ENVIRONMENTAL ASSESSMENT
FOR

CONSTRUCTION OF TWO CONTRACTOR OWNED, CONTRACTOR OPERATED (COCO) RETAIL SERVICE FUEL STATIONS

AT

MARINE CORPS BASE QUANTICO,
Prince William County, Virginia
Stafford County, Virginia

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

September 2017

Proposed Agency Action: Construct COCO Service Stations
Marine Corps Base Quantico, Virginia

Type of Statement: Environmental Assessment

Lead Agency: United States Marine Corps

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Abstract: This Environmental Assessment is intended to meet NEPA requirements to construct two COCO Fueling Facilities at Marine Corps Base Quantico, VA. There will be one facility each constructed on the Mainside and Westside (Guadalcanal) areas of the base. The No Action Alternative (Alternative A) and the Action Alternatives (Alternatives B, C, and D) were evaluated. Alternative A would have no adverse effects on natural resources or the human environment as the status quo would be maintained. Alternative B – Construction of a COCO Facility at Larson Gymnasium Site and near the Ammunition Supply Point (ASP) would have no significant impacts to land use, biological resources, air quality, noise, infrastructure, recreation, socioeconomic or hazardous waste issues. There would be significant impacts to the Chopawamsic Creek and the Potomac River unless site specific, water resource protection mitigations are enacted. Other temporary water quality impacts associated with soil disturbance resulting from ground disturbance activities would be mitigated through appropriate Erosion and Sediment Control measures per the Virginia Erosion and Sediment Control Handbook. The action proponent would also have to coordinate with Marine Corps Air Facility (MCAF) to ensure that Alternative B does not interfere with the facility's AICUZ, in particular the Imaginary Surface Zone. Also, the project proponent would also have to ensure that Alternative B does not interfere with Marine training in Training Area 6B. Alternative C – Construction of a COCO Facility at the Motor Transport (Motor T) Site and near the ASP has no significant impacts to land use, biological resources, air quality, noise, infrastructure, recreation, socioeconomic, hazardous waste, or water resource issues but does not comply with the long-term MCBQ Master Plan and also impacts Marine Corps readiness. Alternative D - Construct COCO Facility at Northern Portion of the Motor T Site and across from the Weapons Training Battalion (WTBN) would have no significant impacts to land use, biological resources, air quality, noise, infrastructure, recreation, socioeconomic, hazardous waste, training or water resource issues and training plus better complies with the long-term MCBQ Master Plan. As

a result, Alternative D is the preferred alternative and will not have any significant impacts to human health and/or the environment.

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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 the construction of two Contractor Owned, Contractor Operated (COCO) Retail Service Stations, at Marine Corps Base Quantico (MCBQ). The project is being implemented by the Defense Logistics Agency (DLA).

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 Background

The DLA proposes two, 4.75 acre, COCO retail service stations to be constructed at MCBQ. There will be one facility each constructed on the Mainside and Westside (Guadalcanal) portions of MCBQ to ensure that both fuel capacity and demand are effectively met. Both service stations will consist of four 10,000 gallon fuel tanks, a dispenser island and a small office area with restrooms. The proposed action also will include necessary water and electrical/utility installation and upgrades. The two service stations will be used for the purpose of refueling government vehicles. The sites will be used 24 hours/day, seven days a week by personnel utilizing government vehicles at MCBQ. Department of Defense Directive (DoDD) 5101.8 states that Department of Defense (DoD) is responsible for:

"…all bulk petroleum supply chain management from source of supply to the point of customer acceptance, with emphasis on improving efficiency".

Naval Supply Systems Command (NAVSUP) and MCBQ conducted an optimization study in 2014 in order to satisfy the requirements outlined under DoD 5101.8, which also designates the Director of the DLA as the DoD Executive Agent for Bulk Petroleum, while also meeting requirements under DoD 4140.25M, Vol 11 Management of Storage and Distribution Facilities. The optimization study involved conducting facility assessments to determine the best solution to meet mission requirement while efficiently operating and maintaining petroleum storage and distribution systems for which the Defense Logistics Agency (DLA) has Sustainment, Restoration and Modernization (SRM) responsibilities. There were four potential outcomes to the optimization study:

- No action.
- Government-Owned, Contractor Operation Facilities (GOCO) – MCBQ and DLA owned fuel facilities that are operated by contactors.
- COCO – Private contractors own and operate the fuel facilities at MCBQ.
- GOCO/COCO – A combination of both GOCO and COCO owned facilities at MCBQ.

In December 2014, DLA recommended that two COCO retail service stations be constructed at MCBQ because the COCO retail service station would have the potential benefits of:

- Automated and more cost efficient facilities in the immediate future.
- Reduced Environmental Liability.
- The ability to make military personnel available for more mission critical assignments and tasks.
- Financial savings to DoD/MCBQ.

The recommendation also stated that the COCO facilities would provide the right sized facilities and supply to support government vehicle fueling operations at MCBQ. The DLA also recommended closing three existing fuel facilities that exist at MCBQ: The Motor T Facility, Guadalcanal Facility, and The Basic School Facility.

All of the above-ground storage tanks (ASTs) at these facilities would require having the fuel removed, being purged of vapors, a completed site assessment and placement at a long-term storage facility. The Camp Upshur Facility would be upgraded, receive a new tank from the Motor T Facility, and continue to operate as a GOCO.

1.2 Need for the Proposed Action

Currently, there are four facilities with a total of eight ASTs currently being utilized for fuel support at MCBQ. These facilities are:

- The Motor T Facility located on Mainside has four ASTs consisting of diesel, bio-diesel, gasoline, and E-85.
- The Guadalcanal Maintenance Facility on the Westside, consisting of one diesel tank.
- The Basic School Facility at Camp Barrett on the Westside, consisting of two tanks consisting of diesel and gasoline.
- The Camp Upshur Facility, which has one diesel AST utilized by reserve units.

In 2007, all of the current ASTs were relocated from the Federal Bureau of Investigation (FBI) Academy on the Westside of MCBQ to their current locations. Due to the lack of data plates on these tanks, the exact age of all of these tanks is unknown but it is estimated that the tanks are between 20-25 years old. Rust-pitting has been occurring at these facilities for a number of years and it has significantly reduced the life-expectancy of the current tanks. Threaded incompatible materials have been used to connect the pipelines when they should only be used for valves and equipment. With the exception of the Basic School Facility, all of the other facilities have only one dispenser for each product which does not satisfy the demand for fuel at MCBQ. There are currently no personnel assigned to ensure that the tanks are up to standard and any needed maintenance would have to be performed by contract. The manpower and the cost associated with maintaining these tanks to meet regulations due to their age and environmental risk is extremely high.

