title V of the CAA by either the EPA or the state regulatory agency. The primary purpose of a Title V permit is to improve compliance at a source by consolidating all requirements into a single document. Title V permits are reviewed and reissued on a 5 year cycle. While some changes to equipment may occur as "off-permit" changes and may be incorporated into the next permit renewal, most NSR permit actions require modification of the Title V permit within 12 months.

In the DC ozone non-attainment area, any source with a NO_x PTE greater than 100 tpy is a major source and must apply for a Title V Permit within 12 months of being designated such. The proposed project occurs within both Prince William and Stafford Counties. Prince William County is an ozone non-attainment area, and Stafford County which is within an attainment area for ozone.

The base's NO_x PTE is well above 100 tpy. The base currently operates under a Title V permit issued by the VDEQ on 2 September 2003. Renewal applications are pending.

3.1.1.4 Greenhouse Gases

Greenhouse Gas (GHG) reporting and permitting are the newest broad scale programs under the CAA. In 2009, the EPA determined that GHGs have a detrimental effect on human health and the environment and began developing regulatory programs to limit the emission of GHGs.

Greenhouse gases (GHG) are gas emissions that trap heat in the atmosphere (called the "greenhouse effect"). It is a natural phenomenon that can create a wide range of environmental concerns referred to as climate change. Climate change is associated with rising global temperatures, sea level rise, changing weather patterns, changes to local and regional ecosystems, including the potential loss of species, longer growing seasons, and shifts in plant and animal ranges. Most GHGs occur naturally within the atmosphere but scientific evidence indicates a trend of increasing global temperature over the past century due to a combination of natural occurrences and an increase in GHG emissions from human activities (Intergovernmental Panel on Climate Change, 2007). GHGs include carbon dioxide (CO₂), methane (CH₄), nitrogen oxide (NO_x), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers.

According to the Quadrennial Defense Review Report of February 2010, the DoD has recognized that climate change will affect the DoD operating environment, roles, and missions undertaken; furthermore, adjustments due to climate change impacts on facilities and military capabilities will be necessary. The DoD has made a commitment to foster efforts to assess, adapt to, and mitigate the impacts of climate change. Specifically, the DoD has leveraged the Strategic Environmental Research and Development Program, a joint effort among the DoD, the Department of Energy, and the EPA, to develop climate change assessment tools.

GHG Reporting

In October 2009, the EPA promulgated the GHG Reporting Rule in 40 C.F.R. part 98. The rule establishes mandatory reporting requirements for facilities that fit into any of three applicability classifications.

A facility may be required to report GHG emissions if it falls into an "all-in" source category defined in 40 C.F.R. part 98.2(a)(1). One of these categories is Municipal Solid Waste

(MSW) Landfills that emit more than 25,000 metric tons of carbon dioxide equivalent (CO₂e) in a year and accepted waste after 1 January 1980. The base has three MSW landfills, two of which accepted waste after 1 January 1980.

A facility may also be required to report if it falls into a second set of defined source categories and emits more than 25,000 metric tons of CO₂e in a year. The second set of categories includes production facilities outlined in 40 C.F.R. part 98.2(a)(2). The base does not operate any of these facilities.

Finally, a facility may be required to report if it does not meet either of the first two requirements, but it does operate stationary fuel combustion equipment with an aggregate rated heat input capacity of at least 30 MMBtu/hr and the facility emits more than 25,000 metric tons of CO₂e in a year from these sources. The aggregate rated heat input capacity of MCBQ is well in excess of 30 MMBtu/hr.

The base's MSW landfills and stationary fuel combustion equipment emissions are evaluated annually to determine applicability of Part 98. The most recent calculations demonstrate that, based on 2013 data, Part 98 reporting requirements do not apply to the base. As of 2013, base-wide CO₂e emissions from stationary fuel combustion equipment totaled 18,658 tons.

GHG Permitting

The Title V permitting program apply to GHGs if a facility is subject to those programs for other pollutants. While traditional permitting thresholds for Title V permits technically apply to GHGs, actual application of those thresholds has been found impractical to use as thresholds for GHGs. In response, EPA has used its discretion to increase the thresholds under those programs for GHGs so that excessive GHG regulation and controls is avoided. The current threshold for significant emissions increases of GHGs is 75,000 TPY of CO₂e or more, and the Title V threshold for GHGs is 100,000 TPY of CO₂e or more.

On 23 June 2014, the U.S. Supreme Court issued a decision that said EPA could not require a source to obtain a PSD or Title V permit on the basis of GHG emissions alone. However, sources that must obtain PSD or Title V permits based on regulated NSR

pollutants may still be required to control GHG emissions by application of BACT.

Pending further court action, a new stationary source at MCBQ may be subject to BACT for GHGs if it causes a significant emissions increase of a regulated NSR pollutant and also an emissions increase of 75,000 CO₂e or more.

Ozone Depleting Substances

Title VI of the CAA regulates the manufacture and use of ozone depleting substances (ODS) typically found in certain refrigerants, fire extinguishers, and consumer products. Work on equipment containing ODS must be performed only by technicians who are certified through an EPA accredited course. 40 C.F.R. part 82 requires strict production, consumption, recycling, and emission reduction programs.

The base operates a number of heating, ventilation, and air conditioning (HVAC) units that use ODS.

Virginia SIP Regulations

Virginia's SIP includes a number of broadly applicable regulations as well as process-specific regulations for existing sources intended to ensure continued progress towards attainment of all NAAQS.

3.2 Water Resources

This discussion of water resources includes groundwater, surface water, wetlands, floodplains, and shorelines. This section also discusses the physical characteristics of groundwater, surface water, wetlands, floodplains, and shorelines. Wildlife and vegetation are addressed in Section 3.5, Biological Resources.

Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater is used for water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Sole source aquifer designation provides limited protection of groundwater resources which serve as drinking water supplies.

Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. A Total Maximum Daily Load (TMDL) is the maximum amount of a substance that can be assimilated by a water body without causing impairment. A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards occur.

Wetlands are jointly defined by USEPA and USACE as "those areas that are inundated or saturated by surface or ground water 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 generally include "swamps, marshes, bogs and similar areas."

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body. Floodplain boundaries are most often defined in terms of frequency of inundation, that is, the 100-year and 500-year flood. Floodplain delineation maps are produced by the Federal Emergency Management Agency and provide a basis for comparing the locale of the Proposed Action to the floodplains.

Shorelines can be located along marine (oceans), brackish (estuaries), or fresh (lakes) bodies of water. Physical dynamics of shorelines include tidal influences, channel movement and hydrological systems, flooding or storm surge areas, erosion and sedimentation, water quality and temperature, presence of nutrients and pathogens, and sites with potential for protection or restoration. Shoreline ecosystems are vital habitat for multiple life states of many fish, birds, reptiles, amphibians, and invertebrates. Different shore zones provide different kinds and levels of habitat, and when aggregated, can significantly influence life. Organic matter that is washed onto the shore, or "wrack," is an important component of shoreline ecosystems, providing habitat for invertebrates, soil and organic matter, and nutrients to both the upland terrestrial communities and aquatic ecosystems.

3.2.1 Regulatory Setting

Activities in surface waters (including streams) and wetlands are regulated under numerous federal laws, regulations, and policies. The proposed action would be bound by the following:

- The Clean Water Act (CWA), 33 U.S.C. §1344 (Section 404) requires a permit from the US Army Corps of Engineers for the discharge of dredged or fill material in to "waters of the US", a term that includes most streams, wetlands, and ponds.
- Executive Order (E.O.) 11990, *Protection of Wetlands*, requires federal agencies to take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.
- Department of the Navy "no net loss" policy, for implementing E.O. 11990.

The Commonwealth of Virginia also regulates streams and wetlands that are considered "waters of the state" through a number of laws and provisions. Any action that requires a federal Section 404 permit may also require a water quality certification per CWA 33 U.S.C. §1341 (Section 401) from the Virginia Department of Environmental Quality (VDEQ) and, under certain circumstances, the Virginia Marine Resources Commission.

In 1988, Virginia enacted the Chesapeake Bay Preservation Act (CBPA), Code of Virginia, Title 10.1-Conservation, Chapter 21. This Act established a cooperative program between state and local governments to improve water quality in the Bay by requiring resource management practices in the use and development of environmentally sensitive land features. As defined by the CBPA, Resource Protection Areas (RPA) are buffer zones that include all areas within 100 feet of a tidal wetland, contiguous non-tidal wetlands, or perennial streams. Other areas are designated as Resource Management Areas (RMA). The RMA includes the 100-year floodplain, highly erodible soils, highly permeable soils, and non-tidal wetlands that are not part of an RPA. The Department of Defense (DoD) is a signatory to an agreement supporting the CBPA and its associated regulations and will comply to the maximum extent possible consistent with the military mission and budget constraints.

3.2.2 Affected Environment

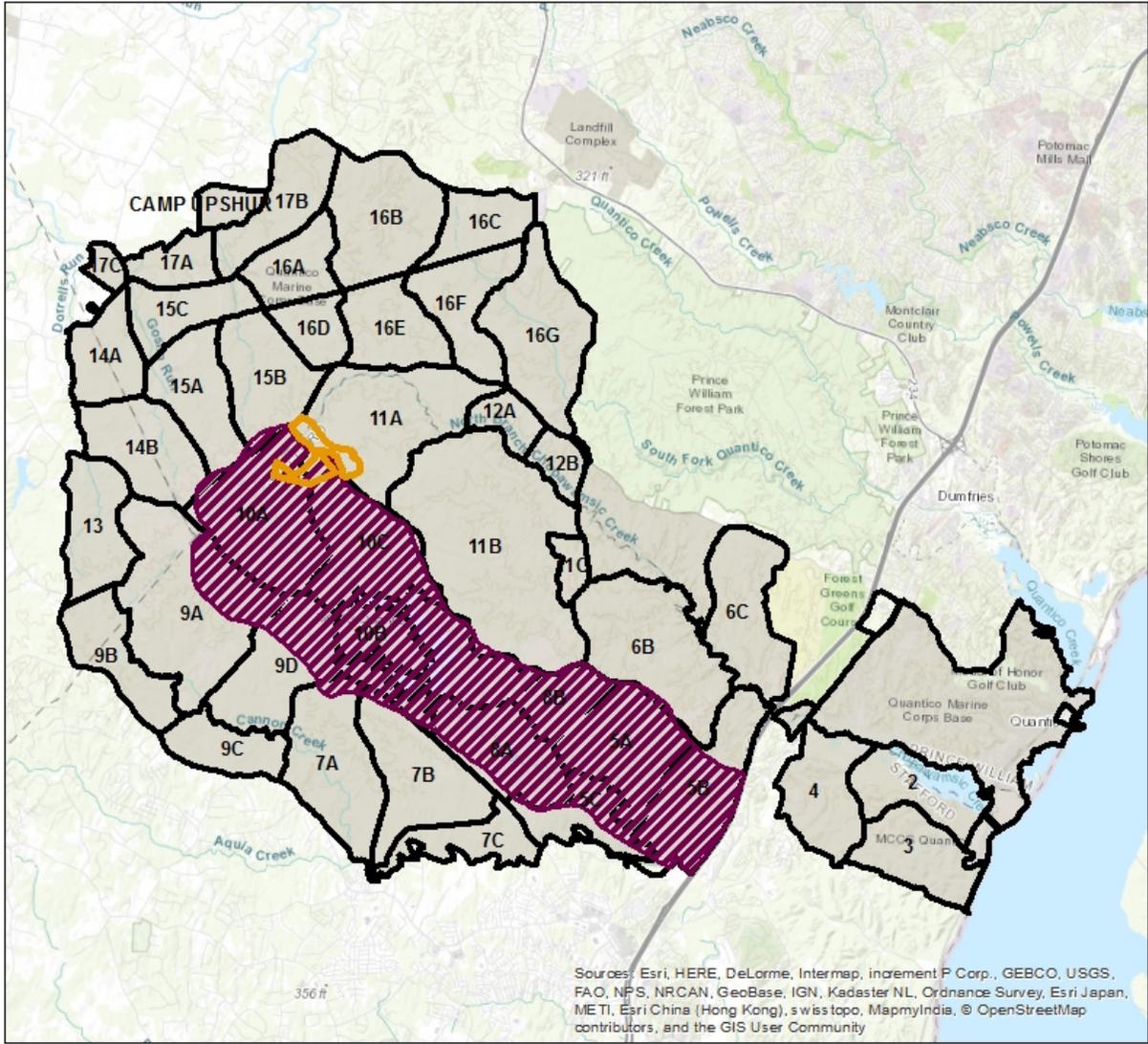
3.2.2.1 Groundwater

The Potomac Aquifer extends from New Jersey in the north, to North Carolina in the south, and eastward under the Chesapeake Bay. The MCBQ lies within this aquifer. In this aquifer water can be reached at depths between 200 and 350 feet. One of the largest surface recharge areas for the Potomac Aquifer exists in Stafford County, near Interstate 95. No comprehensive studies of groundwater resources have been conducted at MCBQ to date.

3.2.2.2 Surface Water

The proposed action locations have three intermittent streams that occur within their boundaries. In the northern portion of the proposed action location is an intermittent stream that forms the headwaters of the North Branch of Chopawamsic Creek (commonly referred to as North Branch). A second intermittent stream that occurs on the northern boundary also forms the headwaters of the Middle Branch of Chopawamsic Creek (commonly referred to as Middle Branch). The southern portion of the proposed action location has two intermittent streams that are located within the boundaries. Both streams are tributaries of Beaverdam Run. The proposed action locations occur within both the Beaverdam Run and Chopawamsic Creek Watersheds. The Beaverdam Run Watershed comprises a total of 12,084 acres and is located in the south central section of MCBQ (See Figure 3.2.2.2.1). The Chopawamsic Creek Watershed occupies a total of 20,461 acres and is found within the central and northern portions of MCBQ (See Figure 3.2.2.2.2). The Beaverdam Run and Chopawamsic Creek Watersheds are part of the Potomac River Watershed. The Potomac River Watershed occupies a total of 9,388,800 acres across the states of Maryland, Pennsylvania, Virginia and West Virginia (See Figure 3.2.2.2.3).

Proposed Timber Harvest in TA10A, TA10C and TA11A-Watersheds



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

0 1 2 4 Miles

Legend

-  Proposed Timber Harvest
-  Beaverdam Run Watershed

 Training Area Boundary

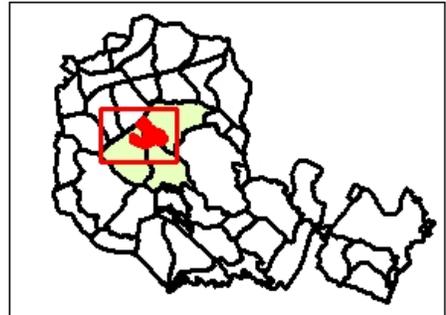


Figure 3.2.2.2.1

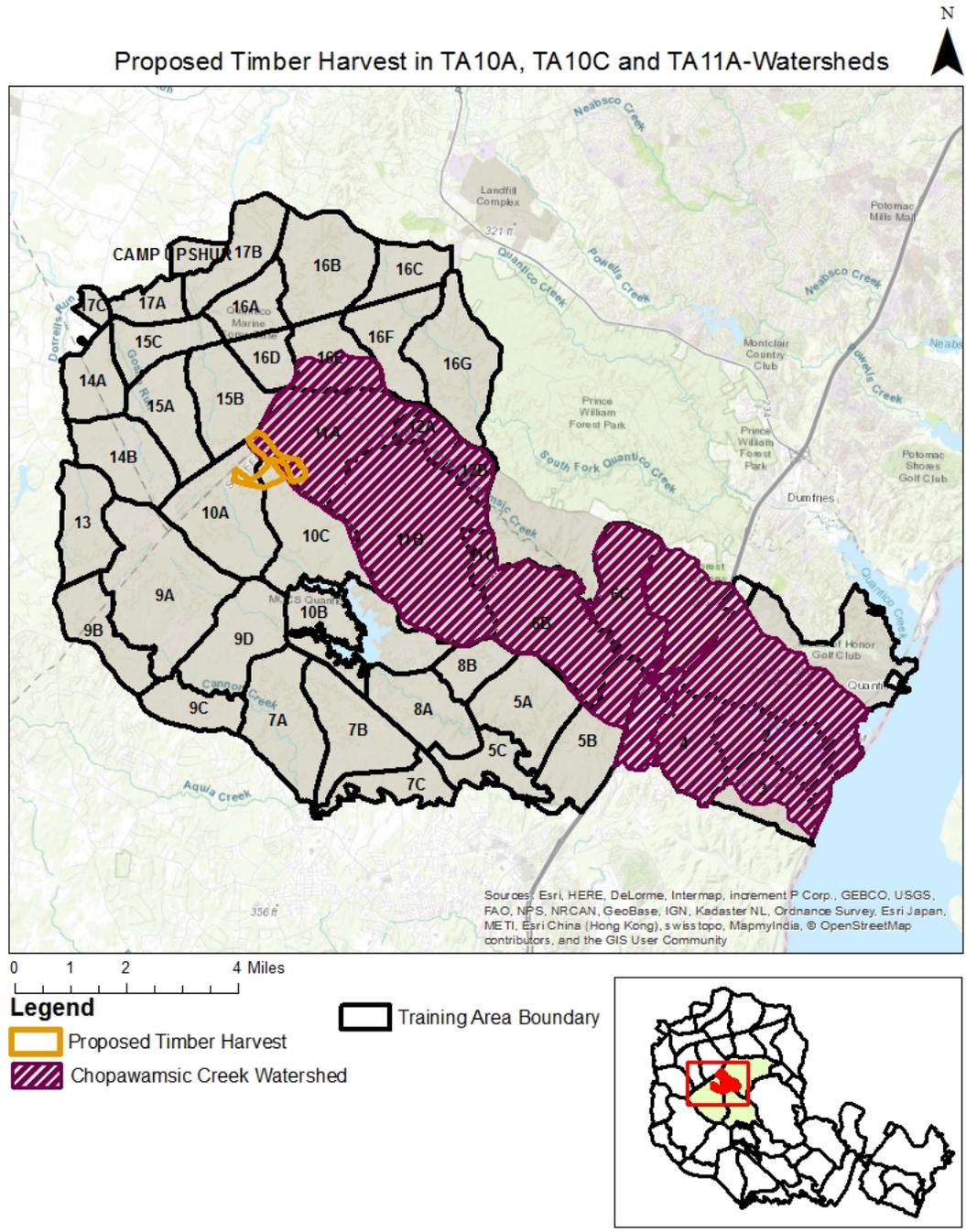


Figure 3.2.2.2.2

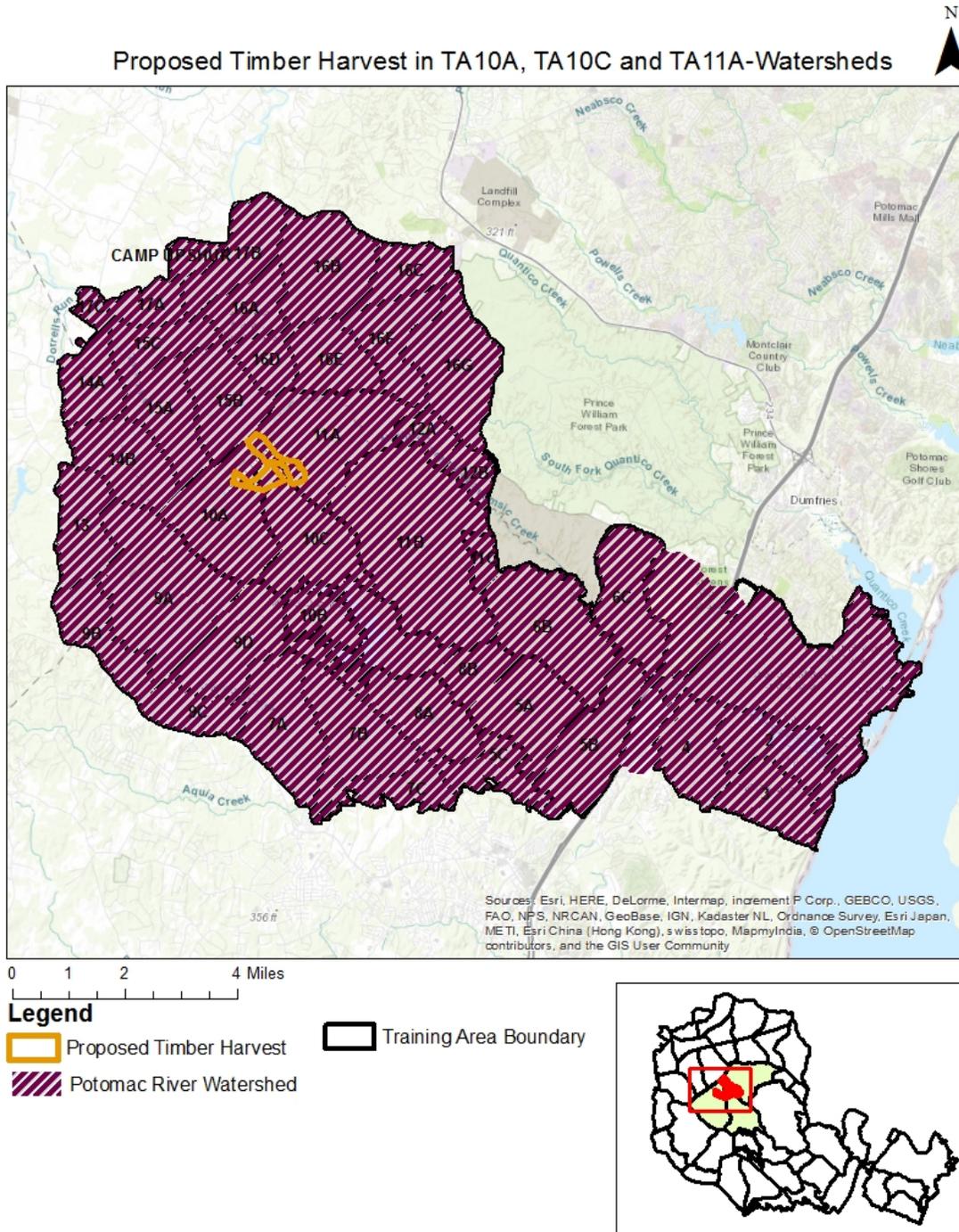


Figure 3.2.2.2.3

3.2.2.3 Wetlands

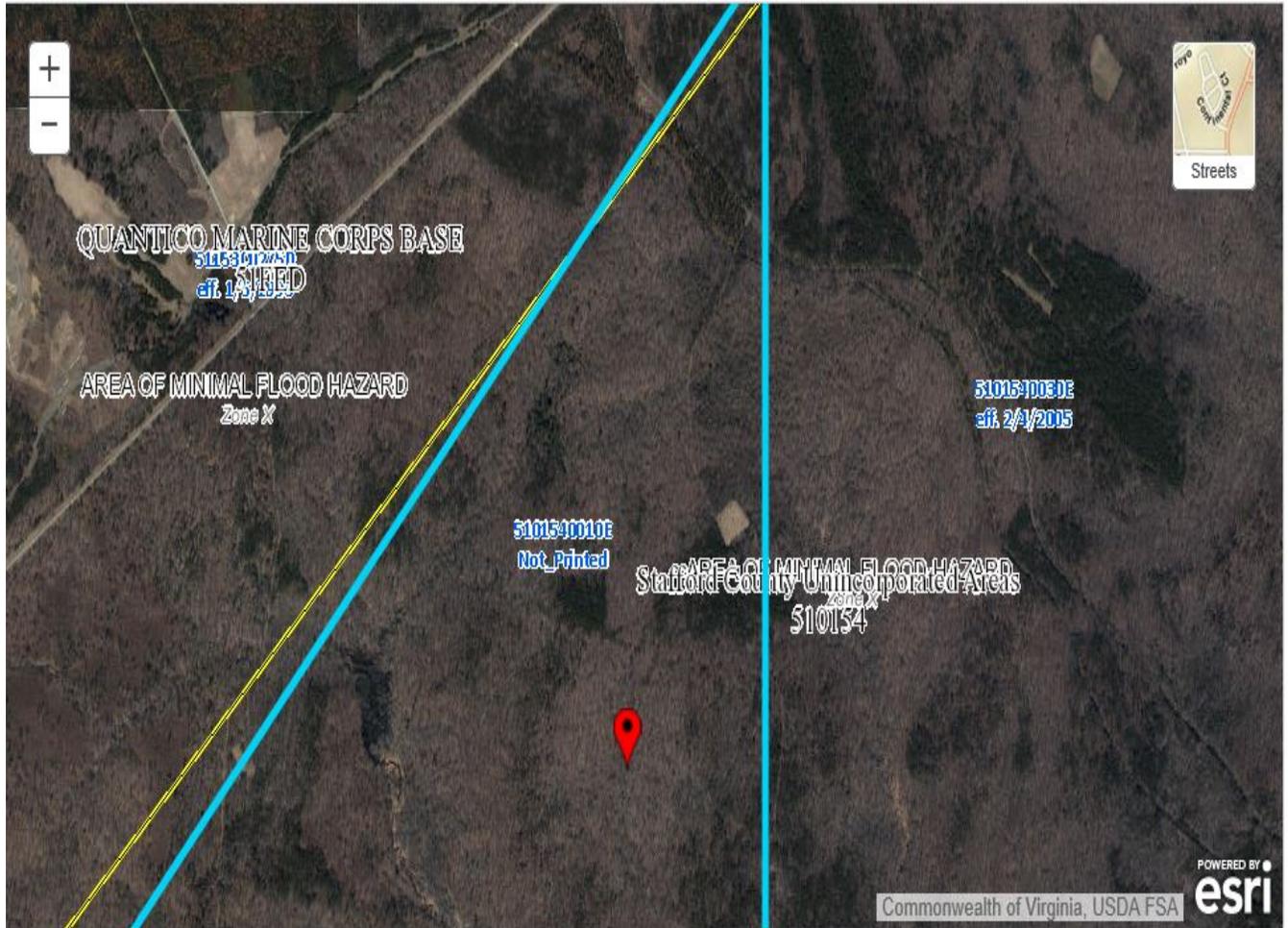
Riverine wetlands are located adjacent to both Beaverdam Run

and North Branch. However, no wetlands occur within the proposed action location.

3.2.2.4 Floodplains

Executive Order 11988 (1977), Floodplain Management, requires federal agencies to take action to minimize occupancy and modification of floodplains. The order specifically prohibits federal agencies from funding construction in the 100-year floodplain unless no practicable alternative exists.

The two areas of the proposed timber harvest in are depicted on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) number 5101540030E, panel 30 of 280, and FIRM number 5101540010E. The FIRM shows the proposed action footprints outside of Flood Zone A, which is an area outside of the 100-year floodplain (See Figure 3.2.2.4.1).



- MAP PANELS**
- Digital Data Available
 - No Digital Data Available
 - Unmapped

- OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard Zone X
 - Effective LOMRs
 - Area of Undetermined Flood Hazard Zone D

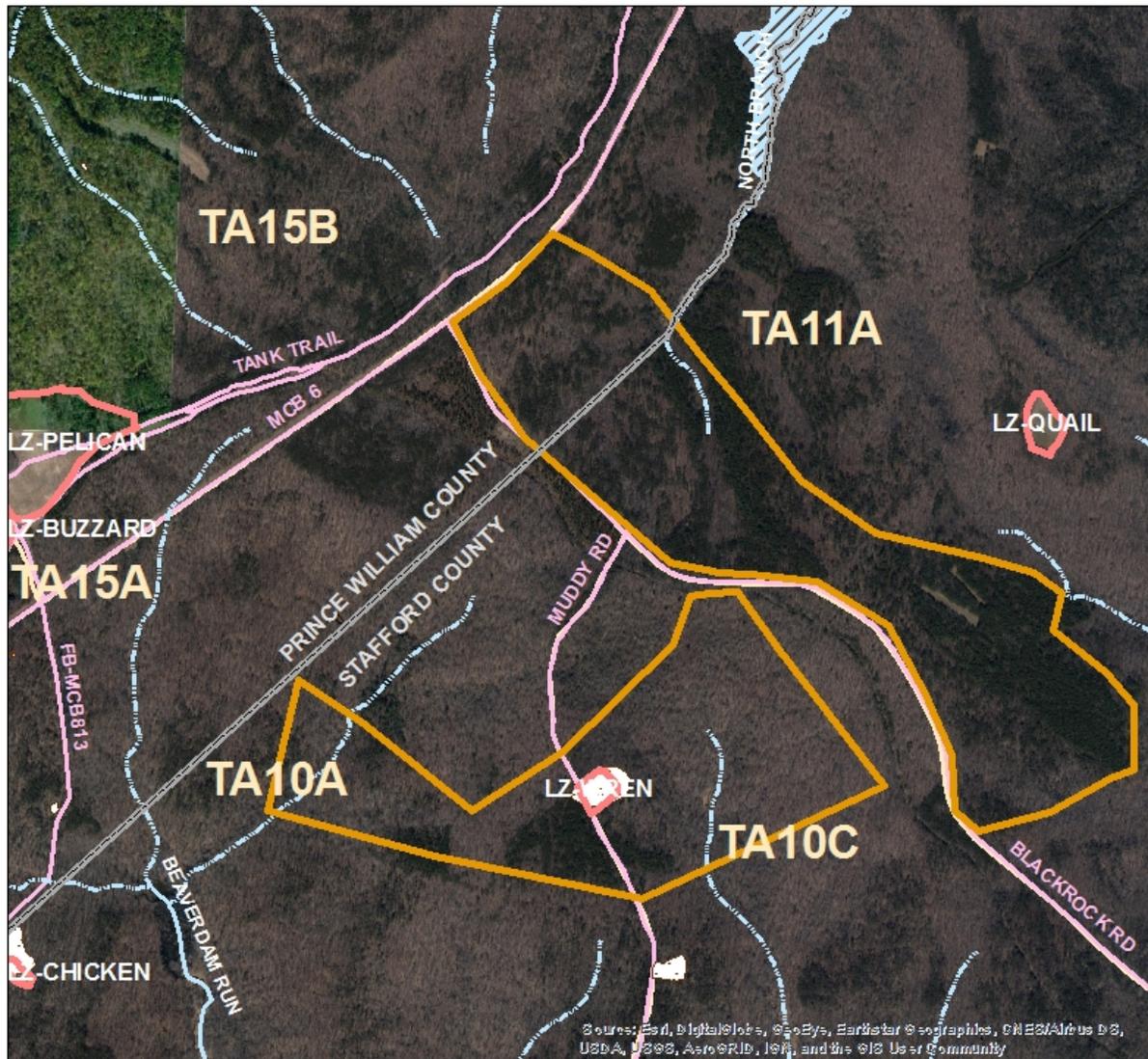
- GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall

- SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) Zone A, V, A59
 - With BFE or Depth
 - Regulatory Floodway Zone AE, AO, AH, VE, AR

- OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
 - Future Conditions 1% Annual Chance Flood Hazard Zone X
 - Area with Reduced Flood Risk due to Levee. See Notes. Zone X
 - Area with Flood Risk due to Levee Zone D

- OTHER FEATURES**
- Cross Sections with 1% Annual Chance Water Surface Elevation
 - Coastal Transect
 - Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature

Proposed Timber Harvest in TA10A, TA10C and TA11A-FEMA Floodplains



0 0.1 0.2 0.4 Miles

Legend

- Proposed Timber Harvest
- 100-Year Floodplain
- Cultural Resource Site
- Landing Zone
- Intermittent Stream
- Perennial Stream
- Road
- County Boundary
- Training Area Boundary



Figure 3.2.2.4.1

3.3 Geological Resources

This discussion of geological resources includes topography, geology, and soils.

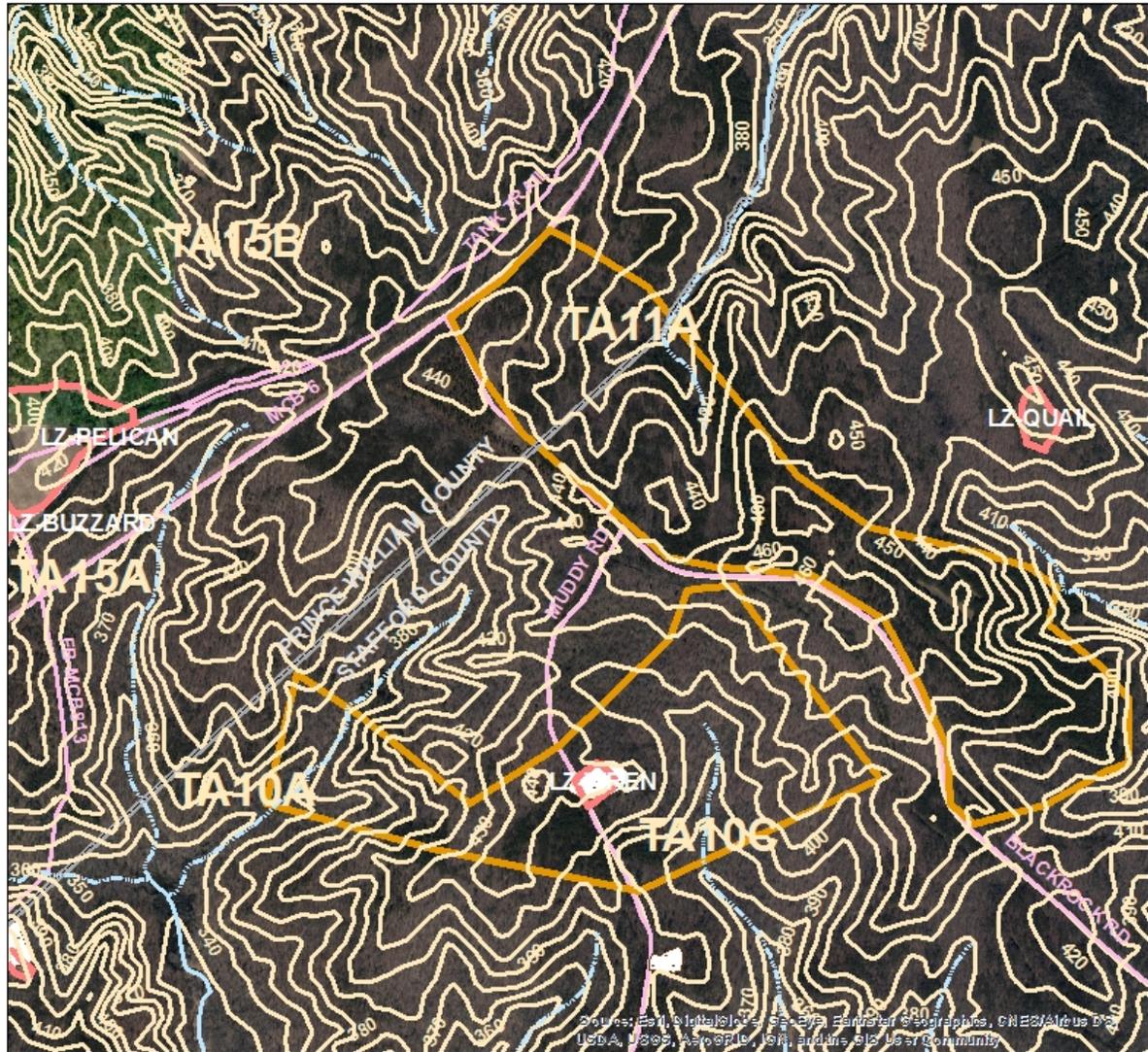
3.3.1 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under geological resources at MCBQ.

3.3.1.1 Topography

The terrain of the proposed action location is characterized by a steep terrain and high gradient. The elevation generally decreases from north to south. The highest elevation occurs near Blackrock Rd. (SR-617) at 460 ft. The lowest elevation of 340 ft. is found near the intermittent stream that is a tributary of Beaverdam Run on the southern portion of the proposed action location near the boundary of Prince William and Stafford Counties. The topography of the proposed action location is displayed in Figure 3.3.1.1.1.

Proposed Timber Harvest in TA10A, TA10C and TA11A-Topographical Profile



0 0.1 0.2 0.4 Miles

Legend

-  Proposed Timber Harvest
-  Contours - Elevation 10ft.
-  Cultural Resource Site
-  Landing Zone
-  Intermittent Stream
-  Perennial Stream
-  Road
-  County Boundary
-  Training Area Boundary

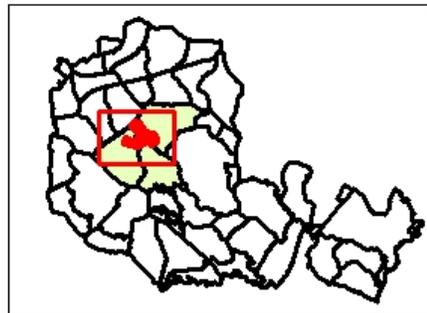


Figure 3.3.1.1.1

3.3.1.2 Geology

The proposed action would occur within the Westside portion of the base, which lies in the Coastal Plain geologic region. The region consists of Mesozoic and Cenozoic marine sediments, some consolidated into sandstone and marl. The project area is specifically within the Patapsco formation, which dates to the Cretaceous Period at the end of the Mesozoic Era. It is comprised of sand and clay from shallow aquatic deposits, which cover Pre-Cambrian crystalline rock with a thickness of approximately 150 feet. These deposits are generally unconsolidated.

3.3.1.3 Soils

The Nason Silt Loam (NaC2) 6-15% slopes eroded is the dominant soil of the proposed action locations. NaC2 represents 36% of the soils found within the footprint. NaC2 occurs on the eastern and western sections of the proposed action locations. It is found near Blackrock Rd. and MCB-6. The soils are associated with prime farmland and hillsides. NaC2's profile consists of silt loam, clay and bedrock. The soil is well-drained with a moderate ability to create runoff. Another member of the Nason series, The Nason Silt Loam (NaB) 2-6% slopes, is the second most common soil found in the footprints. NaB represents 27% of the soils and is found within the central portion of the proposed action locations. This soil type is associated with prime farmland and hillsides. The profile of the soil consists of a silt loam, clay and bedrock. The soil is well-drained and has a low probability to create runoff. The Fairfax Loam (FaB) 2-6% slopes represents 17% of the soils concentrated in the proposed action locations. FaB is found in mostly the northern section of the footprints. This soil type is associated with prime farmland and hillsides. Its profile consists of a loam, gravelly silty clay loam and a clay loam. The soil is well-drained with a low probability to create runoff. The Lignum Silt Loam (LgB) 2-6% slopes represents 6% of the soils found within the proposed action locations. LgB is found primarily in the western portions of the footprints with some concentrations in the central and western portions. This soil is associated with prime farmland and hillsides. The profile of this soil type comprises a silt loam, silty clay loam and bedrock. LgB is moderately well-drained with a moderate ability to create runoff. The soil is somewhat poorly drained and has a high probability to create runoff. The Worsham Loam (Wr) represents 5% of the soils within the proposed action footprints. The soil is found along the boundaries of the

footprints. Wr is associated with depressions. The profile of Wr is that of a loam, clay loam and fine sandy clay loam. The soil is poorly drained and has a high runoff capacity.

The Catecay Fine Sandy Loam (Ce) is associated with floodplains and represents 4% of the soils found within the proposed action areas. Ce is concentrated along the intermittent stream that is located in the southeastern portion of footprints. This soil type's profile consists of a fine sandy loam and loamy fine sand. The soil is somewhat poorly drained and has a high probability to create runoff. The Meadowville Silt Loam (Me) is associated with drainageways. Me comprises 3% of the soils within the proposed action areas. It is concentrated on the southeastern boundary of the footprints. The soil's profile consists of a silt loam, silty clay loam, gravelly sandy clay loam and a fine sandy loam. The soil is well-drained with a low capacity to create runoff. A trace amount of the Colfax Fine Sandy Loam (ClB), 2-6% slopes, represents 1.3% of the soils within the footprints. Clb is concentrated in one location in the far southwestern portion of the footprints and is associated with hillsides. The soil's profile consists of a fine sandy loam and a clay loam. The soil is somewhat poorly drained and has a high probability to create runoff. Trace amounts of the Elioak series are also present within the proposed action locations. The Elioak Silt Loam (ElB2) 2-6% slopes eroded is associated with prime farmland and hillsides. Roughly, 1.3% of the soils found in the footprints are comprised of this soil type. ElB2 is found in one location on the far southern boundary of the footprint. The profile of ElB2 consists of silt loam and clay. The soil is well-drained with a low probability to create runoff. The Elioak Silt Loam (ElC2) 6-15% slopes eroded, is also associated with prime farmland and hillsides. ElC2 is found in the same area as ElB2 on the southern boundary of the footprint. This soil type also consists of silt loam and clay. The soil is also well drained with a moderate ability to create runoff.

3.4 Cultural Resources

This discussion of cultural resources includes prehistoric and historic archaeological sites; historic buildings, structures, and districts, and physical entities and human-made or natural features important to a culture, a subculture, or a community for traditional, religious, or other reasons. Cultural resources can be divided into three major categories:

- Archaeological resources (prehistoric and historic) are

locations where human activity measurably altered the earth or left deposits of physical remains.

- Architectural resources include standing buildings, structures, landscapes, and other built-environment resources of historic or aesthetic significance.
- Traditional cultural properties may include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

3.4.1 Regulatory Setting

Implementation of the proposed action must comply with the National Historic Preservation Act (NHPA) of 1966, (54 U.S.C. §300101 et seq.). Under the NHPA, consideration of historic preservation issues must be integrated into the early planning stages of project planning by federal agencies. Under NHPA 36 C.F.R. part 800 (Section 106), a federal agency is required to account for the effects of the proposed action on any district, site, building, structure, or object that is included or eligible for inclusion in the National Register of Historic Places (NRHP), prior to the expenditure of funds on the action. Under NHPA 54 U.S.C. §§306101(a) and 306102 (Section 110), the identification and evaluation of any cultural resources on federal property that meet the eligibility criteria of the NRHP is required.

3.4.2 Affected Environment

A historical, 19-20th century archaeological site, is located within the proposed action locations and is illustrated in Figure 2.2.2. The site is entirely within LZ Wren in the southern portion of the proposed action. This site is designated as eligible for the NRHP.

3.5 Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are usually referred to as vegetation, and animal species as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are divided into three major categories: (1) vegetation, (2) terrestrial wildlife, and

(3) aquatic wildlife. Threatened, endangered, and other special status species are discussed in their respective categories.

3.5.1 Regulatory Setting

Special-status species, for the purpose of this EA, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Migratory Bird Treaty Act (MBTA).

The Endangered Species Act (ESA), 7 U.S.C. §136, 16 U.S.C. §1531 et seq., requires federal agencies to ensure that their actions will not jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of its critical habitat.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §701-12) protects all species covered by the four migratory bird treaties the United States signed with Canada, Mexico, Japan, and Russia. The MBTA prohibits taking (e.g., pursuing, hunting, shooting, wounding, trapping, capturing, or collecting, or attempting to pursue, hunt, shoot, wound, trap, capture, or collect, intentionally or unintentionally), killing, or possessing of migratory birds (including parts, feathers, nests, and eggs) unless permitted by the Secretary of the Interior. The United States Fish and Wildlife Service (USFWS) currently recognizes 832 species of migratory birds.

Per Executive Order 13186, Responsibilities of Federal Agencies to Migratory Birds (2001), the DoD and USFWS set forth a Memorandum of Understanding (MOU) to promote the conservation of migratory birds and their habitats.

Bald Eagles (*Haliaeetus leucocephalus*), which are afforded federal protection under the MBTA and the Bald and Golden Eagle Protection Act (BGEPA) of 1940, as amended (16 U.S.C. §668-668d, 54 Stat. 250), and are listed as a species of concern in the USFWS Birds of Conservation Concern, 2008, are discussed within the Terrestrial Wildlife section (3.5.2.2) of this EA.

Marine Corps Order P5090.2A, Ch. 3 directs the USMC to comply with environmental requirements, protect the environment and human health, and enhance and sustain mission readiness, to include cooperating with the Commonwealth of Virginia to protect Virginia-listed rare species and to provide consideration of state-listed species during the NEPA process. According to Marine Corps Order P5090.2A, Section 11104.3b., to the maximum

extent practicable where it does not conflict with the installation mission, each installation should survey and take appropriate measures to identify, monitor and manage other species at risk. Hence, MCBQ also considers project impacts to Virginia-listed rare species and state listed species during the NEPA process.

The Virginia Piedmont Waterboatman (*Sigara depressa*), and the Brook Floater (*Alasmidonta varicose*), are two Virginia-listed endangered faunal species. Both species are water dependent. The Virginia Piedmont Waterboatman is an insect that inhabits ponds and extremely slow moving streams. The Brook Floater is a bivalve that is found among boulders within gravel or sand.

3.5.2 Affected Environment

The base supports a wide variety of both game and non-game species and a diversity of wildlife habitat is available. Game species include white-tailed deer, wild turkey, gray squirrel, cottontail rabbit and bobwhite quail. Non-game species include resident and migratory songbirds, raptors, and various reptiles, amphibians, and insects.