The construction of two new COCO retail service facilities on each side of MCBQ would consolidate all government vehicle fuel activities at one location on the Mainside and Westside of the base. This consolidation would reduce the amount of locations where environmental regulatory compliance for government vehicle fuel is necessary from three locations to two central locations and eliminate the need for Marine personnel to spend significant

amounts of time on maintenance of four older facilities while focusing on mission essential tasks. Since these are new facilities, the need and costs of maintenance for the older Motor T (if not selected as the COCO retail service facility), Guadalcanal and Basic School facility tanks would be eliminated.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative A – No Action

Under the no action alternative, all current fuel facilities would remain in place and existing conditions would remain.

2.2 Alternative B – Construct COCO Facility at Larson Gymnasium Site and near Ammunition Supply Point (ASP).

Under this alternative, the proposed Mainside COCO Facility would be constructed at the site of the former Larson Gymnasium, which is slated to be demolished (see Figure 2.1.2). The site is near the confluences of Chopawamsic Creek and the Potomac River. The proposed action location is bounded by Bauer Rd. to the west and an un-named access road to the south. It includes the current Larson Gymnasium and parking lots. The proposed Westside COCO Facility is located in a forested location along Camp Barrett Rd./MCB-1 to the west of the ASP (see Figure 2.1.3).

2.3 Alternative C – Construct COCO Facility at Motor T Site and near ASP.

Under this alternative, the proposed Mainside COCO Facility would be constructed at the current Motor T Fuel Site bounded by Catlin Ave., Anderson Ave. and an access road (see Figure 2.1.4). The proposed Westside COCO Facility would be constructed in the same location outlined in Alternative B.

2.4 Alternative D – Construct COCO Facility at Northern Portion of the Motor T Site and across from the Weapons Training Battalion (WTBN).

Under this alternative, the Mainside COCO Facility would be constructed at the northern section of the Motor T Facility (See Figure 2.1.5). The former Larson's Gymnasium would be used as a parking facility. The Westside COCO Facility would be constructed at a wooded location across from the WTBN (See Figure 2.1.6). The former Larson's gym site would be utilized as a permanent parking lot. The Compressed Natural Gas (CNG)

facility would be not be impacted by the proposed action. The existing Motor T facility would have to remain open and operational while the COCO Facility is being constructed.

2.5 Alternatives Eliminated from Further Consideration.

2.5.1 GOCO after Major Repairs to the Existing Facilities.

This alternative would have involved making major repairs to all four facilities. This option would require a complete replacement of all four facilities, a service contract to ensure that the facilities are maintained to proper standard, track inventory and sales, and perform the operations maintenance necessary after the completion of major repairs. The costs associated with this alternative would be high and require a significant amount of funding from DoD. The four existing facilities are also less centralized and this alternative makes it more difficult to reduce environmental impacts. As a result, this alternative was dismissed from further consideration.

2.5.2 Military Constructed (MILCON) GOCO.

This alternative involved constructing a MILCON GOCO. MCBQ is considered a training base. This designation would have made it highly unlikely that a retail service station project would have made it above the MILCON installation planning and review board. It is also the most expensive alternative and the earliest MILCON possible is in FY2019. As a result, this alternative was dismissed from further consideration.

2.5.3 Placing Westside COCO next to the Fuel Farm.

An alternative that was considered for the Westside but eliminated from further consideration included placing the COCO Facility adjacent to the Fuel Farm. The COCO facilities require between 3-5 acres of land. The available land near the Fuel Farm is only 2.5 acres which does not meet the site requirements for the new facility. There has also been significant infrastructure built within this area that could lead to increased congestion in this location. This would make it harder for automobiles to reach the COCO facility. As a result, this alternative was dismissed from further consideration.

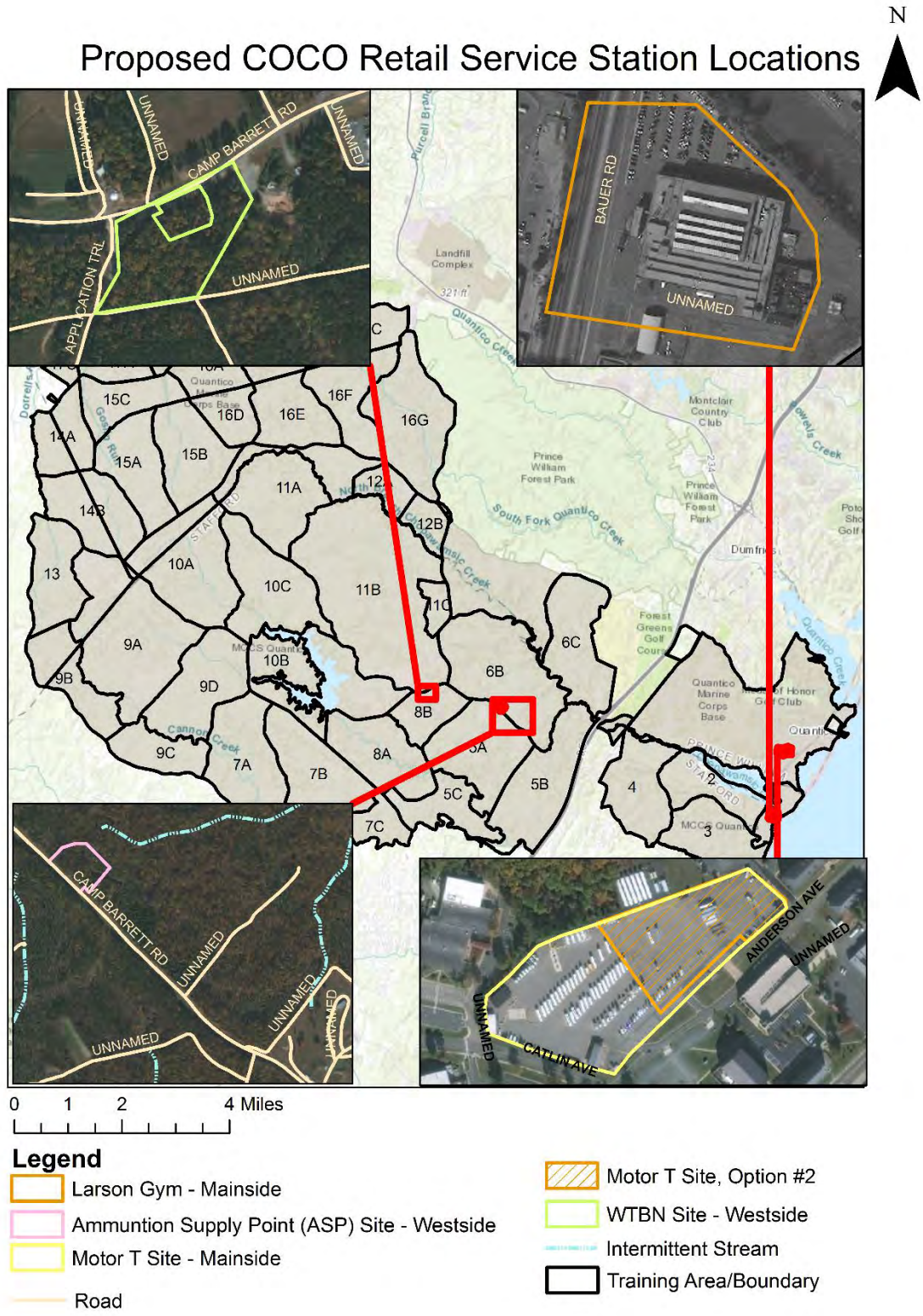

Proposed COCO Retail Service Station Locations
N
CAMP BARRETT RD
UNNAMED
APPLICATION TRL
BAUER RD
Landfill Complex
Quantico Creek
Prince William Forest Park
South Fork Quantico Creek
Montclair Country Club
Forest Greens Golf Course
Quantico Marine Corps Base
ANDERSON AVE
CATLIN AVE
15C
16D
16E
16F
16G
14A
15A
15B
11A
14B
12B
13
10A
10C
11B
11C
9A
10B
6C
9B
9D
6B
8B
9C
7A
7B
8A
5A
5B
5C
7C
4
2
3
0 1 2 4 Miles
Legend
Larson Gym - Mainside
Ammuntion Supply Point (ASP) Site - Westside
Motor T Site - Mainside
Road
Motor T Site, Option #2
WTBN Site - Westside
Intermittent Stream
Training Area/Boundary

Figure 2.1.1


COCO Alternative B - Larson Gym
N
LOOP 3 TRAIL
BAUER RD
UNNAMED
D2
CUNNINGHAM RD
TIMBERMILL AVE
DAM RD
FLEMING AVE
SEDRO AVE
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
0 0.0375 0.075 0.15 Miles
Legend
Larson Gym - Mainside
Perennial Stream
Boundary

Figure 2.1.2

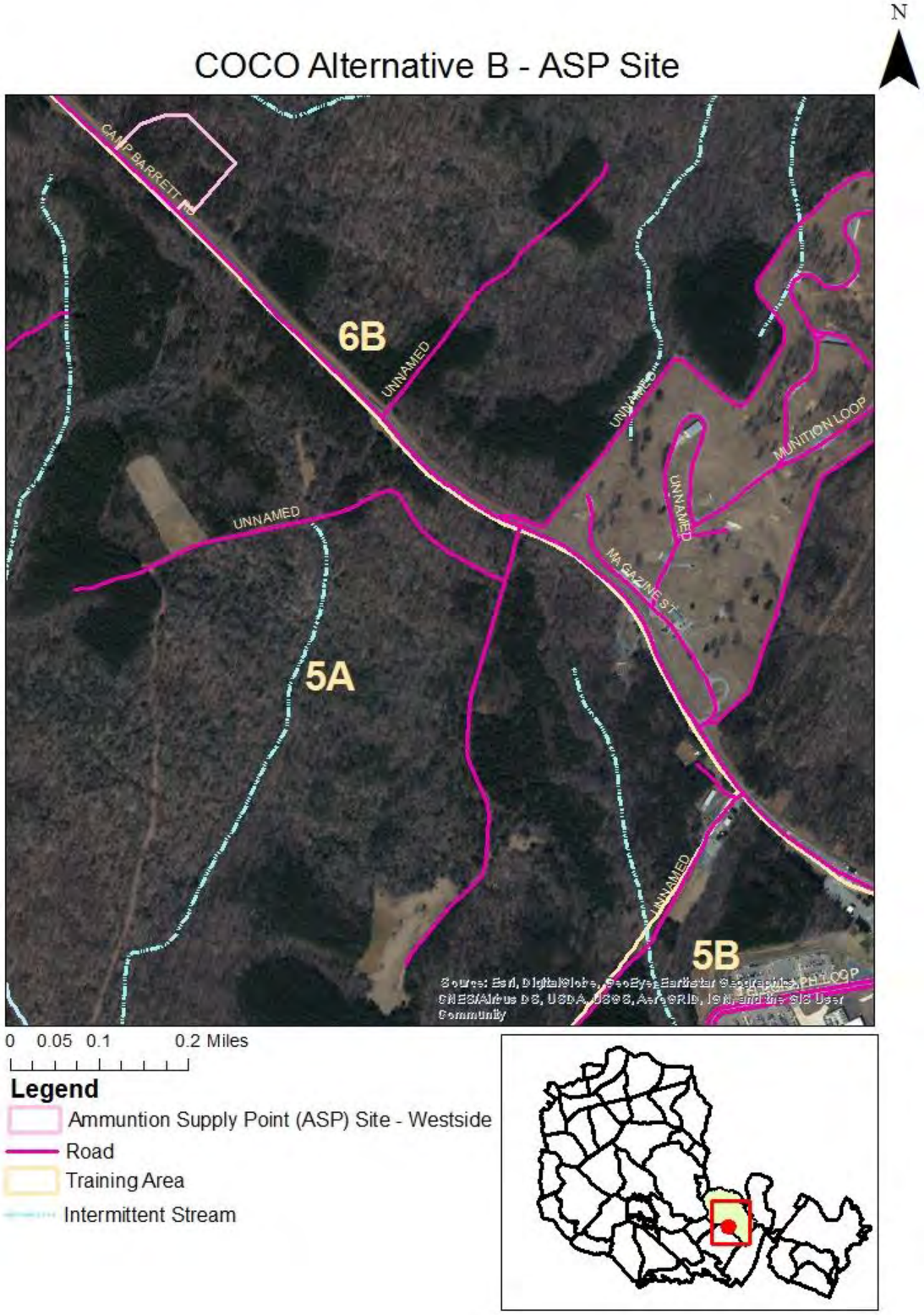

COCO Alternative B - ASP Site
N
CAMP BARRETT RD
6B
UNNAMED
UNNAMED
MUNITION LOOP
UNNAMED
UNNAMED
MAGAZINE ST
5A
UNNAMED
5B
0 0.05 0.1 0.2 Miles
Legend
Ammuntion Supply Point (ASP) Site - Westside
Road
Training Area
Intermittent Stream