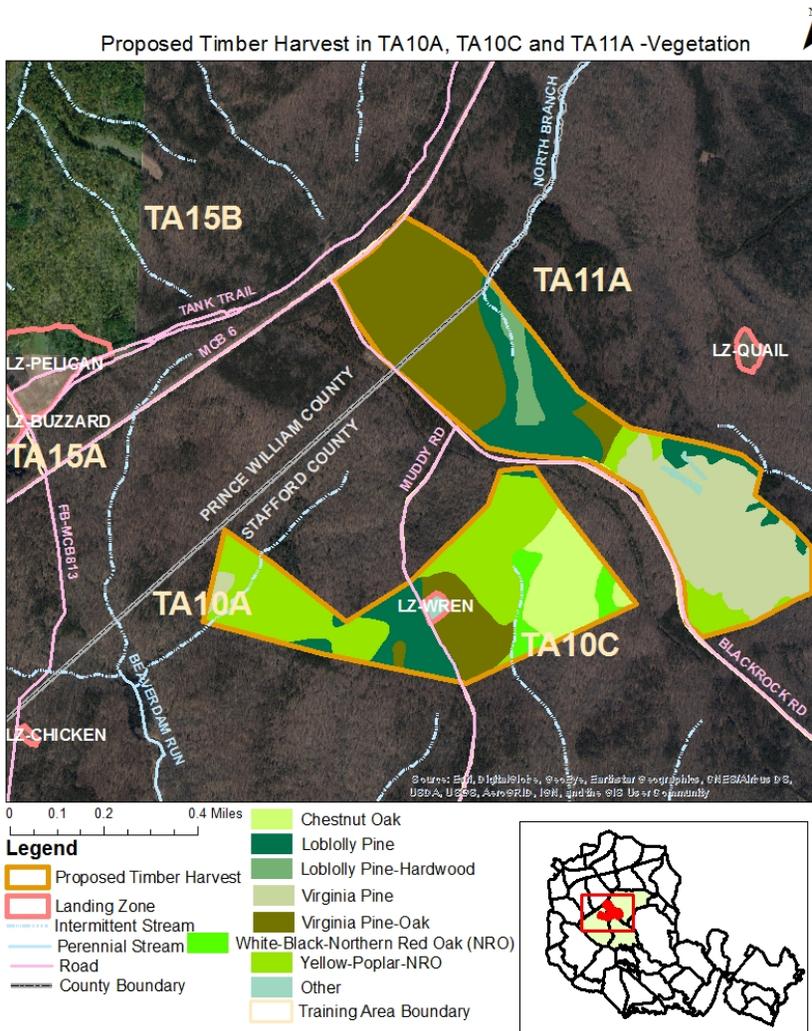
Migratory birds utilize a variety of habitats available throughout MCBQ including forestland, grassland, wetland, and riparian corridors.

3.5.2.1 Vegetation

Several plant species occupy the proposed action footprint. The land area of MCBQ is primarily covered by a forested landscape. Forests account for approximately 90% of the land cover of the base. MCBQ is located within an ecological transition zone inside the Eastern Deciduous Forest Biome of the United States. The major tree types found within the forests, particularly on the Westside of the base, are associated with the Central and Southern forest regions of the United States. The most common tree species found at MCBQ are Yellow Poplar (*Liriodendron tulipifera*), Black Oak (*Quercus velutina*), Northern Red Oak (NRO) (*Quercus rubra*), White Oak (*Quercus alba*), Shortleaf Pine (*Pinus echinata*), Virginia Pine (*Pinus virginiana*) and Loblolly Pine (*Pinus taeda*). Other species found on the base include Sweet Gum (*Liquidambar styraciflua*), Red Maple (*Acer rubrum*), American beech (*Fagus grandifolia*), Hickory (*Carya sp.*), Red Cedar (*Juniperus virginiana*), Black Walnut (*Juglans nigra*), Black Cherry (*Prunus serotina*) and Bigtooth Aspen (*Populus gradidentata*). If there is an undisturbed clear space, the most

likely species to grow in that space is Virginia Pine.

The species found within the proposed action location mirrors much of the forest cover found on the base. The dominant species within the footprints Virginia Pine, Black Oak, Chestnut Oak, White Oak, NRO and Yellow Poplar. There is a sizeable amount of Loblolly Pine within the footprints as well and a trace amount of Hardwoods. The vegetation within the proposed action area is illustrated in Figure 3.5.2.1.1.



Timber Harvest in TA10A, TA10C and TA11A			
Chestnut Oak	Loblolly Pine	Loblolly Pine-Hardwood	Virginia Pine
8%	17%	2%	19%
Virginia Pine-Oak	White-Black-NRO	Yellow Poplar-WO-NRO	Other
28%	3%	23%	1%

Figure 3.5.2.1.1

Two plant species on MCBQ are federally-listed as threatened or

endangered species. These are Harperella (*Ptilimnium nodosum*), Sensitive Joint-vetch (*Aeschynomene virginica*) and the Small Whorled pogonia (*Isotria medeoloides*).

Harperella is a federally-listed endangered plant species native to riverine habitats. This plant is only found in 13 areas ranging from Maryland to Georgia.

The Sensitive Joint-vetch is an annual legume that is native to the eastern U.S. The plant usually reaches a height of about 3-6 feet in a growing season but may grow as tall as 8 feet. The flowers are usually yellow, streaked red and the fruit is a pod that becomes brown when ripe. The plant inhabits the outer portions of marshes or shorelines that flood twice a day.

The Small Whorled pogonia (SWP) is a federally-listed threatened species. The SWP is a perennial plant that generally occurs on gentle to moderate slopes with eastern or northern exposures and prefers acidic sandy loam soils with low nutrient content. The soils found within the proposed action locations are the soil types that could potentially support SWP habitat (See Section 3.3.1.3).

3.5.2.2 Terrestrial Wildlife

The Indiana bat (*Myotis sodalist*), a species federally listed as endangered, can be found over most of the eastern half of the United States and is found or may be potentially found at MCBQ. The bat spends winter hibernating in caves and occasionally in abandoned mines (hibernacula). During summer, the bats prefer to roost under the peeling bark of dead and dying trees. There are no known Indiana bat hibernacula or maternity colonies on MCBQ, however the Indiana bat was detected both on the base and within the proposed action footprint in 2017.

The Northern Long-Eared bat (*Myotis septentrionalis*) (NLEB) is also found on MCBQ. The NLEB is federally-listed as threatened. The bat spends winter hibernating in caves and mines (hibernacula). They prefer roosting sites with constant temperatures, high humidity, and no air currents. In summer, they prefer roosts under tree bark, in cavities or in crevices of both live and dead trees, and rarely in man-made structures such as barns or sheds (50 C.F.R. part 17). There are no known NLEB hibernacula or maternity roosts on MCBQ, however the NLEB was detected on base and within the proposed action footprint in 2017.

The Little Brown bat (*Myotis lucifugus*) and the Tri-Colored bat (*Perymyotis subflavus*) are listed as Virginia state-endangered species. Both the Little Brown bat and the Tri-Colored bat were found both on the base and within the proposed action footprint in 2017. However, there are no known summer roosts, maternity colonies or winter hibernacula for either species at MCBQ.

The Bald Eagle was removed from the Federal List of Endangered and Threatened Wildlife and Plants in 2007 due to population recovery. The BGEPA requires a buffer of 660 ft. around a nesting site. Additionally, removal or overstory trees may not occur within 300 ft. of a nest. No Bald Eagle nests are located either within the proposed action location nor is the footprint within 660 ft. of a Bald Eagle concentration area.

3.5.2.3 Aquatic Wildlife

Fish

Fish are vital components of aquatic ecosystems. They have great ecological and economic aspects. To protect this resource, the National Oceanic and Atmospheric Administration (NOAA) Fisheries works with the regional fishery management councils to identify the essential habitat for every life stage of each federally managed species using the best available scientific information. Essential fish habitat has been described for approximately 1000 managed species to date. Essential fish habitat includes all types of aquatic habitat, including wetlands, coral reefs, seagrasses, and rivers - all locations where fish spawn, breed, feed, or grow to maturity.

Invertebrates

The Yellow Lance (*Elliptio lanceolata*), is a freshwater mussel species that is federally-listed as threatened. The species is often found within clean, coarse and medium sand but also occasionally within gravel substrates. The Yellow Lance can be found waterways ranging from medium-sized rivers to small streams and requires clean, moderately flowing water as part of its habitat. It has known populations within the Rappahannock, James, York and Chowan Rivers in Virginia. The species is believed to no longer populate the Potomac River.

The Dwarf Wedge mussel (*Alasmidonta heterodon*), found on portions of MCBQ, is federally-listed as endangered. It is a small bivalve that lives in freshwater streams and requires highly oxygenated and silt-free waters.

3.6 Land Use

This discussion of land use includes current and planned uses and the regulations, policies, or zoning that may control the proposed land use. The term "land use" refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often include residential, commercial, industrial, agricultural, institutional, and recreational.

3.6.1 Regulatory Setting

In many cases, land use descriptions are codified in installation master planning and local zoning laws. Marine Corps Order (MCO) 11010.16 provides guidance administering the Air Installation Compatible Use Zone (AICUZ) program, which recommends land uses that are compatible with noise levels, accident potential, and obstruction clearance criteria for military airfield operations. MCO 3550.11 provides guidance for a similar program, Range AICUZ (RAICUZ). This program includes range safety and noise analyses, and provides land use recommendations which will be compatible with Range Compatibility Zones and noise levels associated with military range operations. The proposed action lies west of a growth boundary that has been delineated by MCBQ. Any development that occurs west of the growth boundary must be directly related or compatible with training and range activity in compliance with the Marine Corps Base Quantico Master Plan.

3.6.2 Affected Environment

3.6.2.1 Current Land Use and Compatibility

MCBQ is divided into two areas; Mainside, 6,000 acres east of Interstate 95 and U.S. Route 1, and Westside (Guadalcanal), 53,200 acres west of the same highways. The proposed timber

harvest will encompass roughly 300 acres of forested landscapes within sections of TA10A, TA10C, and TA11A. TA10A is roughly 1,991 acres in size with 7.53 miles of roads, firebreaks and trails. It is bounded by MCB-6 to the north, MCB-3 to the south and Muddy Rd. to the east. The two major training facilities within the TA are LZ Chicken, an overgrown landing zone, and Range 15A which serves as an automated multi-purposed training range. TA10C is located to the east of TA10A and is bounded by Muddy Rd on its western boundary and Blackrock Rd. (SR-617) as well as a Tank Trail on its eastern boundary. The TA is approximately 1,706 acres with 7.53 acres of roads, trails and firebreaks. Major training facilities within this TA include LZ Condor and LZ Wren. There are no active military ranges within this TA. TA11A is roughly 2,293 acres in area with 6.14 miles of roads, trails and firebreaks. The TA is bounded by MCB-6 to the west, Blackrock Rd. (SR-617) to the south and SR-618 to the north. The major facilities consists of LZ Quail, LZ Woodpecker and Range 12, which serves as an automated field fire range.

3.7 Military Training

3.7.1 Affected Environment

TA10A, TA10C and TA11A are primarily used for maneuver as well as Land Navigation (LANDNAV) training. LZs Chicken, LZ Condor and LZ Wren all are located within the TAs. Two additional LZs, LZ Buzzard and LZ Pelican, are located approximately 0.5 mile from the proposed action footprint. Range 15A, located in TA11A, is located 1 mile from the proposed action footprints. The range is a 74 acre Automated Multipurpose Training Range that supports the training of crews, teams, and sections of combat units. It supports infantry squad tactical live-fire operations either with or without vehicle support. The objective of the range is to train and test armor, infantry, as well as aviation teams, crews and sections. The goal of the training is to detect, identify engage and defeat moving targets within a tactical setting. All of the targets are fully automated and computerized. Range 12, located in TA11A, is approximately one mile from the proposed action. Range 12 serves as a three acre automated field fire range that provides training target engagement techniques with rifles. The range is utilized to train as well as familiarize personnel on the skills necessary to identify, engage and hit stationary targets. All of the targets are fully automated and computerized. The range currently is used as a 10-25 meter rifle and pistol range with temporary targets.

Range 11 serves as an Automated Infantry Platoon Battle Course (IPBC) and is located roughly 0.5 miles from the footprint. The primary objective of the range is to train and test platoons on the skills necessary to conduct tactical movements as well as to detect, identify, engage and defeat stationary, moving armored and infantry targets. The secondary function of Range 11 is as a Sniper Field Fire Range which trains and qualifies Marines in the use of a sniper rifle. The Military Operations in Urban Terrain Assault Course (MAC) is located one mile south of the of the proposed action footprint near MCB-6 and the Tank Trail. The MAC is utilized for low level collective training using live fire or a Multiple Integrated Laser Engagement System (MILES). The MAC also prepares Marines for utilizing the full Military Operations in Urban Terrain (MOUT) course. The MAC consists of an individual and team trainer, squad and platoon trainer, grenadier gunnery, offense/defense building as well as an underground trainer. Targets within the course are automated.

3.8 Noise

This discussion of noise includes the types or sources of noise and the associated sensitive receptors in the human environment.

The major sources of noise at MCBQ include aircraft, artillery, small arms, explosives, vehicles, heavy equipment, and machinery. Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual.

3.8.1 Basics of Sound and A-Weighted Sound Level

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be detected. This vast range means that using a linear scale to represent sound intensity is not feasible. The dB is a logarithmic unit used to represent the intensity of a sound, also referred to as the sound level. All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in

cycles per second or Hz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually on an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA). In this document, the dB unit refers to A-weighted sound levels. Table 3-5 provides a comparison of how the human ear perceives changes in loudness on the logarithmic scale.

Figure 3-2 (Cowan, 1994) provides a chart of A-weighted sound levels from typical noise sources. Some noise sources (e.g., air conditioner, vacuum cleaner) are continuous sounds that maintain a constant sound level for some period of time. Other sources (e.g., automobile, heavy truck) are the maximum sound produced during an event like a vehicle pass-by. Other sounds (e.g., urban daytime, urban nighttime) are averages taken over extended periods of time. A variety of noise metrics have been developed to describe noise over different time periods, as discussed below.

Noise levels from aircraft operations that exceed background noise levels at an airfield typically occur beneath main approach and departure corridors, in local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft in flight gain altitude, their noise contributions drop to lower levels, often becoming indistinguishable from the background noise.

Table 3-5 Subjective Responses to Changes in A-Weighted

<i>Change</i>	<i>Change in Perceived Loudness</i>
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic - twice or half as loud
20 dB	Striking - fourfold change

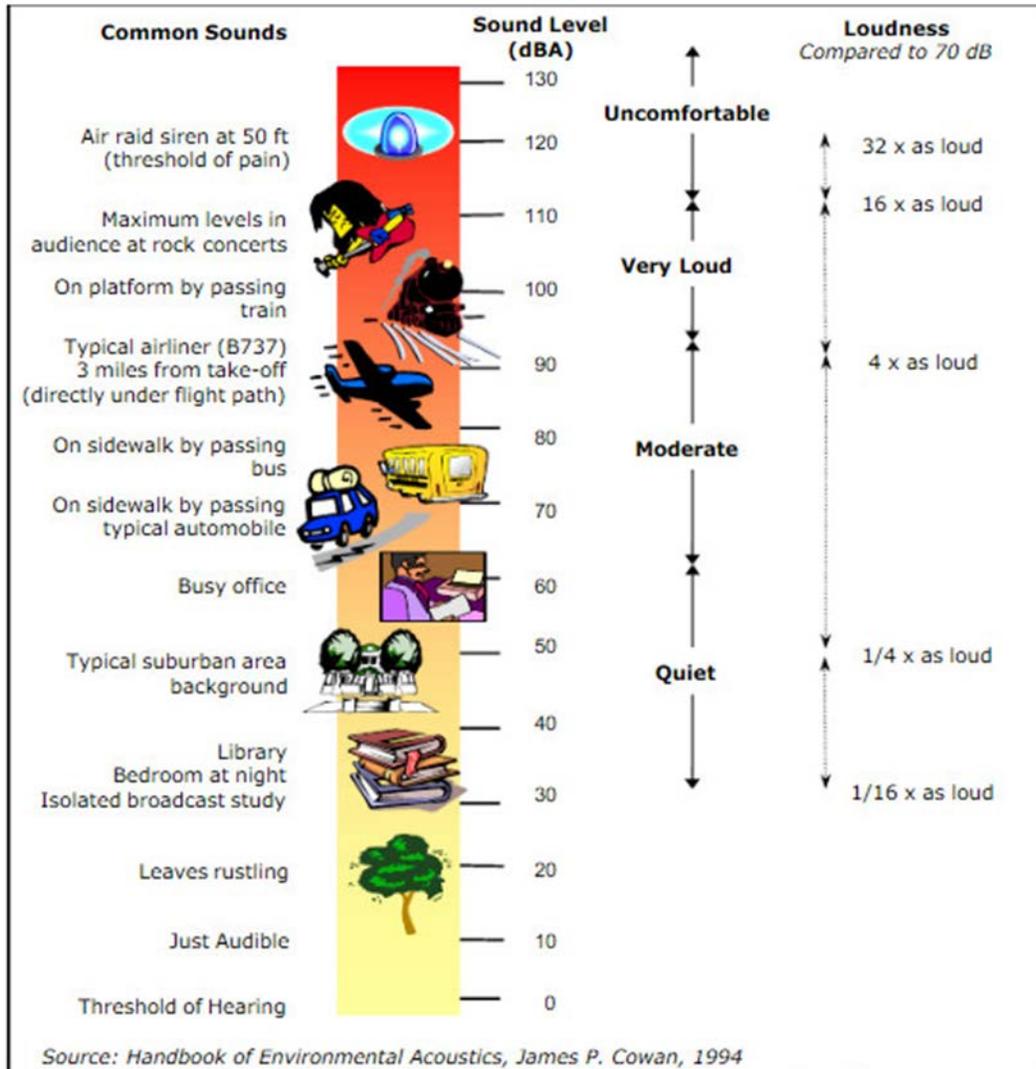


Figure 3-2 A-Weighted Sound Levels from Typical Sources

3.8.2 Regulatory Setting

Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 A-weighted decibels (dBA) over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

The joint instruction, Chief of Naval Operations Instruction (OPNAVINST) 11010.36C and MCO 11010.16, Air Installations Compatible Use Zones (AICUZ) Program, provides guidance administering the AICUZ program which recommends land uses that are compatible with aircraft noise levels. MCO 3550.11 provides guidance for a similar program, RAICUZ. This program includes range safety and noise analyses, and provides land use recommendations which will be compatible with Range Compatibility Zones and noise levels associated with military range operations.

3.8.3 Affected Environment

Many components may generate noise and warrant analysis as contributors to the total noise impact. The predominant noise sources consist of aircraft operations, both at and around the airfields, as well as in the airspace and on ranges. Other components such as construction, aircraft ground support equipment for maintenance purposes, and vehicle traffic produce noise, but such noise generally represents a transitory and negligible contribution to the average noise level environment. The federal government supports conditions free from noise that threaten human health and welfare and the environment. Response to noise varies, depending on the type and characteristics of the noise, distance between the noise source and whoever hears it (the receptor), receptor sensitivity, and time of day. A noise sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors may also include noise-sensitive cultural practices, some domestic animals, or certain wildlife species. The closest producers of noise would be Range 11, Range 12, Range 15A, the MOUT, MAC, and six LZs. All of these facilities are within two miles of the footprint

3.9 Infrastructure

This section discusses infrastructure such as utilities (including drinking water production, storage, and distribution; wastewater collection treatment and disposal; stormwater management, solid waste management, energy production, transmission, and distribution; and communications), and facilities (including airfields, buildings, ranges, training and testing areas, wharves, piers, housing, etc.). Transportation systems and traffic are addressed separately in Section 3.11.

3.9.1 Regulatory Setting

EO 13693, Planning for Federal Sustainability in the Next Decade, requires federal departments and agencies to enact specific actions and operations outlined within the EO to reduce agency direct greenhouse gas emissions by at least 40% over the next decade. Improved environmental performance and federal sustainability will be achieved by reducing energy use and cost. Pursuing clean sources of energy will improve energy and water security.

Antiterrorism Force Protection Standards have been adopted by the DoD through Instruction number 2000.16 of October 2006. The standards require all DoD components to adopt and adhere to common criteria and minimum construction standards to mitigate antiterrorism vulnerabilities and terrorist threats.

3.9.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under infrastructure at MCBQ.

3.9.2.1 Utilities

Potable Water. Drinking water is provided to the mainside of MCBQ from Breckinridge Reservoir, via the water treatment plant.

Wastewater. Wastewater and sewage are processed at the wastewater treatment plant, located adjacent to the Potomac River on the mainside of MCBQ.

Stormwater. The developed portion of the mainside of MCBQ is served by a network of stormwater and sanitary sewers. Energy. Energy sources utilized by MCBQ include natural gas, geothermal, and solar. These each have their own specialized infrastructure.

Communications. Communications lines, including telephone and internet, are provided to MCBQ facilities via both buried and above-ground methods.

There are no utilities located within or near the location of the proposed action.

3.10 Transportation

This discussion of transportation includes all of the air, land, and sea routes with the means of moving passengers and goods. A transportation system can consist of any of the following: roadways, bus routes, railways, subways, bikeways, trails, waterways, airports, and taxis, and can be looked at on a local or regional scale.

3.10.1 Regulatory Setting

EO 13693 encourages the coordination of federal real property discussions with local communities in an effort to encourage planned transportation investments that aim to support public transit access.

3.10.2 Affected Environment

Four major transportation routes are located within or near the proposed timber harvest location. MCB-6 forms the northern boundary of the proposed action footprints. Adjacent to MCB-6 is a Tank Trail. Muddy Road transects the southern portion of the proposed timber harvest location. Blackrock Rd. (SR-617) and the 617 Tank Trail divides the proposed action footprints.

3.11 Public Health and Safety

This discussion of public health and safety includes consideration for any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. A safe environment is one in which there is no, or optimally reduced, potential for death, serious bodily injury or illness, or property damage. The primary goal is to identify and prevent potential accidents or impacts on the general public. Public health and safety within this EA discusses information pertaining to community emergency services, construction activities, operations, and environmental health and safety risks to children.

Community emergency services are organizations which ensure public safety and health by addressing different emergencies. The three main emergency service functions onboard MCBQ include police, fire and rescue service, and emergency medical service.

Public health and safety during construction, demolition, and renovation activities is generally associated with construction traffic, as well as the safety of personnel within or adjacent

to the construction zones.

Operational safety may refer to the actual use of the facility or built-out proposed project, or training or testing activities and potential risks to inhabitants or users of adjacent or nearby land and water parcels. Safety measures are often implemented through designated safety zones, warning areas, or other types of designations.

Environmental health and safety risks to children are defined as those that are attributable to products or substances a child is likely to come into contact with or ingest, such as air, food, water, soil, and products that children use or to which they are exposed.

3.11.1 Regulatory Setting

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires federal agencies to "make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

3.12 Hazardous Materials and Wastes

This section discusses hazardous materials, hazardous waste, toxic substances, and contaminated sites.