Figure 2.1.3


N
COCO Alternative C - Motor T Site.
MCCARD RD
ANDERSON AVE
CANNON ST
UNNAMED
BARNETT AVE
CATLIN AVE
UNNAMED
ZEILIN RD
MEYERS AVE
UNNAMED
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
0 0.0275 0.055 0.11 Miles
Legend
Motor T Site - Mainside

Figure 2.1.4


N
COCO Alternative D - Motor T Site, Option #2 (Approximation - CNG Station Won't Be Included)
MCCARD RD
ANDERSON AVE
CANNON ST
UNNAMED
BARNETT AVE
UNNAMED
CATLIN AVE
ZEILIN RD
MEYERS AVE
UNNAMED
0 0.0275 0.055 0.11 Miles
Legend
Motor T Site - Mainside
Motor T Site, Option #2

Figure 2.1.5

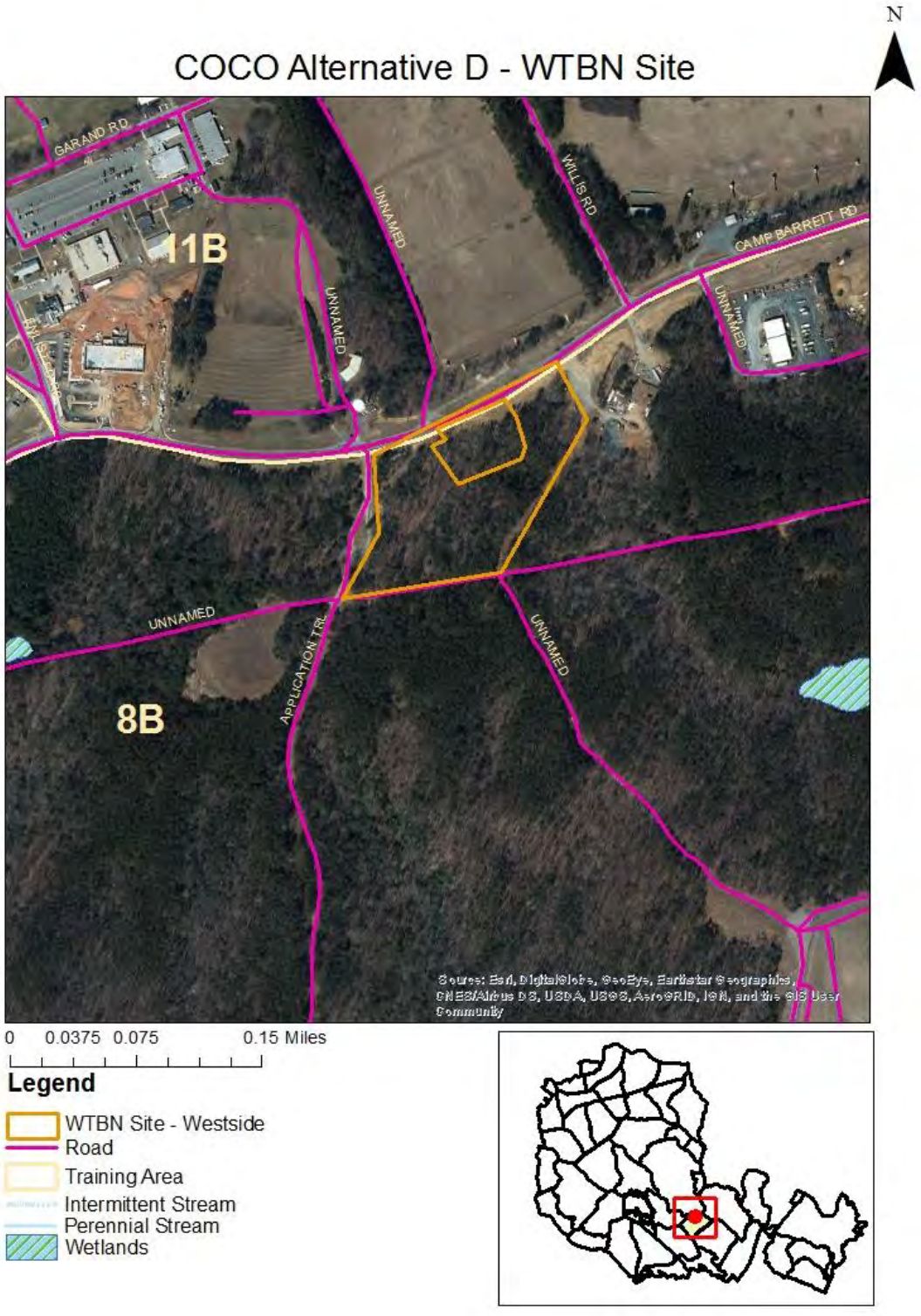

COCO Alternative D - WTBN Site
N
GARAND RD
11B
UNNAMED
WILLIS RD
CAMP BARRETT RD
UNNAMED
UNNAMED
UNNAMED
8B
APPLICATION TR
UNNAMED
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
0 0.0375 0.075 0.15 Miles
Legend
WTBN Site - Westside
Road
Training Area
Intermittent Stream
Perennial Stream
Wetlands

Figure 2.1.6

3.0 EXISTING ENVIRONMENTAL CONDITIONS

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.

The Larson Gymnasium and Motor T sites under consideration for this proposal are located within the Mainside of MCBQ. The WTBN site is located on MCB-4 across from the WTBN, in Training Area 8B, and borders Application Trail to the west. The ASP site is located on the Westside of MCBQ along Camp Barrett Road/MCB-1 in Training Area 6B. The Larson Gymnasium site, the site near the ASP, and the WTBN site are located within Stafford County, Virginia. The Motor T site is located within Prince William County, Virginia. The existing environmental conditions described in this section are different for all four locations.

3.1 Land Use

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 Larson's Gymnasium site is currently consists of a former gymnasium and a parking lot. The site is located on Bauer Rd. at the confluences of Chopawamsic Creek and the Potomac River. The Motor T Facility is a fuel facility located near the intersection of Catlin and McCawley Avenues at MCBQ. The Motor T Fuel Site currently consists of:

- Four 10,000 gallon ASTs consisting of gasoline, diesel, bio-diesel and E-85 fuels.
- Six 60,000 gallon propane tanks.
- A vehicle washrack.
- Parking facilities.

The surrounding land-uses are primarily administrative in nature. The site near the ASP is a forested location on MCB-1 and is located not far from the Hotpatch Rd. as well as a dining facility. The site is located in Training Area 6B. The WTBN site is a forested site that is bounded by Application Trail to the west and has a vehicle maintenance facility directly to the East. The proposed site footprint is directly across from Range 4 at the WTBN in Training Area 8B.

3.1.1 Geology

The proposed action would occur within both the Mainside and Westside portions 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.

3.1.2 Soils

The soils found in the Coastal Plain are the result of the soil formation on the underlying sediments. The proposed Larson Gym and Motor T site locations are significantly disturbed and are referred to as Cut and Fill land (Cw).

3.1.2.1 Soils on the ASP site.

The soil types located at the proposed ASP site include the Bertie Very Fine Sandy Loam (Bf). These soils are associated with marine terraces and have 0-3 percent slopes. The soil consists of very-fine sandy loam, sandy clay loam, and loamy fine sand depending on the depth. These soils are moderately well-drained. These soils have very low potential to create excess runoff. They are approximately 18-30 inches from the water table. These soils comprise the far northeastern portion of the proposed ASP site location.

The Caroline Fine Sandy Loam (Cb) occurs on the southern and western portions or the site footprint. These soils are associated with marine terraces as well and have 2-6% slopes. These soils consist of fine sandy loam, clay and clay loam deposits depending on depth. These soils are well-drained and have low potential to create excess runoff. These soils usually occur at a depth 42-60 inches from the water table.

The Caroline Fine Sandy Loam (Cf) series occurs in the central portion of the site footprint. These soils are also associated with marine terraces and have 6-12% slopes. Depending on depth, these soils consist of fine sandy loam, clay, and clay loam. These soils are well-drained and have low potential to create

excess runoff. These soils are between 42-60 inches from the water table.

3.1.2.2 Soils on the WTBN site.

The soil types that comprise the proposed ASP site include the Aura Gravelly Fine Sandy Loam 2-6% slope (AvP). This is the dominant soil type of the footprint and occurs over the central and western portions of the footprint. These soils are associated with marine terraces, have 2-6% slopes and consist of gravelly fine sandy loam, gravelly sandy clay loam, and gravelly sandy loam. These soils are very well-drained and have low potential to create runoff. It is more than 80 inches from the water table.

The Aura Gravelly Fine Sandy Loam 6-10% slope (AvC2) is prominent on the Eastern portion of the footprint. It differentiates from the AvP because it is characterized by a more steeply sloped terrain and some erosion. The soil is characterized by marine terraces, consists of a gravelly fine sandy loam, gravelly clay loam and gravelly sandy loam. These soils are also very well-drained and have a low potential to create runoff. The depth to the water table is greater than 80 inches.

The Bertie Very Fine Sandy Loam (BaA), 0-3 % slopes occurs in very small amounts on the eastern portion of the footprint. It is commonly associated with marine terraces, consists of very fine sandy loam, clay loam and loamy fine sand. The soils are moderately well- drained and have a low potential for runoff. This soil type is also more than 80 inches from the water table. The remained of the footprint consists of Cw.

3.1.3 Topography

3.1.3.1 Topography of Larson Gymnasium Site.

The terrain of the proposed construction location for the COCO fuel facility project area at the Larson Gymnasium site consists of a disturbed, man-made landscape with a low gradient near the confluences of Chopawamsic Creek and the Potomac River. The elevation does not change moving north to south. The elevation decreases gradually from 30 ft. to 10 ft. moving towards Chopawamsic Creek and the Potomac River (See Figure 3.1.1).

3.1.3.2 Topography of Motor T Site.

The terrain of the proposed construction location for the COCO fuel facility project area at the Motor T Site consists of a disturbed, man-made landscape with a low gradient. The elevation does not change moving north to south. The elevation increases gradually from 40 ft. to 50 ft. moving east to west and forms a much steeper gradient immediately off of the site (See Figure 3.1.2).

3.1.3.3 Topography of the ASP site location.

The terrain of the proposed construction location for the COCO fuel facility project consists of a forested location with mostly deciduous vegetation with a low gradient. An intermittent stream lies just to the northeast of the site. The elevation does not change significantly moving east to west but gradually decreases moving southeast to northeast from 280 ft. to 250 ft. towards the intermittent stream (See Figure 3.1.3).

3.1.3.3 Topography of the WTBN site location.

The terrain of the proposed COCO fuel station at the WTBN site consists of forested vegetation with a low gradient. The elevation increases as on moves from east to west from 330 ft. to over 340 ft. moving north to south, the terrain gradually decreases. A topographical profile of the site is illustrated in Figure 3.1.4.


COCO Alternative B - Larson Gym - Topographical Profile
N
BAER RD
UNNAMED
FLEMING ST
S ELROD AVE
0 0.0275 0.055 0.11 Miles
Legend
Larson Gym - Mainside
Perennial Stream
Boundary
Contour Lines - 10 ft. Intervals

Figure 3.1.1


N
COCO Alternative C - Motor T Site. - Topographical Profile
110
120
100
90
80
70
60
UNNAMED
ANDERSON AVE
CATLIN AVE
UNNAMED
UNNAMED
UNNAMED
0 0.0175 0.035 0.07 Miles
Legend
Motor T Site - Mainside
Contour Lines -10 ft. Intervals