3.12.1 Regulatory Setting

Hazardous materials are defined by 49 CFR section 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR part 173." Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an

increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR part 273. Four types of waste are currently covered under the universal wastes regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps, such as fluorescent light bulbs.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include asbestos-containing material (ACM), polychlorinated biphenyls (PCBs), and lead-based paint (LBP). USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act (TSCA). Asbestos is also regulated by USEPA under the Clean Air Act, and the Comprehensive Environmental Response, Compensation, and Liability Act.

The DoD established the Defense Environmental Restoration Program (DERP) to facilitate thorough investigation and cleanup of contaminated sites on military installations (active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The Installation Restoration Program and the Military Munitions Response Program are components of the DERP. The Installation Restoration Program requires each DoD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The Military Munitions Response Program addresses nonoperational rangelands that are suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituent contamination.

According to the Marine Corps Order 5090.2A Ch. 3, Chapter 10, Section 2, Paragraph 10221:

"All efforts must be made to ensure that Marine Corps' projects are not constructed on contaminated sites. However, there may be times when the project is being planned or is underway and contamination is discovered.

1. If contamination is discovered during the planning stage, Naval Facilities Engineering Command (NAVFAC) can investigate and determine the need for clean up using Environmental Restoration Program, Navy (ER,N) funds and following environmental restoration (ER) procedures. However, the site investigation/clean-up must compete with other ER sites based on risk management. In most cases, this will take several years and the site may not be available in time for the project.

2. If contamination is discovered during construction and it is Defense Environmental Restoration Program (DERP) eligible, NAVFAC can carry out the site investigation/cleanup using ER,N funds. However, the site will compete with other ER sites based on risk management. If ER,N funding is not available in time to meet the construction schedule, the installation must use project funds to investigate/clean up the site. If neither ER,N nor project funding is available in time to meet the construction schedule, the installation must stop the project altogether or re-site it. An installation does not have an option to pay for any DERP-eligible work with installation Navy Operations and Maintenance (OM,N) funds except to accomplish DERP-eligible work within the scope of an OM,N funded construction project."

Reports of waste generated (including recycling) including material type (construction/demolition debris, concrete, scrap metal, used oil, etc.), tons, disposal destination, and disposal cost shall be reported on the attached Waste Management Plan and submitted to the NREA Branch within 30 days of the close of the project, and no later than October 15 of the respective calendar year to be included in annual report submissions.

Executive Order 13514, Leadership in Environmental, Energy, and Economic Performance, 2009, calls for meeting or exceeding fifty percent diversion of non-hazardous solid waste and construction and materials and debris from landfills by fiscal year 2015.

3.12.2 Affected Environment

Many portions of MCBQ consist of historic munitions impact sites. The proposed action will be occurring entirely within the non-dudged impact area of MCBQ, which are areas that consist of spent ammunition of small arms or are within Surface Danger Zone fans of small arms ranges.

4.0 ENVIRONMENTAL CONSEQUENCES

The CEQ regulations implementing NEPA (40 C.F.R. part 1500) require discussion of the impacts in proportion to their significance within NEPA documentation. The affected environment under the proposed action alternative ranges from site-specific physical and natural resources to broader regional concerns (i.e., air quality variables, noise, infrastructure, socioeconomic conditions, community facilities and services, transportation and traffic).

This section describes the anticipated direct, indirect, and cumulative environmental impacts of the no action alternative and the proposed action.

Alternative A is no action and Alternative B is the proposed action.

4.1 Air Quality

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives. The region of influence (ROI) for assessing air quality impacts is the air basin in which the project is located,

Estimated emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations.

4.1.1 Alternative A - No Action - Under the no action alternative, emissions would remain the same and there would be no impacts to air quality.

4.1.2 Alternative B

Alternative B would have negligible impact on air quality at MCBQ.

4.1.2.1 Potential Impacts - Any guidance below must be followed

This action requires a Record of Non-Applicability (RONA). The Record of Non-Applicability is located in Appendix E.

General Conformity

General Conformity under the Clean Air Act, Section 1.76, has been evaluated for the proposed project according to the requirements of "MCO 5090.2A Ch.3" and 40 CFR 93 Subpart B. The requirements of this rule are not applicable to this project because the total direct and indirect emissions from this project have been estimated at 2.63E+00 tons per year NOx, 2.61E-01 tons per year VOC. These levels are below the conformity threshold value of 50 tpy VOC and 100 tpy NOx, established by 40 CFR 93.153(b), for a Non-Attainment Area located in an Ozone Transportation Region.

Virginia SIP Regulations

The proposed action is subject to the following Virginia regulations:

- 9 VAC 5-40, Article 1 - Visible Emissions and Fugitive Dust/Emissions
- 9 VAC 5-130 - Open Burning

Visible Emissions and Fugitive Dust/Emissions

No owner or other person shall cause or permit any materials or property to be handled, transported, stored, used, constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited to, the following:

1. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.
2. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles and other surfaces which may create airborne dust; the paving of roadways and maintaining them in a clean condition.
3. Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations.
4. Open equipment for conveying or transporting materials likely to create objectionable air pollution when

airborne shall be covered or treated in an equally effective manner at all times when in motion.

5. The prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.

- 9 VAC 5-130 - Open Burning

Open burning is prohibited except for those exceptions allowed by 9 VAC 5-130, - Regulation of Open Burning. This exception includes some forestry operations; however, NREA should be consulted prior to any open burning. Action proponent must also comply with all guidance associated with the Virginia Smoke Management Guidelines (1998).

New Source Review Permitting

The proposed action as currently planned does not involve the construction of any new stationary source or any project (which includes any addition or replacement of an emissions unit, any modification to an emissions unit or any combination of these changes), or the reduction of any stack outlet elevation at any stationary source. Therefore, NSR permitting regulations do not apply.

Greenhouse Gases

Implementation of Alternative B would contribute directly to emissions of greenhouse gases (GHGs) from the combustion of fossil fuels. Tree removal activities would generate approximately 2.78E+02 tons of CO₂e. These estimated annual GHG emissions fall below the CEQ threshold of 25,000 metric tons. This limited amount of emissions would not likely contribute to global temperature increase to any discernible extent. Therefore, implementation of Alternative B would not result in significant impacts to air quality.

The proposed project will not add new emission sources. This project will not encourage a use change, as the proposed project supports the current mission activities. Emissions associated with the proposed Timber Harvest in TAs 10A, 10C and 11A would be short in duration, and are not covered by the Mandatory Reporting of Greenhouse Gases rule as the intent is to track and regulate stationary sources. This project would not have any long term changes in stationary or mobile emission sources or landfill operations. In compliance with the CEQ's and EPA's

guidance, quantitative analysis of CO₂ equivalents is not required for the proposed action.

4.2 Water Resources

In this EA, the analysis of water resources looks at the potential impacts on groundwater, surface water, wetlands, and floodplains. Groundwater analysis focuses on the potential for impacts to the quality, quantity, and accessibility of the water. The analysis of surface water quality considers the potential for impacts that may change the water quality, including both improvements and degradation of current water quality. The impact assessment of wetlands considers the potential for impacts that may change the local hydrology, soils, or vegetation that support a wetland. The analysis of floodplains considers if any new construction is proposed within a floodplain or may impede the functions of floodplains in conveying floodwaters.

Potential impacts to the water resources were assessed based on the water quality, hydrology, surface water and wetlands, groundwater, and flooding potential in the project area.

4.2.1 Alternative A - No Action

It is expected that impacts to water resources would remain the same if no action is taken.

4.2.2 Alternative B

The action alternative, the Timber Harvest in TA10A, TA10C and TA11A, Alternative B, would involve the thinning of 300 acres of vegetation.

4.2.2.1 Potential Impacts

No wetlands or surface waters will be directly impacted by the proposed action. Potential water quality impacts from soil disturbances will be mitigated through the implementation of Best Management Practices (BMPs) per the Virginia BMP Field Guide (2009), the Virginia BMPs For Water Quality Technical Manual (2011,) and the Virginia Erosion and Sediment Control Handbook (1992). The tree removal activities will require installation of proper E&SC measures (such as proper silt fence and storm drain inlets) prior to the onset of land disturbing activities.

The proposed action alternative would require no fill within the 100-year floodplain, which is considered an RMA under the CBPA.

The implementation of basic erosion and sediment control practices will be required during tree removal as specified in the Best Management Practices (BMPs) per the Virginia BMP Field Guide (2009), the Virginia BMPs For Water Quality Technical Manual (2011), Virginia Erosion and Sediment Control Handbook (VDCR 1992). Of note, a 50 ft. buffer will be maintained around all perennial and intermittent streams as well as wetlands. These buffers are required by the Virginia BMP Field Guide and Virginia BMPs For Water Quality Technical Manual. Following vegetation removal activities, the disturbed area will be seeded and returned to pervious surfaces.

The proposed action will not have a significant, direct impact to wetlands, streams or other waters of the United States.

4.3 Geological Resources

Geological resources are analyzed in terms of drainage, erosion, and prime farmland. The analysis of topography and soils focuses on the area of soils that would be disturbed, the potential for erosion of soils from construction areas, and the potential for eroded soils to become pollutants in downstream surface water during storm events. BMPs are identified to minimize soil impacts and prevent or control pollutant releases into stormwater. The potentially affected environment for geological resources is limited to lands that would be disturbed by any proposed facility development or demolition.

4.3.1 Alternative A - No Action

Under the No Action Alternative, the proposed action would not occur and there would be no change to baseline geology, topography, or soils. Therefore, no significant impacts to geological resources would occur with implementation of the No Action Alternative.

4.3.2 Alternative B

The study area encompasses the proposed project area related to the preferred alternative.

4.3.2.1 Potential Impacts

To prevent the loss or movement of soils from the disturbed areas, E&SC measures would be implemented during construction. Approximately 300 acres of timber would be thinned to implement Alternative B, however, the stumps of these trees will remain. As a result any ground disturbance will be minimal. With implementation of proper E&SC measures, the action alternative is not expected to significantly impact on-site or area soils. E&SC plans and stormwater pollution prevention plans (SWPPP) are required to be submitted to the Water Program Manager, NREA Branch, MCBQ at least 70 days prior to work starting on the project.

A geotechnical survey has not been completed for the proposed action. It is advised that a geotechnical engineer survey the underlying soil in the event that these areas should be redeveloped in the future.

4.4 Cultural Resources

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may be the result of physically altering, damaging, or destroying all or part of a resource, altering characteristics of the surrounding environment that contribute to the importance of the resource, introducing visual, atmospheric, or audible elements that are out of character for the period the resource represents (thereby altering the setting), or neglecting the resource to the extent that it deteriorates or is destroyed.

4.4.1 Alternative A - No Action

This alternative would have no effect upon archeological resources.

4.4.2 Alternative B

Potential Impacts

There is a NRHP eligible site located on LZ Wren however it was previously impacted with the establishment of the LZ. Additionally, although implementation of the proposed action will involve timber removal the tree stumps will be left in place. As a result, any ground disturbance will be either minimal or non-existent.

The MCBQ Cultural Resources Manager (CRM) has reviewed the proposed action per the Programmatic Agreement between the

United States Marine Corps and the Virginia State Historic Preservation Office (SHPO) and determined that the project as planned would have no effect on archaeological or historic resources, or the QMCBHD.

For activities that are permitted where there are no known archaeological sites or cemeteries, caution must still be used by contractors. Some areas are urban terrain and have been significantly modified or disturbed. However, there may be undisturbed soil zones encountered adjacent to or under previous disturbances or fill.

The construction contractor should contact the base Archaeologist, NEPA Section (703-432-6781/0519) immediately if artifacts (e.g., metal tools, arrowheads, etc.) appearing to pre-date the 20th century are encountered.

In the event there are any unexpected discoveries of potential human remains (e.g., bones or bone fragments), work must be halted or diverted to other areas until appropriate measures are taken. Contract Project Managers must be informed that any human remains encountered are protected by state and federal law. The following procedures must be followed:

- Halt work at the location leaving remains in place and any associated features and objects
- Notify base Archaeologist/NEPA Section per Section 7.0 of this EA
- Redesign project to avoid remains, if possible
- The base Archaeologist/NEPA Section will contact the SHPO, and if remains are Native American will contact tribe(s)

Removal of remains requires a permit from the SHPO, including the participation of a skeletal biologist or physical anthropologist, and plans to make appropriate notifications to possible descendants/relatives and other measures in accordance with state law and Advisory Council on Historic Preservation (ACHP) guidelines.

4.5 Biological Resources

This analysis focuses on wildlife or vegetation types that are important to the function of the ecosystem or are protected under federal or state law or statute.

4.5.1 Alternative A - No Action

Under Alternative A, the proposed project would not occur and there would be no change to biological resources. Therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

4.5.2 Alternative B

4.5.2.1 Potential Impacts

Initial consultation with the USFWS was submitted through their Information for Planning and Consultation (IPaC) online system.

A SWP survey of Alternative B was performed by NREA personnel on 2-3 July 2018. Although there was some suitable and marginally-suitable SWP habitat found within the proposed action footprints, there were no SWP colonies that were identified. As a result, the proposed action is not likely to adversely affect the SWP.

The Dwarf Wedge mussel, Sensitive Joint-vetch, Yellow Lance and Harperella are not found in areas that would be affected by implementation of Alternative B.

To reduce impacts to the federally-threatened NLEB and the federally-endangered Indiana bat, MCBQ will be implementing UFWS Time of Year Restrictions (TOYR). The TOYR requires that no tree removal will occur from 15 April - 15 September corresponding with the Indiana bat active pup season. The NLEB active pup season is from 1 June - 31 July which overlaps with the Indiana bat season and as a result impacts to both species will be reduced. Although the Virginia state endangered Little Brown bat and Tri-Colored bat were detected within the proposed action footprint, there is neither a summer roost nor winter hibernacula present for either species on MCBQ. If there is a maternity colony detected for any state or federally listed bat species, the project proponent must stop all tree removal activities and contact their contracting representative and NREA. The state-endangered Virginia Piedmont Waterboatman and Brook Floater are not found in areas that will be impacted by the proposed action.

Due to the scope of work and the required BMPs to protect water quality, there is no potential for the action alternative to adversely affect species protected under the MBTA, threatened and endangered species, or habitats used by these species.

4.6 Land Use

The location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. Factors affecting a proposed action in terms of land use include its compatibility with on-site and adjacent land uses, restrictions on public access to land, or change in an existing land use that is valued by the community. Other considerations are given to proximity to a proposed action, the duration of a proposed activity, and its permanence.

4.6.1 Alternative A - No Action

Under Alternative A, there would not be any impacts to recreational activities.

4.6.2 Alternative B

4.6.2.1 Potential Impacts

There are trails that are located within the footprint of the proposed action. Hunting is currently allowed within the proposed action location. During the implementation of Alternative B, hiking and hunting activities will be temporarily prohibited. However once the proposed action is completed, the location will be re-opened to recreational activities. Additionally, roughly 55,000 acres of hiking and hunting activities will still exist at MCBQ after the implementation of Alternative B. Impacts to recreational activities such as hiking, hunting and fishing at MCBQ will be negligible.

4.7 Military Training and Airspace

The analysis of airspace management and use involves consideration of many factors including the types, locations, frequency of aerial and other military or training operations, the presence or absence of already designated (controlled) airspace or ranges, and the amount of air traffic or military personnel transiting through a given area.

4.7.1 Alternative A - No Action

The no action alternative would not cause any impacts to training.

4.7.2 Alternative B

4.7.2.1 Potential Impacts

The action proponent will coordinate with TBS and RMB to ensure that timber removal activities do not interfere with Marine training and readiness. There will be no impacts to military training and readiness

4.8 Noise

Analysis of potential noise impacts includes estimating likely noise levels from the Proposed Action and determining potential effects to sensitive receptor sites.

4.8.1 Alternative A - No Action

Alternative A would not cause any impacts due to noise or unwanted sound.

4.8.2 Alternative B

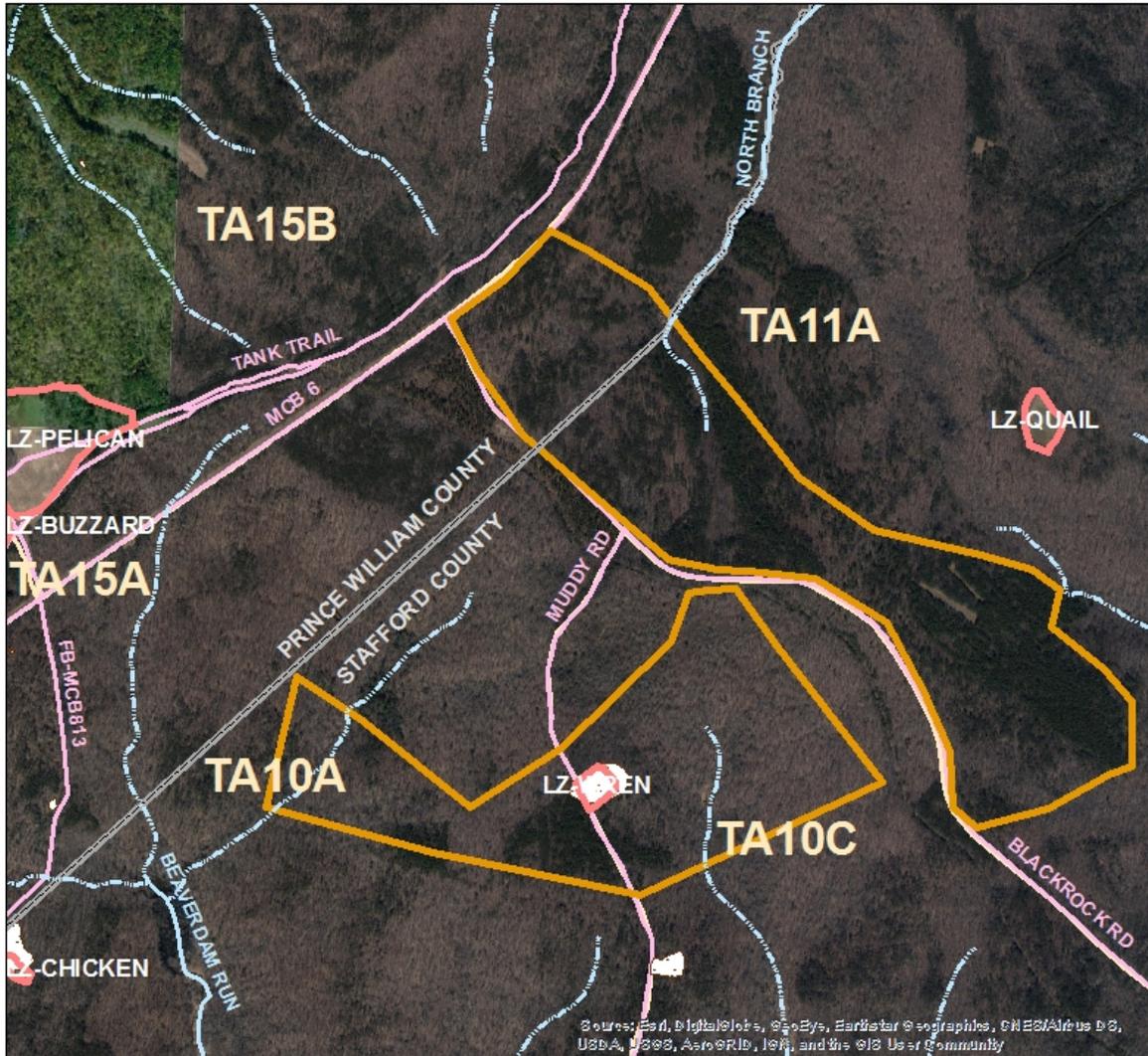
4.8.2.1 Potential Impacts

The closest producers of noise would be Range 11, Range 12, Range 15A, the MOUT, MAC, and six LZs. All of these facilities are within two miles of the footprint

Implementation of the proposed action would generate short-term, temporary noise from logging operations. The proposed action alternative would not have a permanent increase on noise levels.

Noise associated with tree removal activities under Alternative B would be temporary. Given the type and duration of the noise to be generated, the ambient noise level adjacent to the project site, and the lack of noise sensitive receptors (i.e. homes, schools, and hospitals), noise generated by tree removal activities is not expected to result in significant noise impacts. There will not be any additional noise activities that will occur after the implementation of Alternative B. The location of Alternative B within various noise zones is displayed in Figure 4.8.2.1.1.

Proposed Timber Harvest in TA10A, TA10C and TA11A-Noise Levels



0 0.1 0.2 0.4 Miles

Legend

- Proposed Timber Harvest
- Training Area Boundary
- Noise Level (dB)
- Road
- County Boundary
- Cultural Resource Site
- Landing Zone
- Intermittent Stream
- Perennial Stream

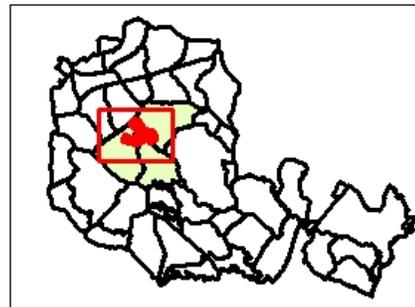


Figure 4.8.2.1.1

4.9 Public Health and Safety

The safety and environmental health analysis contained in the respective sections addresses issues related to the health and well-being of military personnel and civilians living and/or working on or in the vicinity of MCBQ. Additionally, this section addresses the environmental health and safety risks to children.

4.9.1 Alternative A - No Action

This alternative would maintain the status quo and would not have additional effects on health and safety.

4.9.2 Alternative B

Potential Impacts

Although the project area is not within any known munitions response sites, MCBQ includes active and former ranges and there is always the potential to encounter unexploded military munitions, discarded military munitions, and/or munitions and explosives of concern during excavating activities and earth disturbing activities. Although Alternative B involves the removal of timber, the stumps of the trees will remain.

The location of Alternative B is entirely within the non-duded impact area of MCBQ, however, it is not a UXO site. There is no known contamination within the proposed action footprints.

According to the MCO 5090.2A. Ch. 3, Chapter 10, Section 2, Paragraph 10221, if contamination is discovered during construction and it is Defense Environmental Restoration Program (DERP) eligible, NAVFACENGCOM can carry out the site investigation/cleanup using ER,N funds. However, the site will compete with other ER sites based on risk management. If ER,N funding is not available in time to meet the construction schedule, the installation must use project funds to investigate/clean up the site.

4.10 Environmental Justice

This analysis focuses on the potential for a disproportionate and adverse exposure of specific off-base population groups to the projected adverse consequences discussed in the previous sections of this chapter.

4.10.1 Alternative A - No Action

Under Alternative A, the current environmental conditions would remain the same.

4.10.2 Alternative B

Potential Impacts

Implementing of Alternative B is not expected to significantly impact the socioeconomics or create disproportionately high and adverse human health or environmental effects to minority, low-income populations, or children at MCBQ or in the surrounding area.