Figure 3.1.2

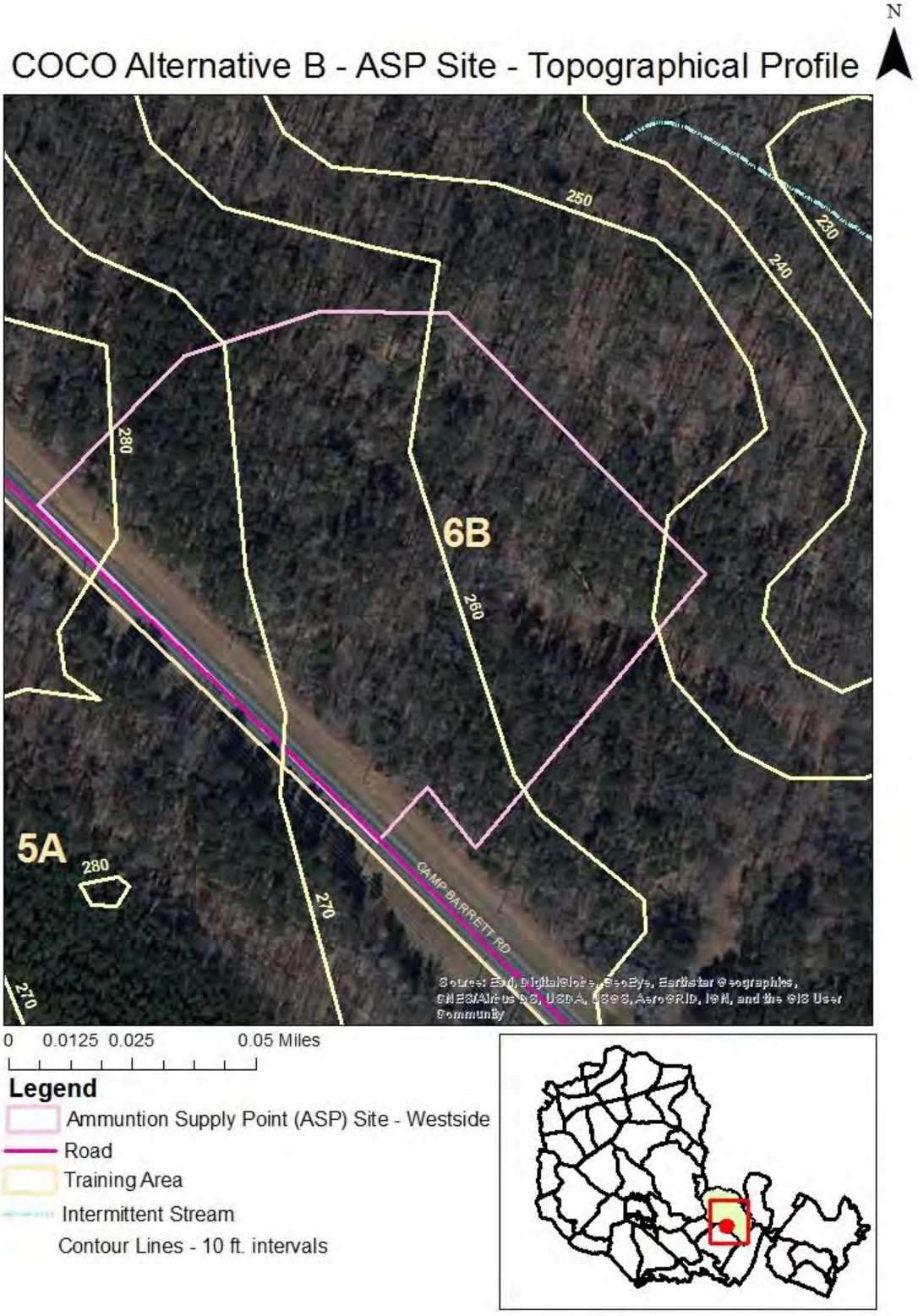

COCO Alternative B - ASP Site - Topographical Profile
N
250
240
230
280
6B
260
5A
280
270
270
CAMP BARRETT RD
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
0 0.0125 0.025 0.05 Miles
Legend
Ammuntion Supply Point (ASP) Site - Westside
Road
Training Area
Intermittent Stream
Contour Lines - 10 ft. intervals

Figure 3.1.3

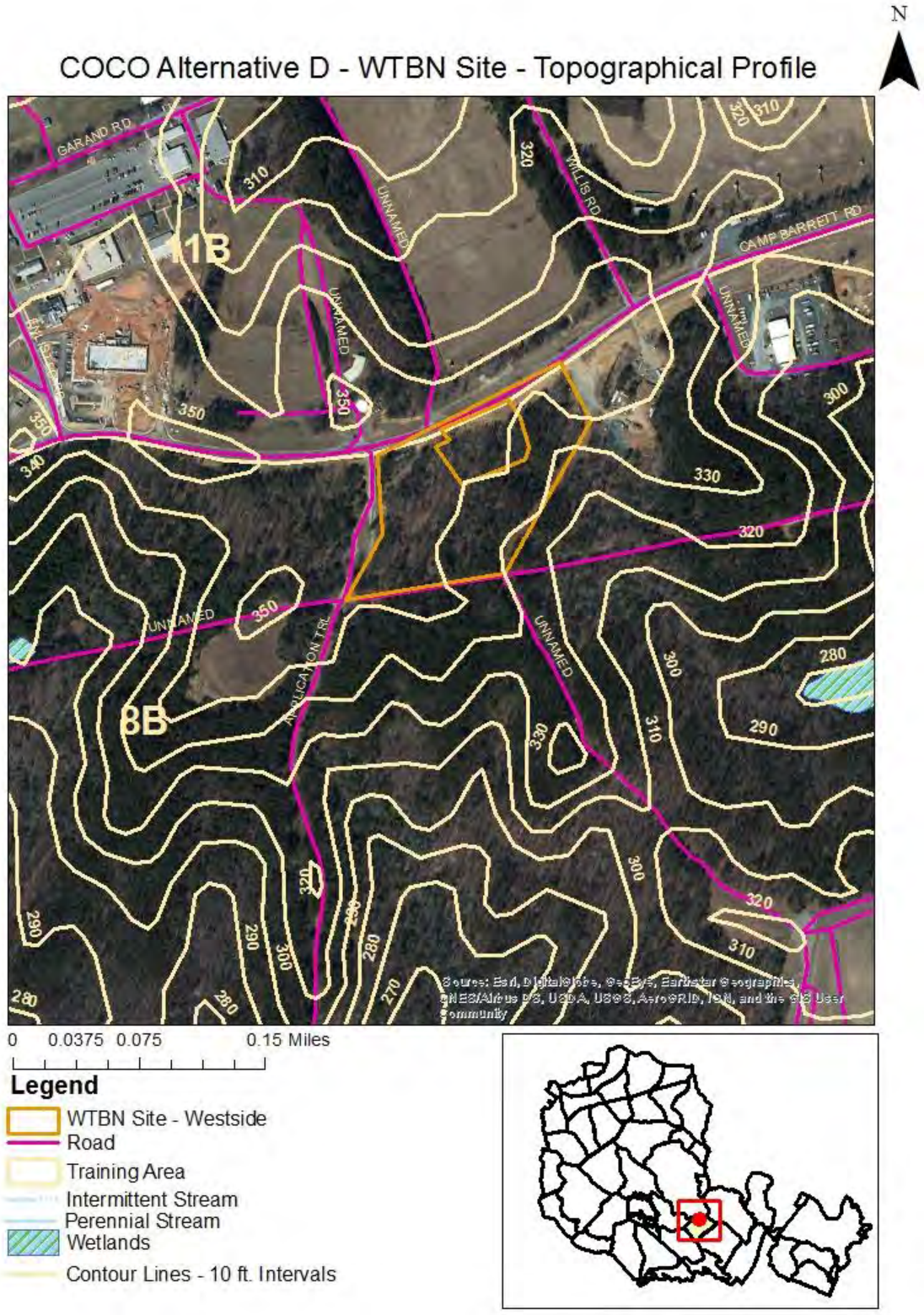

COCO Alternative D - WTBN Site - Topographical Profile
N
GARAND RD
WILLIS RD
CAMP BARRETT RD
UNNAMED
1B
8B
APPLICATION TR
0 0.0375 0.075 0.15 Miles
Legend
WTBN Site - Westside
Road
Training Area
Intermittent Stream
Perennial Stream
Wetlands
Contour Lines - 10 ft. Intervals

Figure 3.1.4

3.2 Water Resources

Due to the rugged upper Coastal Plain topography and proximity to various water bodies, activities conducted on the base could potentially affect the water resources of the area.

Activities in surface waters (including streams) and wetlands are regulated under numerous federal laws, regulations, and policies are evaluated 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.

3.2.1 Surface Waters

None of the four proposed action locations has surface water with their boundaries. However, two of the four proposed action locations do have surface water bodies within the general vicinity. The Larson Gymnasium site is located near the confluences of Chopawamsic Creek and the Potomac River (See Figure 2.1.2). The proposed site location near the ASP on the Westside has an intermittent stream that occurs to the northeast of the project footprint. Neither the WTBN or Motor T sites have a surface water body within or near its footprint.

3.2.2 Wetlands

Any actual or potential wetlands located on any of the four sites were identified using Geographical Information Systems (GIS) data provided by the National Wetlands Inventory (NWI). According to the NWI data, there are no actual or potential wetlands located in any of the four proposed action locations.

3.2.3 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.

3.2.3.1 Larson Gymnasium Site Flood Risk.

The area of the proposed site at Larson Gym is depicted on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) number 51179CO156F panel 156 of 280. The FIRM shows the proposed Larson Gym site outside of Flood Zone (VE) which is an area outside of the 100-year floodplain. The FIRM is in Figure 3.2.1

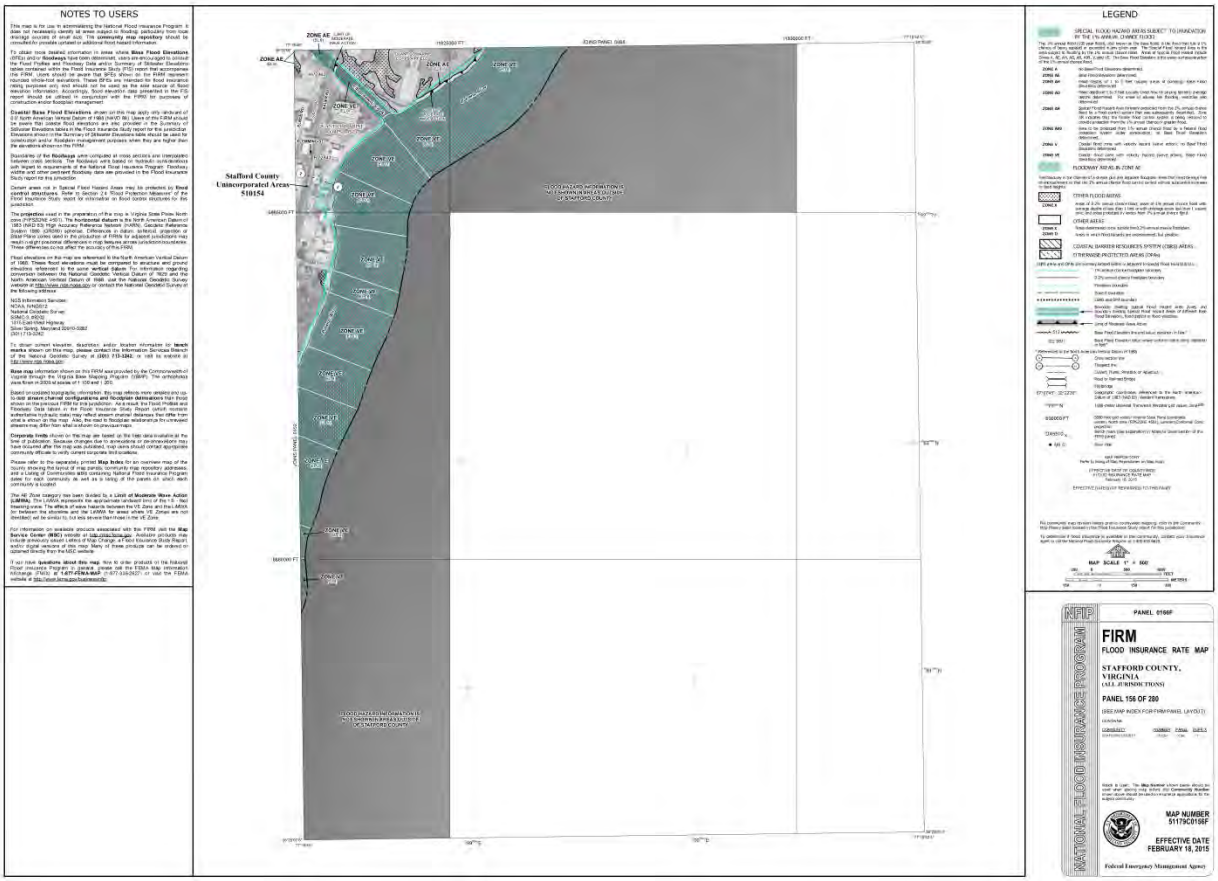


Figure 3.2.1

3.2.3.2 Proposed Motor T Site Flood Risk

The area of the proposed site at the Motor T location is depicted on the Federal Emergency Management Agency's (FEMA)

Flood Insurance Rate Map (FIRM) number 5115CO318E panel 318 of 328. The FIRM shows the proposed Motor T site outside of Flood Zone (AE) which is an area outside of the 100-year floodplain. The FIRM is in Figure 3.2.2

Figure 3.2.2

3.2.3.3 Proposed ASP Site Location Flood Risk

The area of the proposed site west of the ASP is depicted on the Federal Emergency Management Agency's (FEMA) Flood Insurance

Rate Map (FIRM) number 5115CO318E panel 45 of 280. The FIRM shows the proposed ASP site location outside of Flood Zone (A) which is an area outside of the 100-year floodplain. The FIRM is in Figure 3.2.3.