This project will have temporary minor impacts such as noise created by activities, and these impacts will not disproportionately affect minority, low-income populations, or children. Best management practices such as dust management would also be employed to eliminate or keep temporary environmental nuisances to a minimum.

4.11 Solid Waste

4.11.1 Alternative A - No Action

Under the no action alternative, no solid waste will be generated and the current environmental conditions will remain the same.

4.11.2 Alternative B

Action proponent must follow the guidelines below:

RECYCLING:

SCRAP METAL/WIRE/COPPER: All effort will be made to turn in all scrap wire/copper into NREA via the QRP Manager for recycling. The QRP will provide a bin for disposal. This service will include drop-off, swap out and end of project pick up at no charge to the contractor. NREA must be contacted to schedule a drop-off time or date. Contractor MUST fill the bin. If the project is too small to fill a 20 or 30 yard bin, please contact the NREA Solid Waste Program Manager for other options. Contractor WILL NOT put trash in any bin provided by QRP or QRP Contractor. IF there is trash found in the bin, the contractor WILL BE responsible for removing the trash.

Solid Waste-Contractor is responsible for coordinating all solid waste disposals at the county landfills that meets all Federal, State, and local regulatory standards.

SOLID WASTE:

Solid Waste Reporting Requirement- The contractor will support the solid waste diversion goals outlines in Executive Order 13514 by recovering/recycling materials. Reports of waste generated (including ALL items recycled/recovered), WILL include material type (CDD, concrete, scrap metal, used oil, etc.), tons, disposal destination, and disposal cost. This shall be reported MONTHLY via the Construction Waste Management Report to NREA, NO LATER THAN October 15.

As soon as contract is awarded, contractor will email solid waste manager with company information. All solid waste activities will be covered in the projects 'solid waste management plan'. This plan can be part of the Environmental Protection Plan, and must be submitted to NREA for review prior to receipt of the Notice to Proceed.

5.0 Cumulative Impacts

This section (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the proposed action may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

5.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 CFR section 1508.7 as "the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and USEPA have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005) and Consideration of Cumulative Impacts in EPA Review of NEPA Documents (USEPA 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (1997) states that cumulative impact analyses should

"...determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts...[and]...focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

5.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the study area

delimits the geographic extent of the cumulative impacts analysis. In general, the study area will include those areas previously identified in Chapter 4 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for EISs and EAs, management plans, land use plans, and other planning related studies.

5.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the proposed project location. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 5.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Projects included in this cumulative impacts analysis are listed in Table 5-1 and briefly described in the following subsections.

5.3.1 Past Actions

- Construction of Marine Corps Information Operations Center (MCIOC).
- Construction of Addition to Building 27410 for Marine Corps Network Operations Center (MCNOC).
- Demolition of Building 27220, Target Warehouse.

- P644 Dining Facility.

5.3.2 Present and Reasonably Foreseeable Actions

- Establishment of a Crossing at Cannon Creek and Re-establishment of a Perimeter Trail in TA7A and 9C.
- Construction of the Range 5 Staging Area.
- Construction of a Mini Mart near intersection of MCB-1 and Hotpatch Rd.
- Ammunition Supply Point (ASP) expansion.
- Establishment of a Platoon Attack Range in TAs 10A, 10C and 15B.
- Timber Harvest in Loblolly Pine Units 1-12.

5.3.3 Future projects:

- Construction of Two COCO Retail Service Facilities.
- The TA12B Boundary Adjustment.
- Improve the intersection of MCB-1 and MCB-2 with the addition of a traffic circle.
- Construct new TBS fire station.
- Construction of three large warehouses to create consolidated storage area.
- P-656 - Visitor Control Center along Russell Rd. prior to existing gate house.
- Construct new Game Check Station to the north of ASP along MCB-1.
- Demolition of old Game Check Station on Telegraph Loop.
- Gym/Water Survival Training Facility.
- P-593 - WTBN Headquarters.
- P-665 - Target Production Facility.
- P-639 - Butler Buildings RSU Storage.
- Widen MCB-1 to 4 lanes.

5.4 Cumulative Impact Analysis

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions

has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible.

The analytical methodology presented in Chapter 4, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts. Figure 5.4 displays the impact to forest cover based on several similar actions that are currently being implemented or will be implemented in the near future at MCBQ, including the Proposed Timber Harvest in TA10A, TA10C and TA11A. Consultation with the SHPO is also completed for all construction projects at MCBQ as applicable.

Environmental Impact Evaluation Matrix		
Resource	Alternative A - No Action	Alternative B - Timber Harvest in TA10A, TA10C and TA11A.
Air Quality	No effect	No effect
Water Resources	No effect	No effect: A 50 foot buffer will be maintained around all perennial, intermittent streams and wetlands
Geological Resources	No effect	No effect: Best Management Practices (BMPs) will eliminate any impacts to soils.
Cultural Resources	No effect	No effect
Biological Resources	No effect	Not likely to adversely affect: USFWS TOYR from 15 April - 15 September will be implemented to reduce impacts to Indiana bat and NLEB. Action proponent will contact the contracting representative and NREA if a maternity colony for the Little Brown bat, Tri-Colored bat, NLEB or Indiana bat is encountered during tree clearing activities.
Noise	No effect	No effect
Infrastructure	No effect	No effect
Transportation	No effect	No effect
Military Training	No effect	Existing training will not be impacted. NREA Forestry will coordinate all activities with MCBQ RMB.
Public Health and Safety/Munitions Response	No effect	No effect
Hazardous Waste	No effect	No effect

Figure 5.4.1

Forest Cover Remaining at MCBQ after implementation of the Timber Harvest in TA10A, TA10C and TA11A.	
Current	52,090.00
MCIOC	52,089.90
New Fire Station	52,089.60
Mini Mart	52,089.50
Westside COCO Facility	52,084.70
Range 5 Staging Area	52,071.00
TA12B Adjustment	52,068.10
ASP Expansion	52,068.08
Establishment of a Perimeter Trail in TA7A	52,051.08
Establishment of a Platoon Attack Range in	52,021.47
Timber Harvest in Loblolly Pine Units 1-12	52,021.47
Timber Harvest in TA10A, TA10C and TA11A.	52,021.47

Figure 5.4.2

The proposed action would require the thinning and removal of trees within two footprints that total approximately 300 acres. Thinning is primarily a selective cutting process in which species that merchantable and less fire retardant are removed. Other species will be allowed to remain present. The stumps of the trees will also remain and not be removed. This activity is not a clearing operation and the impacted area will remain forested. Over 52,000 acres of forested landscape will remain at MCBQ.

6.0 Other Considerations Required By NEPA

6.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

In accordance with 40 Code of Federal Regulations (CFR) section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table 6-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action, and describes briefly how compliance with these laws and regulations would be accomplished.

• **Table 6-1 Principal Federal and State Laws Applicable to the Proposed Action**

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	Status of Compliance
National Environmental Policy Act (NEPA); CEQ NEPA implementing regulations; Navy/USMC procedures for Implementing NEPA; Sikes Act; DoD Directive 4700.4.	EA - Compliant
Clean Air Act	Compliant - Proposed action eligible for RONA. All guidance pertaining to open burning and fugitive dust emissions will be followed.
Clean Water Act; 11990, Protection of Wetlands;	Compliant - Will maintain 50 ft. buffer around all streams and wetlands. No fill or discharge will occur into streams, wetlands or other designated waters of the U.S.
National Historic Preservation Act	Compliant - Proposed action will not involve ground disturbance. Tree stumps will be left in place.
Endangered Species Act	Compliant - Will not likely adversely affect the federally-endangered Indiana bat, federally-threatened NLEB or federally-threatened SWP. MBCQ will be implementing USFWS TOYR to prevent any impacts to the Indiana bat and NLEB.
Migratory Bird Treaty Act	Compliant - Tree removal activities will occur outside of the nesting season.
Bald and Golden Eagle Protection	Compliant - There are no known Bald Eagle nests within the project area. Project will adhere to the 330 and 660 ft. buffers from the Bald Eagle nest. Project is not within a Bald Eagle Concentration Area.

• **Table 6-1 Principal Federal and State Laws Applicable to the Proposed Action**

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
Resource Conservation and Recovery Act	Compliant - Proposed action location is not a former munitions site, does not contain contamination and is not a hazardous waste storage location.
Executive Order 12088, Federal Compliance with Pollution Control Standards; Toxic Substances Control Act (15 U.S.C. sections 2601-2629).	Compliant- Proposed action location is not a former munitions site, does not contain UXOs and is not a hazardous waste storage location.
Executive Order 11988, Floodplain Management	Compliant - Proposed action is located outside of a 100-year floodplain and within area of minimal flood risk.
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	Compliant - Proposed action will not negatively impact minority populations and low-income populations. Any impacts will be temporary in nature.
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks	Compliant - Proposed action will not negatively impact minority populations and low-income populations. Any impacts will be temporary in nature.
Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management	Compliant - Proposed action will not negatively impact minority populations and low-income populations. Any impacts will be temporary in nature.

6.2 Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable

destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the Proposed Action would involve human labor; the consumption of fuel and oil as well as lubricants for logging vehicles. Logging vehicles associated with thinning 300 acres of timber would also be included within the implementation of the proposed action.

6.3 Unavoidable Adverse Impacts

This EA has determined that the alternatives considered would not result in any unavoidable adverse impacts.

6.4 Relationship Between Short-Term Use of the Environment and Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

In the short-term, effects to the human environment with implementation of the proposed action would be associated with the timber thinning activities. Air quality, noise, and recreational opportunities would be impacted in the short-term. If the USFW TOYR and water resource BMPs are followed there would be no long-term effects because of the implementation of this proposed action. The proposed Timber Harvest in TA10A, 10C and 11A would not significantly impact the long-term natural resource productivity of the area. The proposed action would also not result in any impacts that would significantly reduce environmental productivity or human health.

7.0 References

40 CFR parts 1500-1508, Council on Environmental Quality.

50 CFR part 17, Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants;

Threatened Species Status for the Northern Long-Eared Bat With 4(d) Rule; Final Rule and Interim Rule, Vol. 80, No. 63, Thursday, April 2, 2015.

Atkins (2015). Marine Corps Base Quantico Master Plan Update. The Louis Berger Group.

Bald and Golden Protection Eagle Act, 1940 (16 U.S.C. §668-668d, 54 Stat. 250).

Chesapeake Bay Preservation Act, 1988 (Code of Virginia, Title 10.1-Conservation, Chapter 21).

Clean Air Act, 1970 (42 U.S.C. §7401 et seq., as amended in 1977 and 1990).

Clean Water Act, 1972 (33 U.S.C. §1251 et seq.).

Coastal Zone Management Act, 1972 (16 U.S.C. §1451, et seq., as amended).

Endangered Species Act, 1973 (7 U.S.C. §136, 16 U.S.C. §1531 et seq.).

Executive Order (E.O.) 11988, *Floodplain Management*, 1977.

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, 1994.

E.O. 13045, *Protection of Children from Environmental Health and Safety Risk*, 1997.

E.O. 13186, *Responsibilities of Federal Agencies to Migratory Birds*, 2001.

E.O. 13514, *Leadership in Environmental, Energy, and Economic Performance*, 2009.

Intergovernmental Panel on Climate Change (IPCC), 2007.

Mandatory Reporting of Greenhouse Gases rule (40 C.F.R. Part 98), Environmental Protection Agency, 2009.

Marine Corps Order 11010.16, 2008.

Marine Corps Order P5090.2A Ch 3

Migratory Bird Treaty Act, 1918 (16 U.S.C. §701-12).

National Environmental Policy Act, 1969 (42 U.S.C. §4321 et seq.).

National Historic Preservation Act, 1966 (54 U.S.C. §300101 et seq.).

Natural Resources and Environmental Affairs Branch (NREA)
2007 Integrated Cultural Resource Management Plan for Marine Corps Base, Quantico, Virginia. Natural Resources and Environmental Affairs Branch, Marine Corps Base Quantico, VA.

Natural Resources and Environmental Affairs Branch (NREA)
2015-2019 Integrated Natural Resources Management Plan for Marine Corps Base, Quantico, Virginia. Natural Resources and Environmental Affairs Branch, Marine Corps Base Quantico, VA

Naval Facilities Engineering Command. (2012). Range Complex Management Plan, Marine Corps Base Quantico. Washington D.C.

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U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp.

U.S. Fish and Wildlife Service. Information for Planning and Consultation (IPaC) online submittal system.
<https://ecos.fws.gov/ipac/>

Virginia Department of Conservation and Recreation (VDCR)
1992 *Virginia Erosion and Sediment Control Handbook*, Richmond, VA.

Virginia Tech Conservation Management Institute (VTCMI) 2016.
2016 Bat Survey for U.S. Marine Corps Base Quantico, Virginia Blacksburg, Virginia.

8.0 List of Preparers

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9.0 List of Agencies and Persons Contacted

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Major John Crutchfield, Deputy
Mr. Frank Duncan, Environmental Planning Section Head
Mr. J. David Grose, Environmental Compliance Section Head
Mr. John Rohm, Natural Resources Section Head (Acting)
Ms. Heather McDuff, NEPA Coordination Section Head
Mr. Ronald Moyer, Forestry Section Head
Mrs. Christa Nye, Fish, Wildlife and Agronomy Section Head
Mrs. Catherine Roberts, Cultural Resources Manager
Mr. Seth Morphis, Air Program Manager
Mr. Jonmark Sullivan, Water Program Manager
Mr. Wayne Hagwood, Hazardous Waste Program Manager
Dr. Ruth Jacobsen, Chemist/Hazardous Materials Program
Manager
Ms. Marilisa Porter, Solid Waste Program Manager
Mr. Brian Ventura, Munitions Response and Installation
Restoration Program Manager

Appendix A
Acronyms

The following list of abbreviations and acronyms are commonly used in Navy and USMC environmental planning documents and are presented to ensure they are applied in a consistent manner throughout all Navy and USMC environmental planning documents.

μPa - micropascal
AAQS - Ambient Air Quality Standard
AGL - above ground level
AICUZ - Air Installation Compatible Use Zone
AO - Area of Operations
AOR - Area of Responsibility
APE - Area of Potential Effect
APZ - Accident Potential Zone
ARPA - Archaeological Resources Protection Act
ATC - air traffic control
ATFP - Antiterrorism Force Protection
BA - Biological Assessment
BACT - Best Available Control Technology
BASH - bird/aircraft strike hazard
BE - Biological Evaluation
BEQ - bachelor enlisted quarters
BMP - best management practice
BO - Biological Opinion
BOQ - bachelor officers quarters
CAA - Clean Air Act
Ce - Cartecay Fine Sandy Loam
CEQ - Council on Environmental Quality
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CFR - Code of Federal Regulations
CHPPM - Center for Health Promotion and Preventive Medicine
Clb - Colfax Fine Sandy Loam, 2-6% slopes
CNIC - Commander Navy Installations Command
CO - carbon monoxide
CO₂ - carbon dioxide
CWA - Clean Water Act
CZMA - Coastal Zone Management Act
dB - decibel
dBA - A-weighted sound level
dBC - C-weighted sound level
dBp - peak decibel
DEIS - Draft Environmental Impact Statement
DERP - Defense Environmental Restoration Program
DNL - day-night average sound level
DoD - United States Department of Defense
DoN - United States Department of the Navy
DZ - drop zone

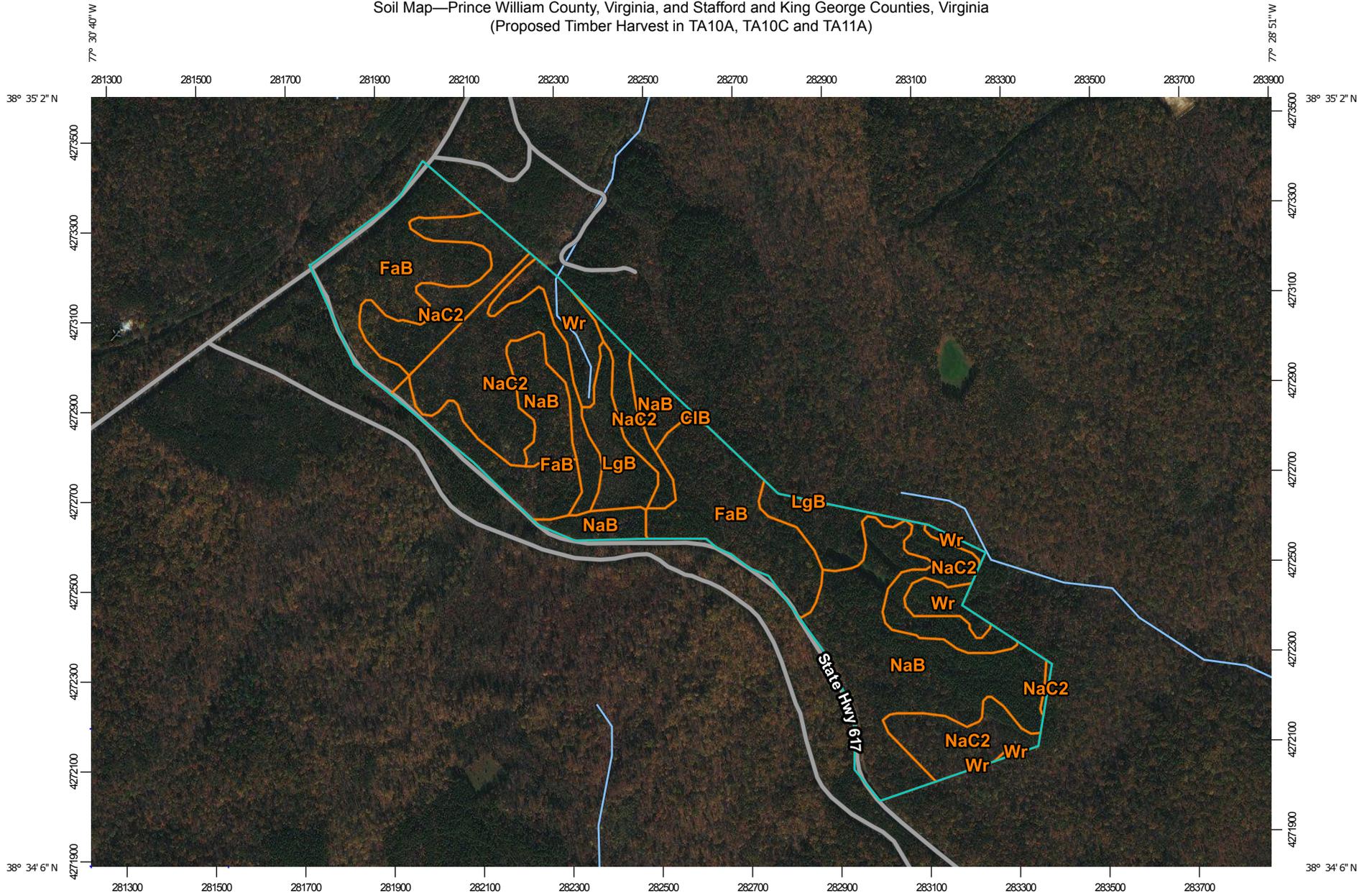
EA - Environmental Assessment
EAP - Encroachment Action Plan
EFH - Essential Fish Habitat
EIS - Environmental Impact Statement
ElB2 - Elioak Silt Loam, 2-6% slopes
ElC2 - Elioak Silt Loam, 6-15% slopes eroded
EO - Executive Order
EOD - explosive ordnance disposal
ESA - Endangered Species Act
EPCRA - Emergency Planning and Community Right-to-Know Act
ESQD - explosive safety quantity distance
FAA - Federal Aviation Administration
FaB - Fairfax Loam, 2-6% slopes
FEIS - Final Environmental Impact Statement
FEMA - Federal Emergency Management Agency
FIRM - Flood Insurance Rate Map
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
FONSI - Finding of No Significant Impact
FY - fiscal year
Ft. - Feet
GHG - greenhouse gas
GIS - geographic information system
HAP - hazardous air pollutant
HAPC - habitat areas of particular concern
HE - high explosive
ICRMP - Integrated Cultural Resources Management Plan
INRMP - Integrated Natural Resources Management Plan
IPBC - Automated Infantry Platoon Battle Course
IRP - Installation Restoration Program
kHz - kilohertz
LBP - lead based paint
LgB - Lignum Silt Loam, 2-6% slopes
LZ - Landing Zone
MAC - Military Operations in Urban Terrain Assault Course
NMCAF - Marine Corps Air Facility
MCB - Marine Corps Base
MCBQ - Marine Corps Base Quantico
MCCS - Marine Corps Community Services
MCO - Marine Corps Order
MEC - Munitions and Explosives of Concern
Me - Meadowville Silt Loam
MEM - military expended material
MILCON - military construction
MLLW - mean lower low water
MMRP - Military Munitions Response Program
MOA - Military Operations Area

MOUT - Military Operations in Urban Terrain
MSFCMA - Magnuson-Stevens Fishery Conservation and Management Act
MSL - mean sea level
MTR - military training route
NAAQS - National Ambient Air Quality Standards
NAGPRA - Native American Graves Protection and Reparation Act
NaB - Nason Silt Loam, 2-6% slopes
NaC2 - Nason Silt Loam, 6-15% slopes eroded
NAVFAC - Naval Facilities Engineering Command
NEPA - National Environmental Policy Act
NEW - net explosive weight
NHPA - National Historic Preservation Act
NO2 - nitrogen dioxide
NOA - Notice of Availability
NOI - Notice of Intent
NPDES - National Pollutant Discharge Elimination System
NPS - National Park Service
NREA - Natural Resources and Environmental Affairs
NRHP - National Register of Historic Places
NSR - New Source Review
ODS - Ozone Depleting Substances
OPNAV - Office of the Chief of Naval Operations
OPNAVINST - Office of the Chief of Naval Operations Instruction
PAH - polynuclear aromatic hydrocarbon
PCB - polychlorinated biphenyl
PM10 - particulate matter less than or equal to 10 microns in diameter
PM2.5 - particulate matter less than or equal to 2.5 microns in diameter
Ppb - parts per billion
Ppm - parts per million
Ppt - parts per thousand
PPV - public/private venture
PTE - Potential to Emit
PTS - permanent threshold shift
QRP - Qualified Recycling Program
RAICUZ - Range Air Installation Compatible Use Zone
RCMP - Range Complex Management Plan
RCRA - Resource Conservation and Recovery Act
Rd. - Road

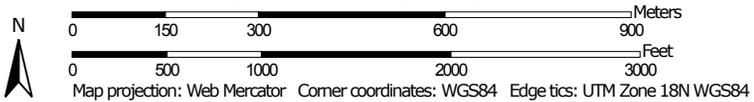
ROD - Record of Decision
RONA - Record of Non-Applicability
SAV - submerged aquatic vegetation
SEL - sound exposure level
SHPO - State Historic Preservation Officer
SIP - State Implementation Plan
SO2 - sulfur dioxide
SPL - sound pressure level
SR - State Route
TA - Training Area
TBS - The Basic School
TSCA - Toxic Substances Control Act
TTS - temporary threshold shift
U.S.C. - United States Code
UAV - unmanned aerial vehicle
USACE - U.S. Army Corps of Engineers
USEPA - U.S. Environmental Protection Agency
USFWS - U.S. Fish and Wildlife Service
USGS - U.S. Geological Survey
USMC - U.S. Marine Corps
UXO - unexploded ordnance
Wr - Worsham Loam

APPENDIX B
Soil Maps

Soil Map—Prince William County, Virginia, and Stafford and King George Counties, Virginia
(Proposed Timber Harvest in TA10A, TA10C and TA11A)



Map Scale: 1:12,100 if printed on A landscape (11" x 8.5") sheet.



Soil Map—Prince William County, Virginia, and Stafford and King George Counties, Virginia
(Proposed Timber Harvest in TA10A, TA10C and TA11A)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Prince William County, Virginia

Survey Area Data: Version 14, Oct 5, 2017

Soil Survey Area: Stafford and King George Counties, Virginia

Survey Area Data: Version 13, Oct 5, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 25, 2014—Mar 10, 2017

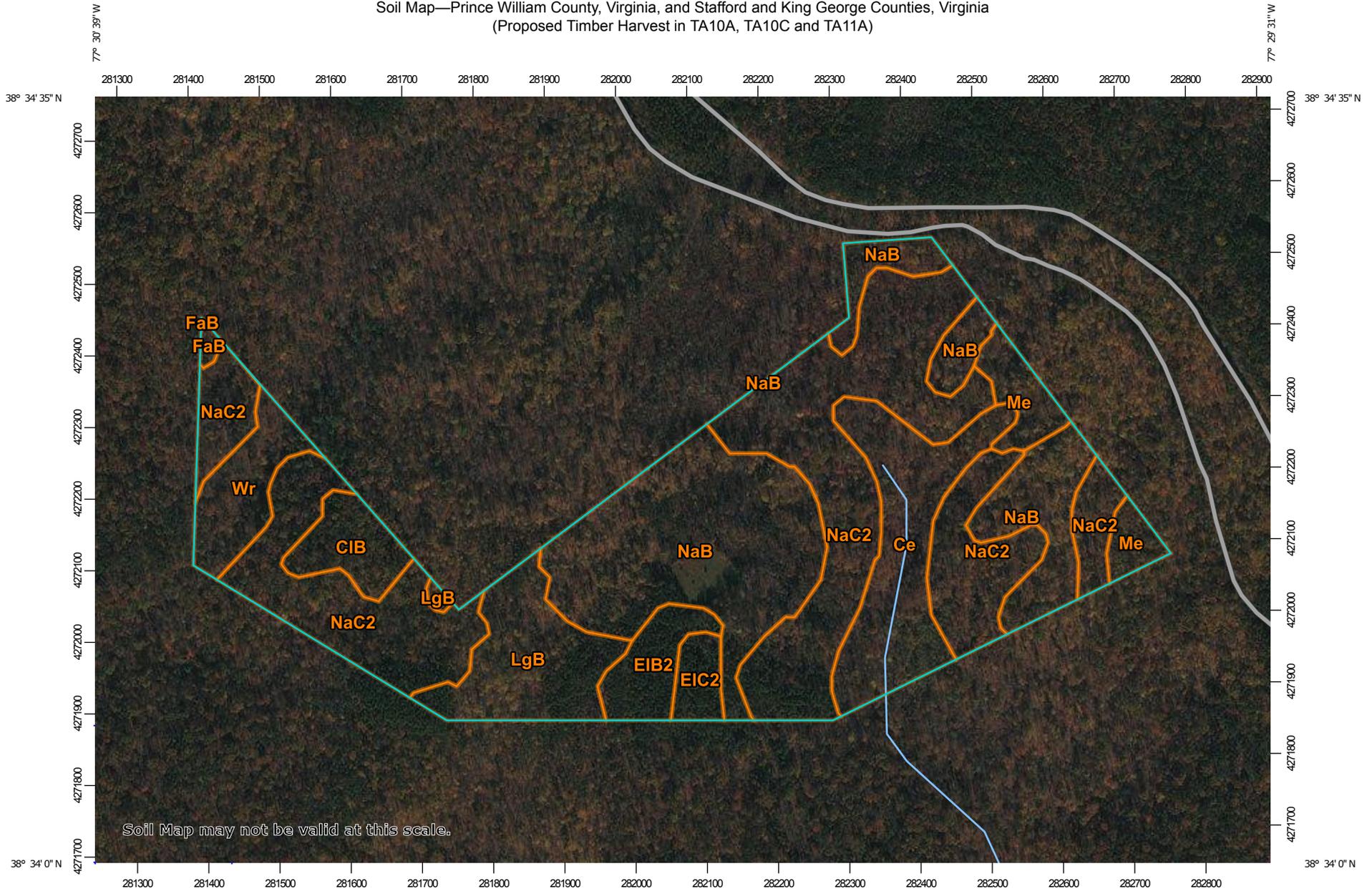
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

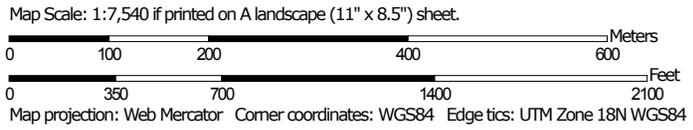
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FaB	Fairfax loam, 2 to 6 percent slopes	20.5	12.1%
NaC2	Nason silt loam, 6 to 15 percent slopes, eroded	11.3	6.7%
Subtotals for Soil Survey Area		31.8	18.8%
Totals for Area of Interest		169.1	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CIB	Colfax fine sandy loam, 2 to 6 percent slopes	0.1	0.0%
FaB	Fairfax loam, 2 to 6 percent slopes	26.7	15.8%
LgB	Lignum silt loam, 2 to 6 percent slopes	7.0	4.2%
NaB	Nason silt loam, 2 to 6 percent slopes	46.5	27.5%
NaC2	Nason silt loam, 6 to 15 percent slopes, eroded	46.8	27.7%
Wr	Worsham loam	10.1	6.0%
Subtotals for Soil Survey Area		137.3	81.2%
Totals for Area of Interest		169.1	100.0%

Soil Map—Prince William County, Virginia, and Stafford and King George Counties, Virginia
(Proposed Timber Harvest in TA10A, TA10C and TA11A)



Soil Map may not be valid at this scale.



Soil Map—Prince William County, Virginia, and Stafford and King George Counties, Virginia
(Proposed Timber Harvest in TA10A, TA10C and TA11A)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Prince William County, Virginia

Survey Area Data: Version 14, Oct 5, 2017

Soil Survey Area: Stafford and King George Counties, Virginia

Survey Area Data: Version 13, Oct 5, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 25, 2014—Mar 10, 2017

Soil Map—Prince William County, Virginia, and Stafford and King George Counties, Virginia
(Proposed Timber Harvest in TA10A, TA10C and TA11A)

MAP LEGEND

MAP INFORMATION

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FaB	Fairfax loam, 2 to 6 percent slopes	0.0	0.0%
Subtotals for Soil Survey Area		0.0	0.0%
Totals for Area of Interest		115.9	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ce	Cartecay fine sandy loam	11.8	10.2%
CIB	Colfax fine sandy loam, 2 to 6 percent slopes	3.7	3.2%
EIB2	Elioak silt loam, 2 to 6 percent slopes, eroded	3.7	3.2%
EIC2	Elioak silt loam, 6 to 15 percent slopes, eroded	1.9	1.6%
FaB	Fairfax loam, 2 to 6 percent slopes	0.3	0.3%
LgB	Lignum silt loam, 2 to 6 percent slopes	9.1	7.9%
Me	Meadowville silt loam	4.2	3.6%
NaB	Nason silt loam, 2 to 6 percent slopes	31.0	26.7%
NaC2	Nason silt loam, 6 to 15 percent slopes, eroded	45.3	39.1%
Wr	Worsham loam	4.9	4.2%
Subtotals for Soil Survey Area		115.9	100.0%
Totals for Area of Interest		115.9	100.0%

Appendix C
National Historical Preservation Act Section 106 Documentation

From: [Roberts CIV Catherine](#)
To: [Siddall CIV Darien G](#)
Date: Monday, July 16, 2018 1:30:17 PM

There are no adverse effects to culture resources for the timber thinning project in 10A or 11A.

Marine Corps Base Quantico
Archaeologist
703 432 6781

Appendix D
Endangered Species Act Documentation



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

In Reply Refer To:

May 21, 2018

Consultation Code: 05E2VA00-2018-SLI-3448

Event Code: 05E2VA00-2018-E-07999

Project Name: Proposed Timber Harvest in Training Area (TA) 10A, 10C and 11A - North Segment

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2018-SLI-3448

Event Code: 05E2VA00-2018-E-07999

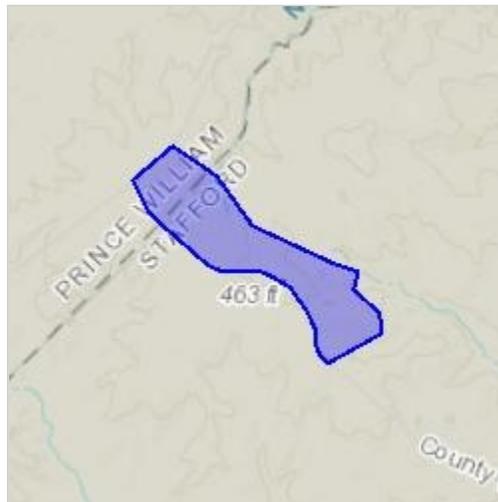
Project Name: Proposed Timber Harvest in Training Area (TA) 10A, 10C and 11A - North Segment

Project Type: FORESTRY

Project Description: Timber Harvest .

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.57603415079498N77.49597052637216W>



Counties: Prince William, VA | Stafford, VA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Harperella <i>Ptilimnium nodosum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3739	Endangered
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

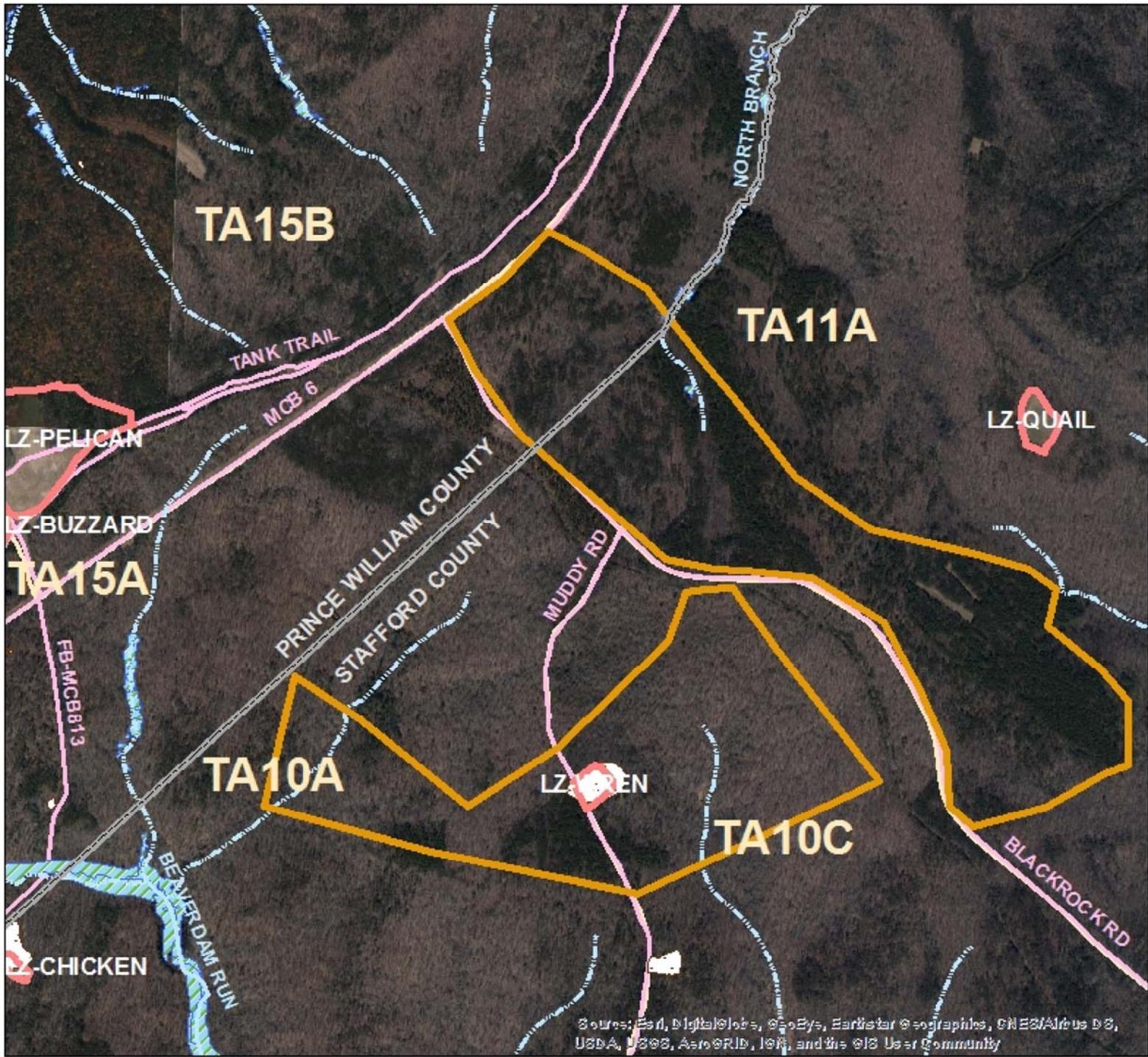
USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

REFUGE INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

Proposed Timber Harvest in TA10A, TA10C and TA11A

N



0 0.1 0.2 0.4 Miles

Legend

- Proposed Timber Harvest
- Training Area Boundary
- Cultural Resource Site
- Landing Zone
- Intermittent Stream
- Perennial Stream
- Wetlands
- Road
- County Boundary



New Platoon
Attack Range

Range
243 Acres

Loblolly & Pine
Thinnings
210 Acres

Metal
Contamination
230 Acres

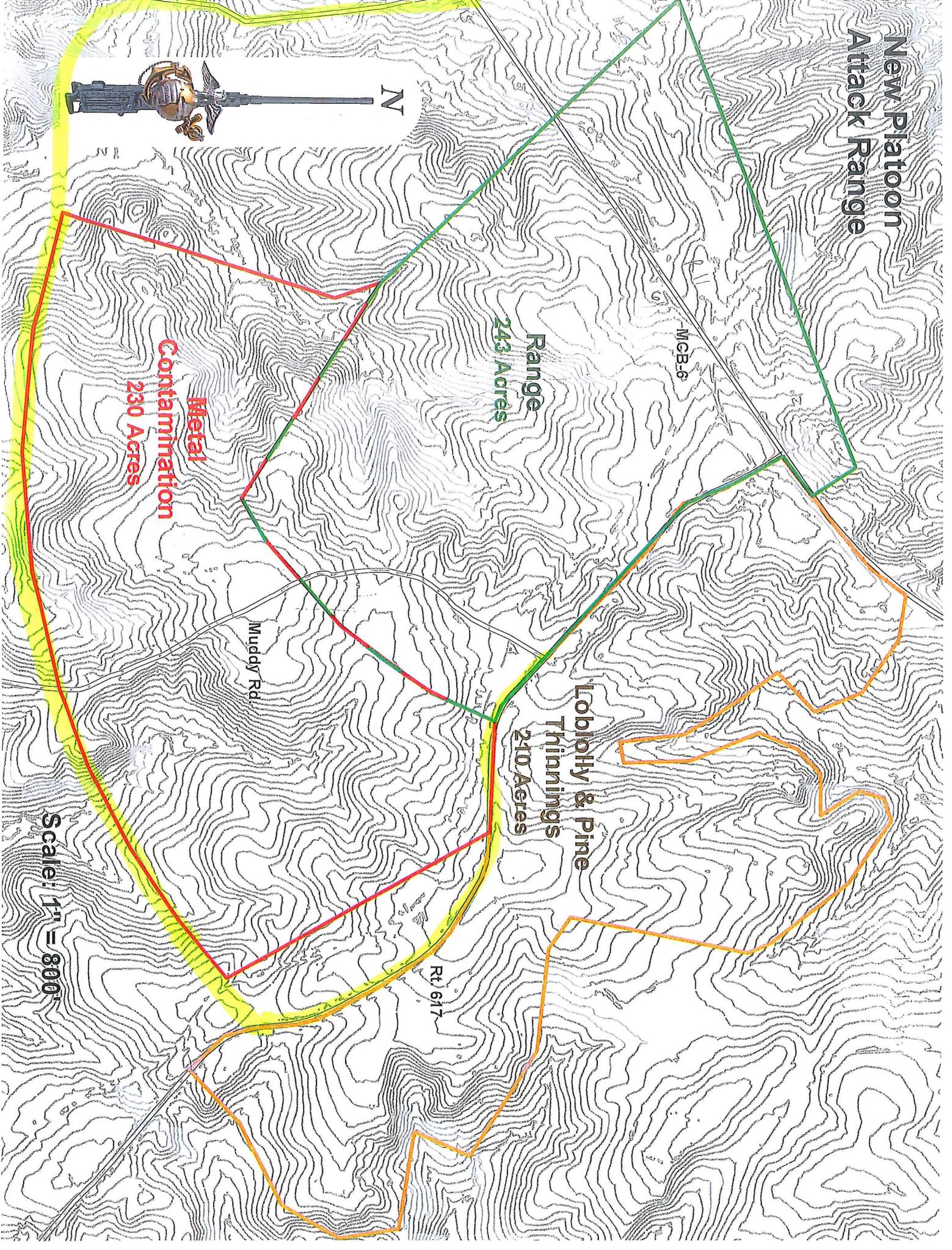
Muddy Rd.

Rt. 617

MCB&E



Scale: 1" = 800'





UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION
MARINE CORPS BASE
3250 CATLIN AVENUE
QUANTICO, VIRGINIA 22134 5001

IN REPLY REFER TO:

11015/1

B 046

3 July 18

MEMORANDUM FOR THE RECORD

From: Head, Fish, Wildlife, & Agronomy Program, Natural Resources
and Environmental Affairs Branch

To: File

Subj: SMALL WHORLED POGONIA SURVEY FOR THE PROPOSED PLATOON ATTACK
RANGE

Encl: (1) Map of Survey Area for the Platoon Attack Range
(2) Photographs of Sites

1. Range Management Branch, MCINCR-MCBQ, has proposed a 243 acre Platoon Attack Range located south of MCB-6, west of Route 617 and east of 613. Muddy Road is located near the center of the project. Additionally, timber will be thinned south and east of the proposed range with a firebreak and proposed road improvements. The total project area is approximately 650 acres.

2. On 2-3 July 2018, the proposed Platoon Attack Range, firebreak, and associated timber removal area was surveyed for presence of the federally threatened, small whorled pogonia (SWP). Enclosure 1 provides a map of the survey areas. Survey personnel consisted of Christa Nye, Brad Watkin, Jim Ma, Kenneth Erwin, Audrey McCrary, Cory Boswell, Rebecca Schuab, Frank Duncan, and Marlene McGraw of the Natural Resources and Environmental Affairs Branch (B 046).

3. Due to an intense range-induced wildfire around 2014, the center of the project area straddling Muddy Road consists of downed trees and thick understory regeneration consisting of tulip poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), white oak (*Quercus alba*), and devil's walking stick (*Aralia spinosa*). The fire also created patches with little to no canopy cover near muddy road. This area was deemed unsuitable habitat and not surveyed for the SWP.

4. Several pine plantations are within the project area. These areas were deemed unsuitable habitat and were not surveyed for the SWP.

5. Beaverdam Run and associated tributaries run from the northwestern portion of the site with an active beaver dam located near the southern boundary.

6. Marginal SWP habitat was found throughout the north and west portions of the site and consisted of tulip poplar (*Liriodendron tulipifera*), sassafras (*Sassafras albidum*), chestnut oak (*Quercus montana*), white oak (*Quercus alba*), red oak (*Quercus rubra*), and hickory (*Carya spp.*) in the canopy with American holly (*Ilex opaca*), mountain laurel (*Kalmia latifolia*), blackgum (*Nyssa sylvatica*) in the understory. The herbaceous layer consisted of greenbriar (*Smilax spp.*) lowbush blueberry and deerberry (*Vaccinium spp.*).

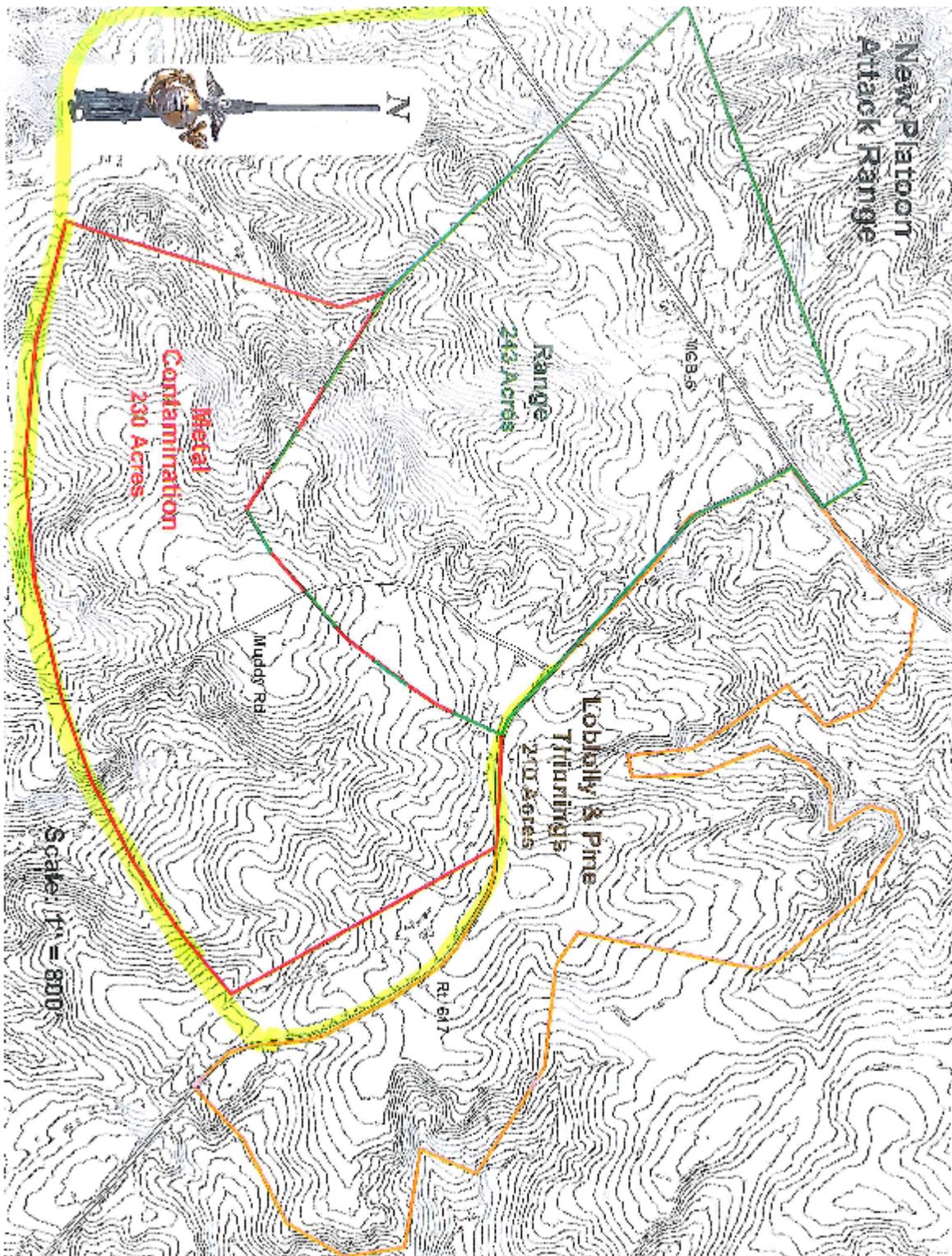
7. Potentially suitable habitat at the site (western and southern portion) consisted tulip poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), chestnut oak (*Quercus montana*), willow oak (*Quercus phellos*), and red maple (*Acer rubra*), in the overstory layer with deer-tongue grass (*Dichanthelium clandestinum*) and New York fern (*Thelypteris noveboracensis*) in the herbaceous layer.

8. While suitable habitat was found adjacent to streams located in the western and southern portion of the project area, the SWP was not found during the survey. A large number of Indian cucumber root (*Medeola virginiana*) and large-whorled pogonia (*Isotria verticillata*) were found along these drainages. While potentially suitable habitat is present, the proposed Platoon Attack Range and associated timber thinning will not likely adversely affect this federally listed species.

Christa Nye

Copy to:
Head, NEPA Program

Encl (1):



Encl (2):



Western portion of the site near the proposed firebreak.



Wetland area in the southwestern portion of the project.



Large-whorled pogonia and Indian cucumber root (from western portion)



Tree blow down in eastern portion of the site



Ephemeral stream in the southeast portion of the site.



Indian cucumber root found in the south eastern portion of the site.



Dense understory near the center of the project area.



Dense understory near the center of the project area.



Potentially suitable habitat found in northwest portion.



Proposed loblolly thinning area east of the proposed range.



Northeast portion of the site.



The CENTER for CONSERVATION BIOLOGY

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CCB MAPPING PORTAL

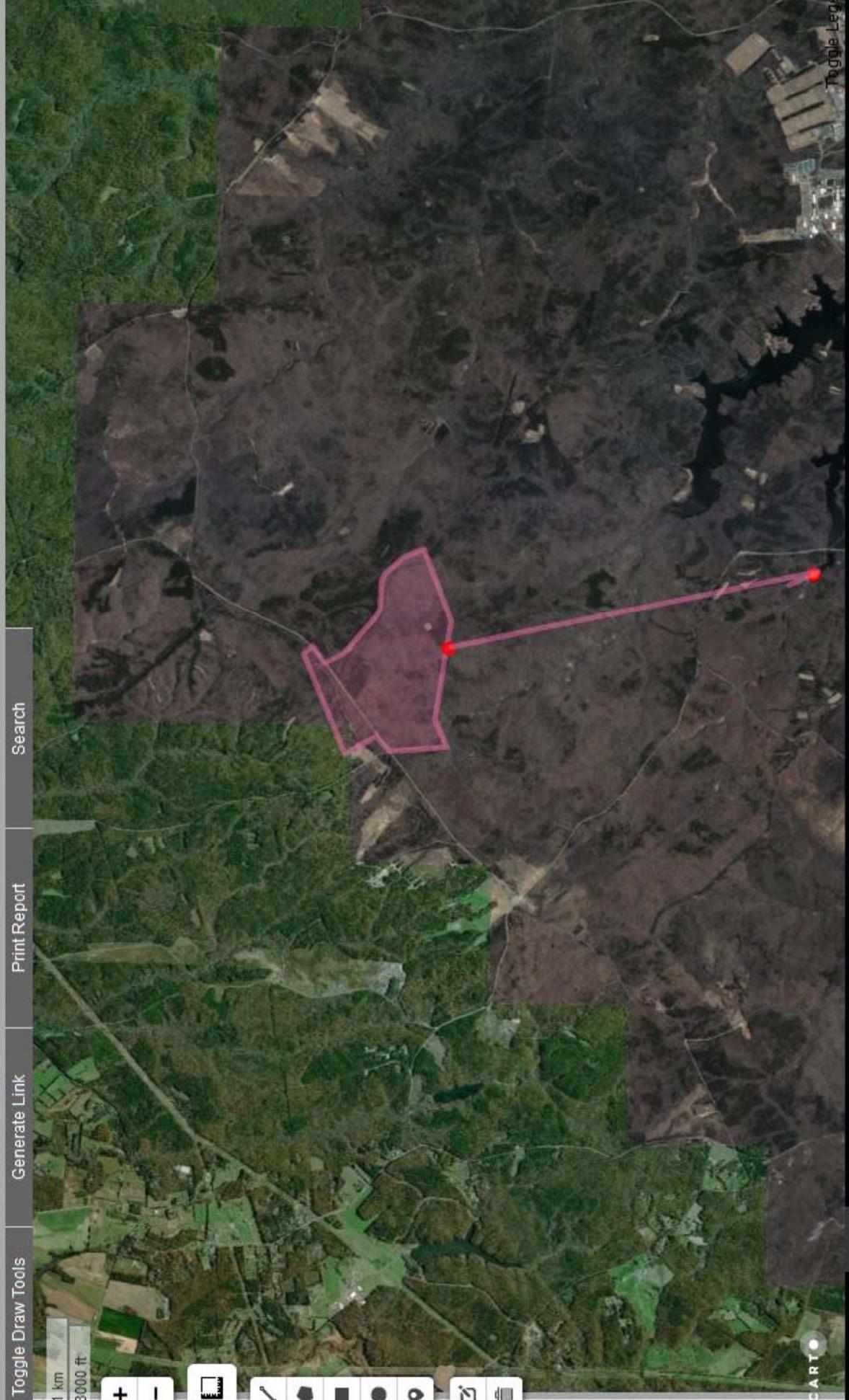
Toggle Draw Tools

Generate Link

Print Report

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Nests

VA Bald Eagle Concentration Areas

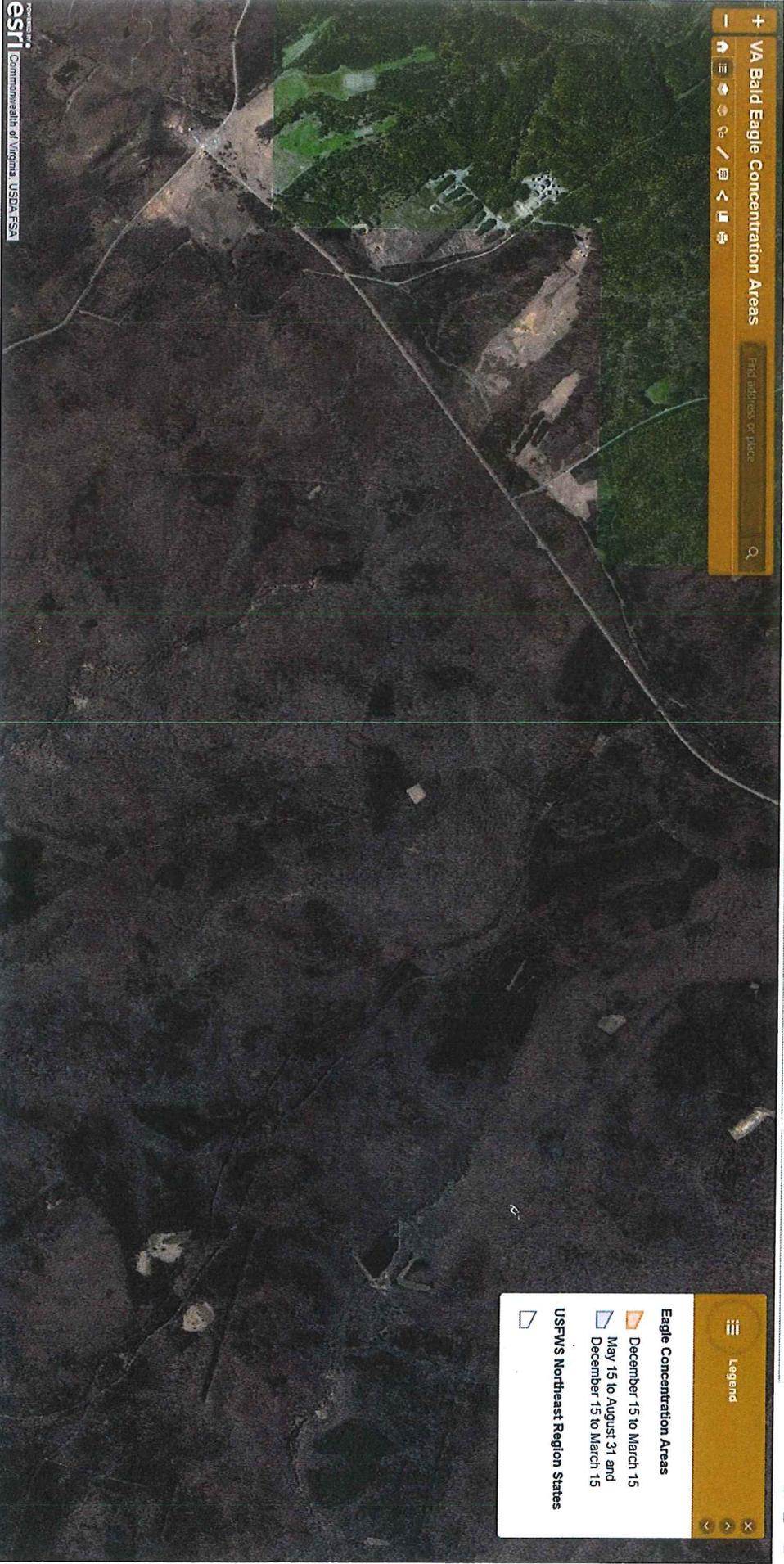
Find address or place

Legend

Eagle Concentration Areas

- December 15 to March 15
- May 15 to August 31 and December 15 to March 15

USFWS Northeast Region States



Species Conclusions Table

Project Name: Proposed Timber Harvest in Training Areas (TA) 10A, 10C and 11A – North Segment.

Date: 5 July 2018

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Bald Eagle	Unlikely to disturb nesting Bald Eagles.	No Eagle Act Permit required.	Proposed action is over 13,000 feet from closest Bald Eagle nest. Not within 600 ft. of a Bald Eagle Nest and not within a concentration area.
Harperella	No suitable habitat present	No effect.	No perennial streams within the proposed action footprint. A 50 ft. buffer will be maintained around all streams and wetlands. This will be done in accordance with the Virginia Best Management Practices (BMP) Field Guide (2009), the Virginia BMPs for Water Quality Technical Manual (2011) and Virginia Erosion Control and Sedimentation Handbook (1992).
Indiana Bat	Suitable habitat present	Not likely to adversely effect.	USFWS Time of Year Restrictions will be implemented. No trees/timber will be removed within the proposed action footprints from 15 April to 15 September to during the active pup season for the Indiana Bat.
Northern Long-Eared Bat (NLEB)	Suitable habitat present	Not likely to adversely effect.	USFWS Time of Year Restrictions will be implemented. No trees/timber will be removed within the proposed action footprints from 15 April to 15 September to during the active pup season for the NLEB.
Small-Whorled Pogonia	Suitable habitat present	Not likely to adversely effect.	Although potentially suitable and marginally suitable habitat was detected. No Small-Whorled Pogonia was found within the proposed action location



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date: 5 July 2018

Self-Certification Letter

Project Name: Proposed Timber Harvest in Training Areas 10A, 10C and 11A (North Segment)

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. . 1531-1544, 87 Stat. 884), as amended (ESA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended (Eagle Act). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA and Eagle Act conclusions. These conclusions resulted in:

- “no effect” determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- “may affect, not likely to adversely affect” determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- “may affect, likely to adversely affect” determination for the Northern long-eared bat (*Myotis septentrionalis*) and relying on the findings of the January 5, 2016 Programmatic Biological Opinion for the Final 4(d) Rule on the Northern long-eared bat; and/or
- “no Eagle Act permit required” determinations for eagles.

We certify that use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the “no effect” or “not likely to adversely affect” determinations for proposed and listed species and proposed and designated critical habitat; the “may affect” determination for Northern long-eared bat; and/or the “no Eagle Act permit required” determinations for eagles. Additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of proposed or listed species, proposed or designated critical habitat, or bald eagles becomes available, this determination may be reconsidered. This certification letter is valid for 1 year.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available at our website http://www.fws.gov/northeast/virginiafield/endspecies/project_reviews.html. If you have any questions, please contact Troy Andersen of this office at (804) 824-2428.

Sincerely,



Cindy Schulz
Field Supervisor
Virginia Ecological Services

Enclosures - project review package



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

In Reply Refer To:

May 21, 2018

Consultation Code: 05E2VA00-2018-SLI-3450

Event Code: 05E2VA00-2018-E-08003

Project Name: Proposed Timber Harvest in Training Areas (TA), 10A, 10C and 11A - South Segment

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2018-SLI-3450

Event Code: 05E2VA00-2018-E-08003

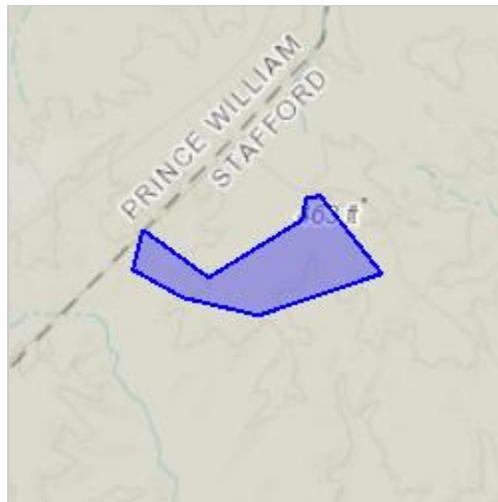
Project Name: Proposed Timber Harvest in Training Areas (TA), 10A, 10C and 11A - South Segment

Project Type: FORESTRY

Project Description: Thinning of the second segment.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.57135393175099N77.49817713756111W>



Counties: Stafford, VA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Harperella <i>Ptilimnium nodosum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3739	Endangered
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

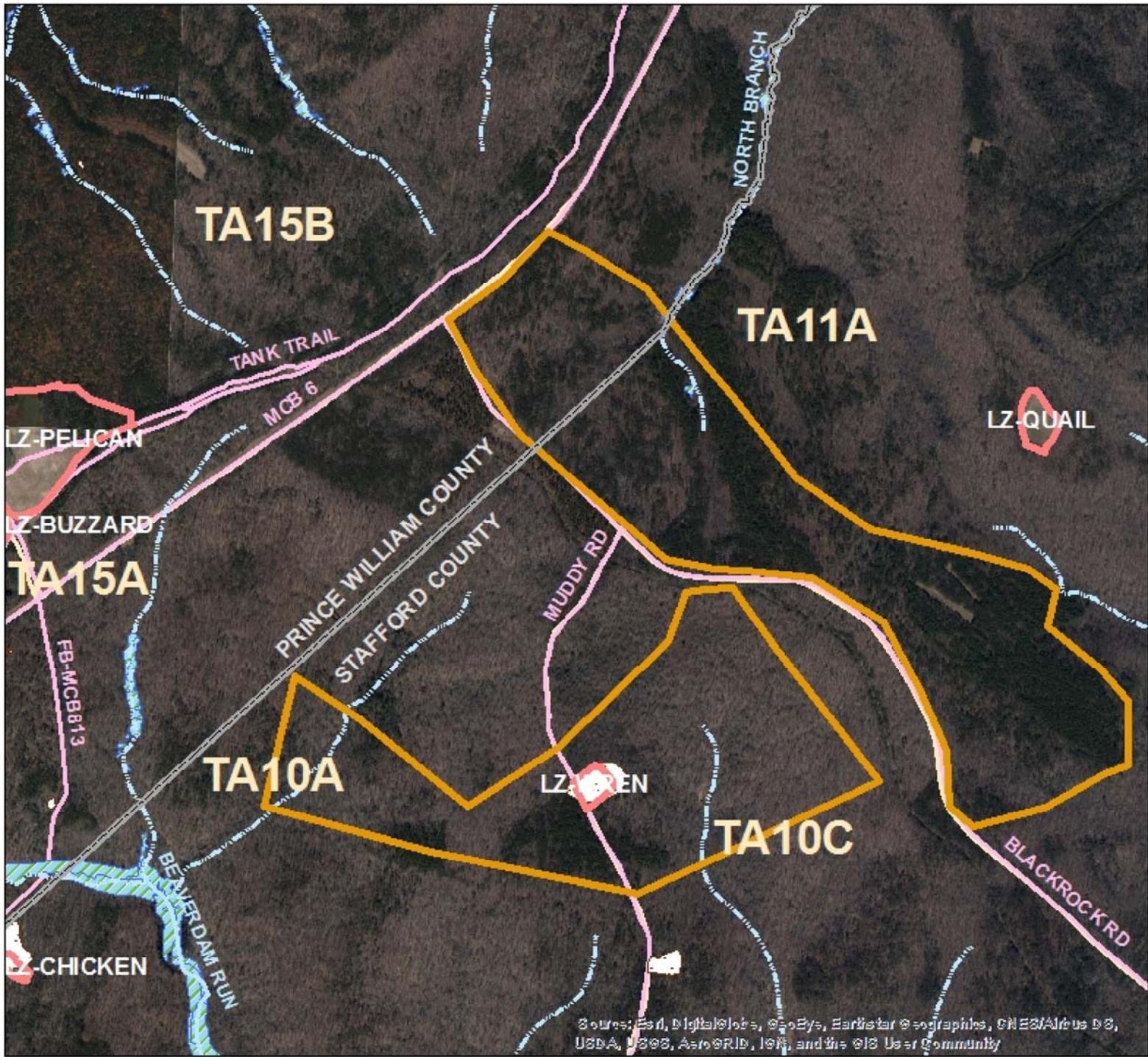
THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

REFUGE INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

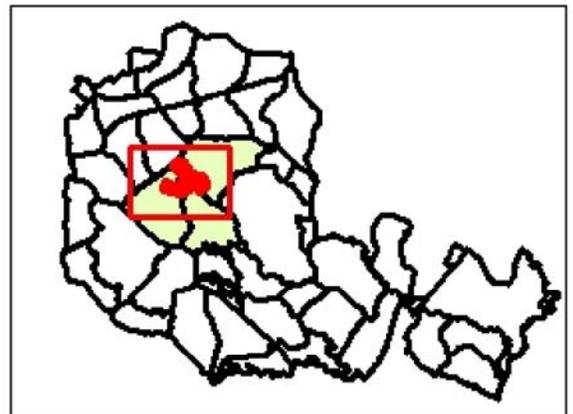
Proposed Timber Harvest in TA10A, TA10C and TA11A



0 0.1 0.2 0.4 Miles

Legend

- Proposed Timber Harvest
- Training Area Boundary
- Cultural Resource Site
- Landing Zone
- Intermittent Stream
- Perennial Stream
- Wetlands
- Road
- County Boundary



New Platoon
Attack Range

Range
243 Acres

Metal
Contamination
230 Acres

Loblolly & Pine
Thinnings
210 Acres

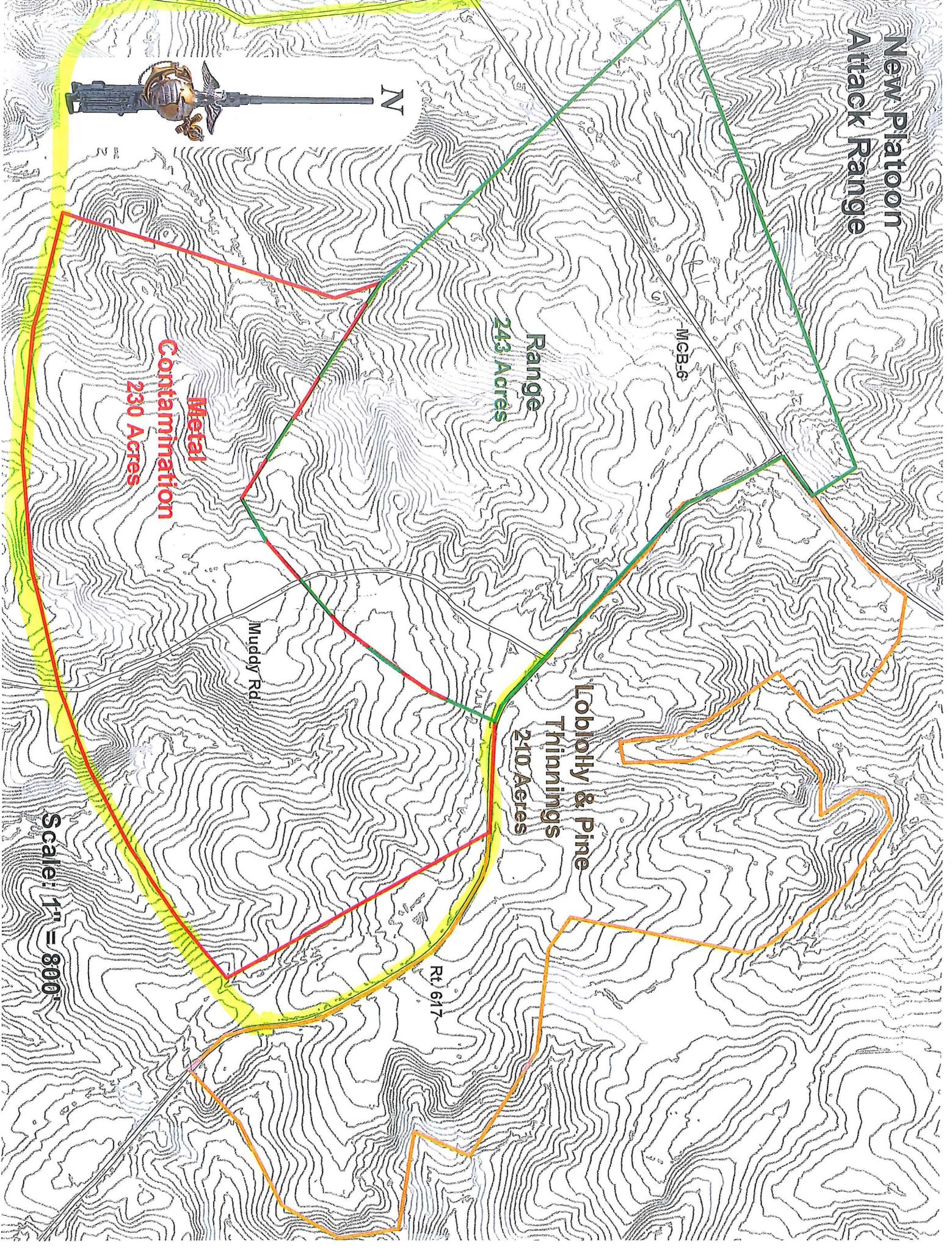
Muddy Rd.

Rt. 617

MCB&e



Scale: 1" = 800'





UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION
MARINE CORPS BASE
3250 CATLIN AVENUE
QUANTICO, VIRGINIA 22134 5001

IN REPLY REFER TO:

11015/1

B 046

3 July 18

MEMORANDUM FOR THE RECORD

From: Head, Fish, Wildlife, & Agronomy Program, Natural Resources
and Environmental Affairs Branch

To: File

Subj: SMALL WHORLED POGONIA SURVEY FOR THE PROPOSED PLATOON ATTACK
RANGE

Encl: (1) Map of Survey Area for the Platoon Attack Range
(2) Photographs of Sites

1. Range Management Branch, MCINCR-MCBQ, has proposed a 243 acre Platoon Attack Range located south of MCB-6, west of Route 617 and east of 613. Muddy Road is located near the center of the project. Additionally, timber will be thinned south and east of the proposed range with a firebreak and proposed road improvements. The total project area is approximately 650 acres.

2. On 2-3 July 2018, the proposed Platoon Attack Range, firebreak, and associated timber removal area was surveyed for presence of the federally threatened, small whorled pogonia (SWP). Enclosure 1 provides a map of the survey areas. Survey personnel consisted of Christa Nye, Brad Watkin, Jim Ma, Kenneth Erwin, Audrey McCrary, Cory Boswell, Rebecca Schuab, Frank Duncan, and Marlene McGraw of the Natural Resources and Environmental Affairs Branch (B 046).

3. Due to an intense range-induced wildfire around 2014, the center of the project area straddling Muddy Road consists of downed trees and thick understory regeneration consisting of tulip poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), white oak (*Quercus alba*), and devil's walking stick (*Aralia spinosa*). The fire also created patches with little to no canopy cover near muddy road. This area was deemed unsuitable habitat and not surveyed for the SWP.

4. Several pine plantations are within the project area. These areas were deemed unsuitable habitat and were not surveyed for the SWP.

5. Beaverdam Run and associated tributaries run from the northwestern portion of the site with an active beaver dam located near the southern boundary.

6. Marginal SWP habitat was found throughout the north and west portions of the site and consisted of tulip poplar (*Liriodendron tulipifera*), sassafras (*Sassafras albidum*), chestnut oak (*Quercus montana*), white oak (*Quercus alba*), red oak (*Quercus rubra*), and hickory (*Carya spp.*) in the canopy with American holly (*Ilex opaca*), mountain laurel (*Kalmia latifolia*), blackgum (*Nyssa sylvatica*) in the understory. The herbaceous layer consisted of greenbriar (*Smilax spp.*) lowbush blueberry and deerberry (*Vaccinium spp.*).

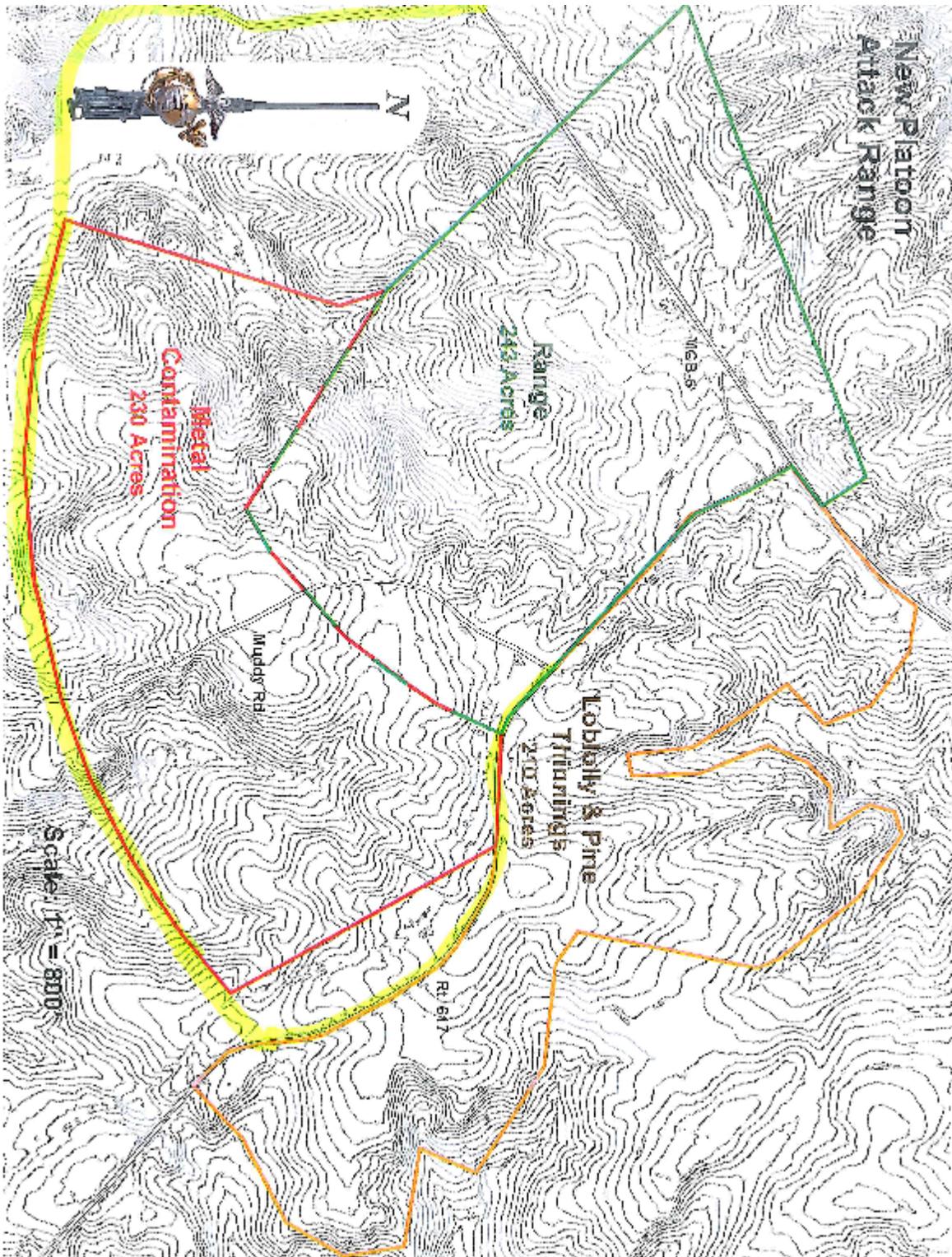
7. Potentially suitable habitat at the site (western and southern portion) consisted tulip poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), chestnut oak (*Quercus montana*), willow oak (*Quercus phellos*), and red maple (*Acer rubra*), in the overstory layer with deer-tongue grass (*Dichanthelium clandestinum*) and New York fern (*Thelypteris noveboracensis*) in the herbaceous layer.

8. While suitable habitat was found adjacent to streams located in the western and southern portion of the project area, the SWP was not found during the survey. A large number of Indian cucumber root (*Medeola virginiana*) and large-whorled pogonia (*Isotria verticillata*) were found along these drainages. While potentially suitable habitat is present, the proposed Platoon Attack Range and associated timber thinning will not likely adversely affect this federally listed species.

Christa Nye

Copy to:
Head, NEPA Program

Encl (1):



Encl (2):



Western portion of the site near the proposed firebreak.



Wetland area in the southwestern portion of the project.



Large-whorled pogonia and Indian cucumber root (from western portion)



Tree blow down in eastern portion of the site



Ephemeral stream in the southeast portion of the site.



Indian cucumber root found in the south eastern portion of the site.



Dense understory near the center of the project area.



Dense understory near the center of the project area.



Potentially suitable habitat found in northwest portion.



Proposed loblolly thinning area east of the proposed range.



Northeast portion of the site.



The CENTER for CONSERVATION BIOLOGY

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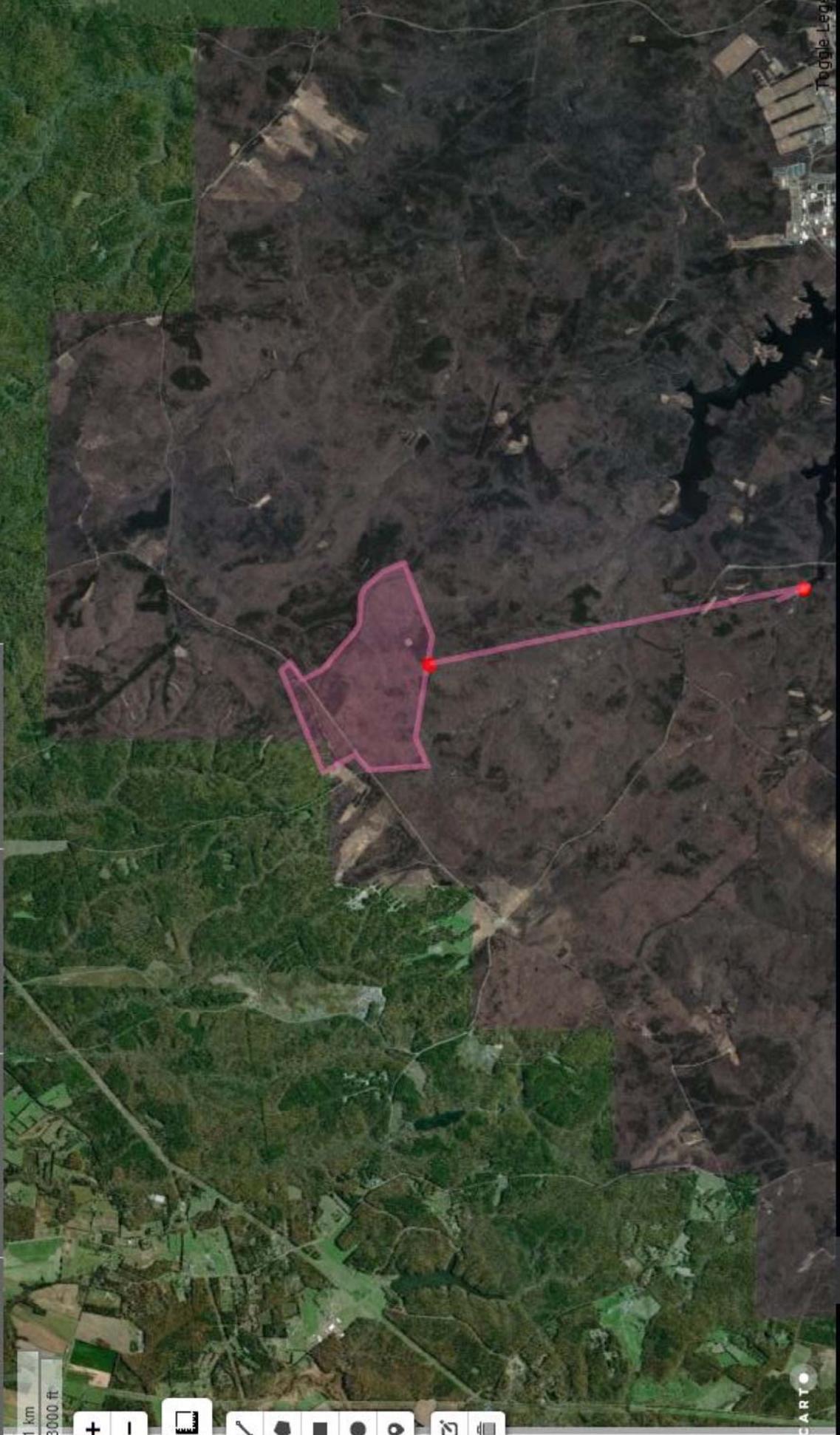
Give to CCB

Help / FAQ

CCB MAPPING PORTAL

Toggle Draw Tools Generate Link Print Report Search

1 Km 3000 ft



s on in rom spring wer er er. data

2013 3 3 3

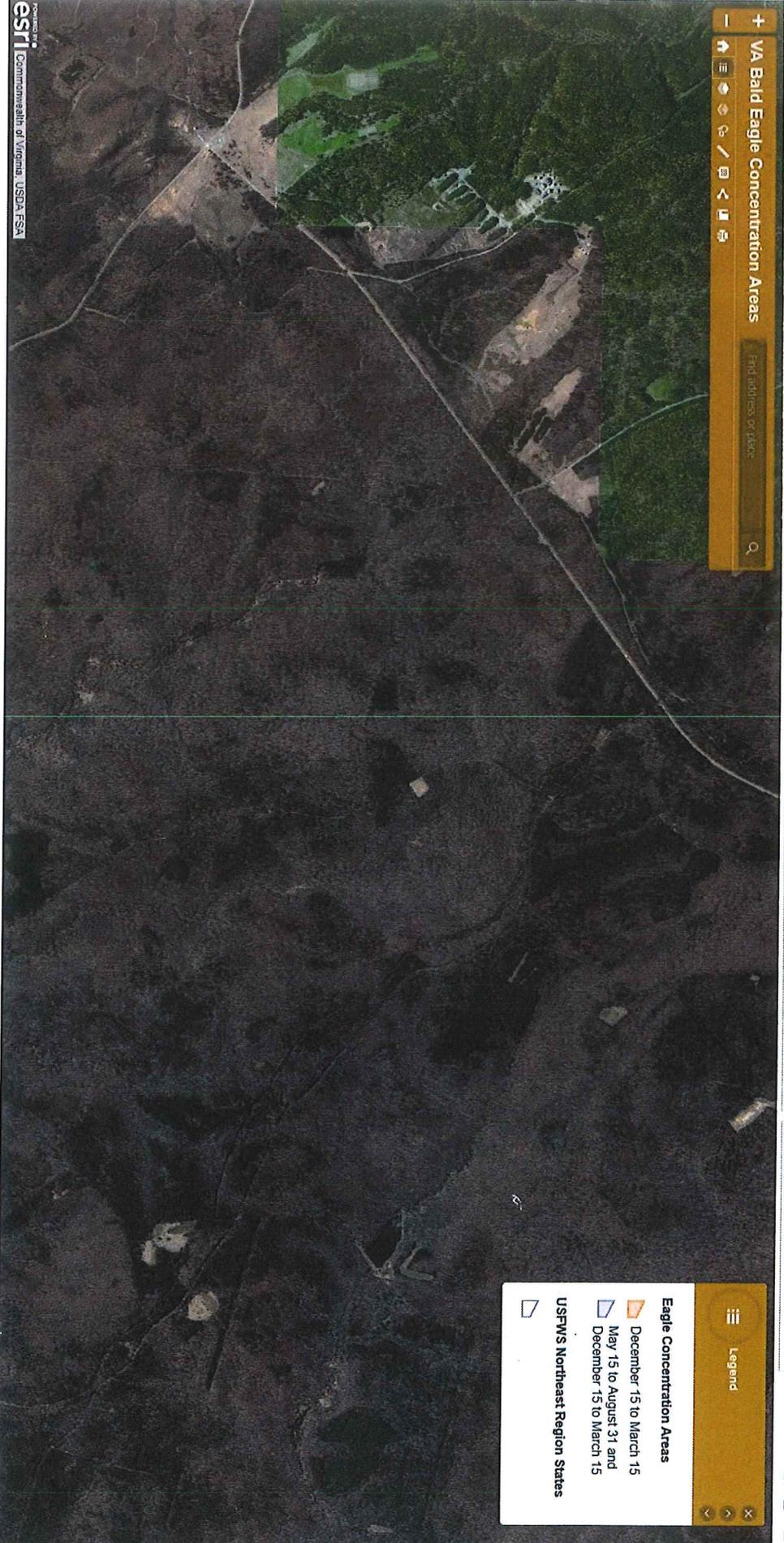
Nests

CART

VA Bald Eagle Concentration Areas

Find address or place

Map navigation icons



Legend

Eagle Concentration Areas

- December 15 to March 15
- May 15 to August 31 and December 15 to March 15

USFWS Northeast Region States

Species Conclusions Table

Project Name: Proposed Timber Harvest in Training Areas (TA) 10A, 10C and 11A – South Segment.

Date: 5 July 2018

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Bald Eagle	Unlikely to disturb nesting Bald Eagles.	No Eagle Act Permit required.	Proposed action is over 13,000 feet from closest Bald Eagle nest. Not within 600 ft. of a Bald Eagle Nest and not within a concentration area.
Harperella	No suitable habitat present	No effect.	No perennial streams within the proposed action footprint. A 50 ft. buffer will be maintained around all streams and wetlands. This will be done in accordance with the Virginia Best Management Practices (BMP) Field Guide (2009), the Virginia BMPs for Water Quality Technical Manual (2011) and Virginia Erosion Control and Sedimentation Handbook (1992).
Indiana Bat	Suitable habitat present	Not likely to adversely effect.	USFWS Time of Year Restrictions will be implemented. No trees/timber will be removed within the proposed action footprints from 15 April to 15 September to during the active pup season for the Indiana Bat.
Northern Long-Eared Bat (NLEB)	Suitable habitat present	Not likely to adversely effect.	USFWS Time of Year Restrictions will be implemented. No trees/timber will be removed within the proposed action footprints from 15 April to 15 September to during the active pup season for the NLEB.
Small-Whorled Pogonia	Suitable habitat present	Not likely to adversely effect.	Although potentially suitable and marginally suitable habitat was detected. No Small-Whorled Pogonia was found within the proposed action location



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date:

Self-Certification Letter

Project Name:

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. . 1531-1544, 87 Stat. 884), as amended (ESA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended (Eagle Act). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA and Eagle Act conclusions. These conclusions resulted in:

- “no effect” determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- “may affect, not likely to adversely affect” determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- “may affect, likely to adversely affect” determination for the Northern long-eared bat (*Myotis septentrionalis*) and relying on the findings of the January 5, 2016 Programmatic Biological Opinion for the Final 4(d) Rule on the Northern long-eared bat; and/or
- “no Eagle Act permit required” determinations for eagles.

We certify that use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the “no effect” or “not likely to adversely affect” determinations for proposed and listed species and proposed and designated critical habitat; the “may affect” determination for Northern long-eared bat; and/or the “no Eagle Act permit required” determinations for eagles. Additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of proposed or listed species, proposed or designated critical habitat, or bald eagles becomes available, this determination may be reconsidered. This certification letter is valid for 1 year.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available at our website http://www.fws.gov/northeast/virginiafield/endspecies/project_reviews.html. If you have any questions, please contact Troy Andersen of this office at (804) 824-2428.

Sincerely,

A handwritten signature in blue ink that reads "Cynthia A. Schulz". The signature is written in a cursive style and is enclosed in a light blue rectangular box.

Cindy Schulz
Field Supervisor
Virginia Ecological Services

Enclosures - project review package

Appendix E
Air Quality Methodology and Calculations

Record of Non-Applicability (RONA) for General Conformity

Project Name _____
Project Number _____
Project Contact _____

General Conformity under the Clean Air Act, Section 176(c) has been evaluated for the project described above according to the requirements of Title 40 Code of Federal Regulations (CFR) Part 93 and the applicable State Implementation Plan. The requirement of a conformity determination under this rule is not applicable to this project/action because:

- The project/action qualifies as an exempt action. The applicable exemption citation is:

Example: 40 CFR 93.153(c)(2)(xiv) Transfers of ownership, interests, and titles in land, facilities, and real and personal properties, regardless of the form or method of the transfer.

Note: Exemptions must be contained in the State Implementation Plan.

OR

- Total direct and indirect emissions from this project/action have been determined to be below the *de minimus* threshold for conformity purposes estimated at:

_____ tons/year of NO_x

_____ tons/year of VOC

_____ tons/year of PM_{2.5}

_____ tons/year of CO₂

_____ tons/year of _____

These levels are below the conformity threshold values established at 40 CFR 93.153(b), and supporting documentation and emission estimates are:

- Attached
 Appear in the NEPA Documentation _____
 Other _____

ENVIRONMENTAL COORDINATOR (title and signature)

DATE

Appendix F
Construction Waste Management Report

Construction Waste Management Report Quantico Marine Corps Base

Report Date: _____
 Project Number: _____ Project Name: _____
 Contract Number: _____ Contract Task Order/Delivery Order: _____
 Reporting Period: _____ to _____

**SUBMIT THIS FORM BY FAX TO (703) 784-4953, OR BY EMAIL TO: Marilisa Porter
 at marilisa.porter@usmc.mil or call (703) 432-0522**

Comments: _____

Waste Stream	Disposal (Tons)	Disposal Cost	Recycled (Tons)	Recycled Cost	Recycled Revenues
C&D		\$		\$	\$

CONSTRUCTION & DEMOLITION DEBRIS (C&D).

- Record hazardous and non-hazardous C&D waste as one entry. Enter total tons of C&D disposed of in a landfill, by incineration, and/or by hazardous waste contract.
- Enter total disposal cost for C&D.
- Enter the recycled hazardous and non-hazardous C&D tons as one entry under the recycling column. You can also claim C&D diversion conducted by a construction contractor or MILCON project. If you have recycled C&D, it is likely that some was disposed of as well. Therefore, if there are recycled tons of C&D there should be some disposed tons of C&D.
- Enter the cost associated with recycling. Recycling costs include handling, processing, transportation, and other costs associated with recycling C&D. Soils that are used at another location or that are reclaimed count toward recycling.
- Enter Recycling Revenues. Enter only actual revenues received from recycling. Do not enter cost avoidance for recycling revenues.

Reported by: _____
 Company: _____ Contact: _____
 Address: _____ Title: _____
 _____ E-mail address: _____
 Telephone: _____ Fax: _____

Definitions:

Construction and Demolition (C&D) Debris. Waste derived from the construction, renovation, demolition or deconstruction of residential and commercial buildings and their infrastructure. C&D waste typically includes concrete, wood, metals, gypsum wallboard, asphalt, and roofing material.

Other Select Waste (OSW). Construction and demolition debris are the “Other Select Waste” categories for purposes of DoD metric reporting via SW module. If the Other Select Wastes are hazardous they must also be reported in the calendar year HW module.