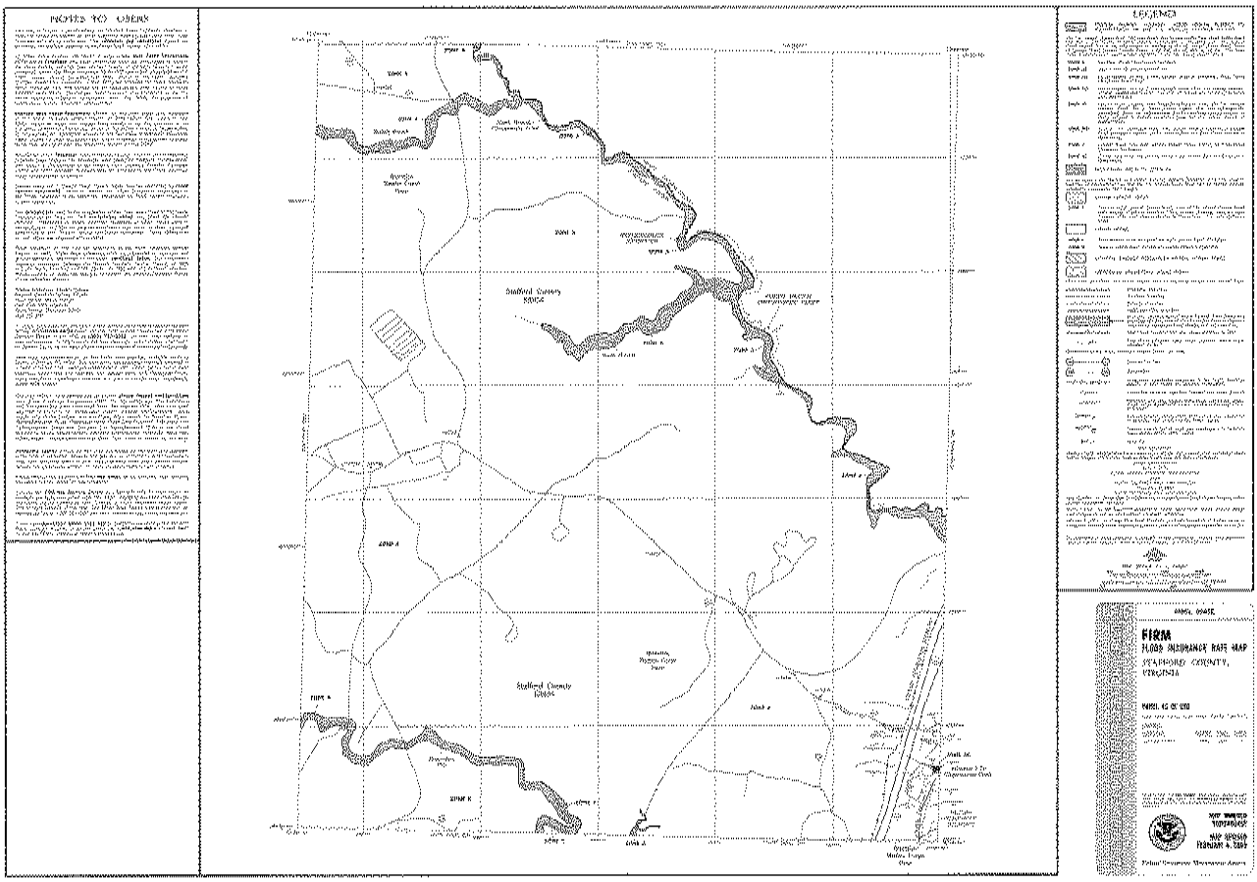


Figure 3.2.3

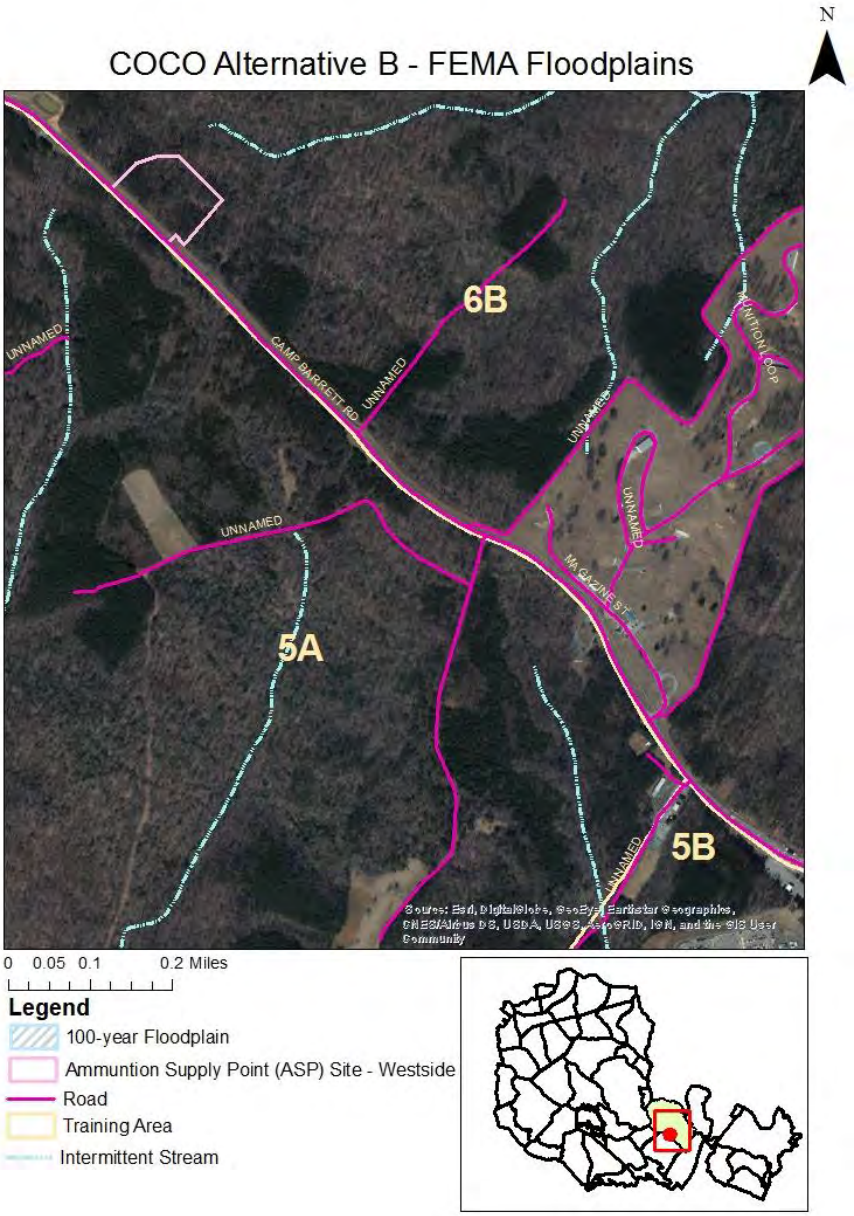


Figure 3.2.3

3.2.3.4 Proposed WTBN Site Location Flood Risk

The area of the proposed site west of the ASP is depicted on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) number 5101540045E panel 45 of 280. The FIRM shows the proposed WTBN site location outside of Flood Zone (A) which is an area outside of the 100-year floodplain. The FIRM is in Figure 3.2.4.

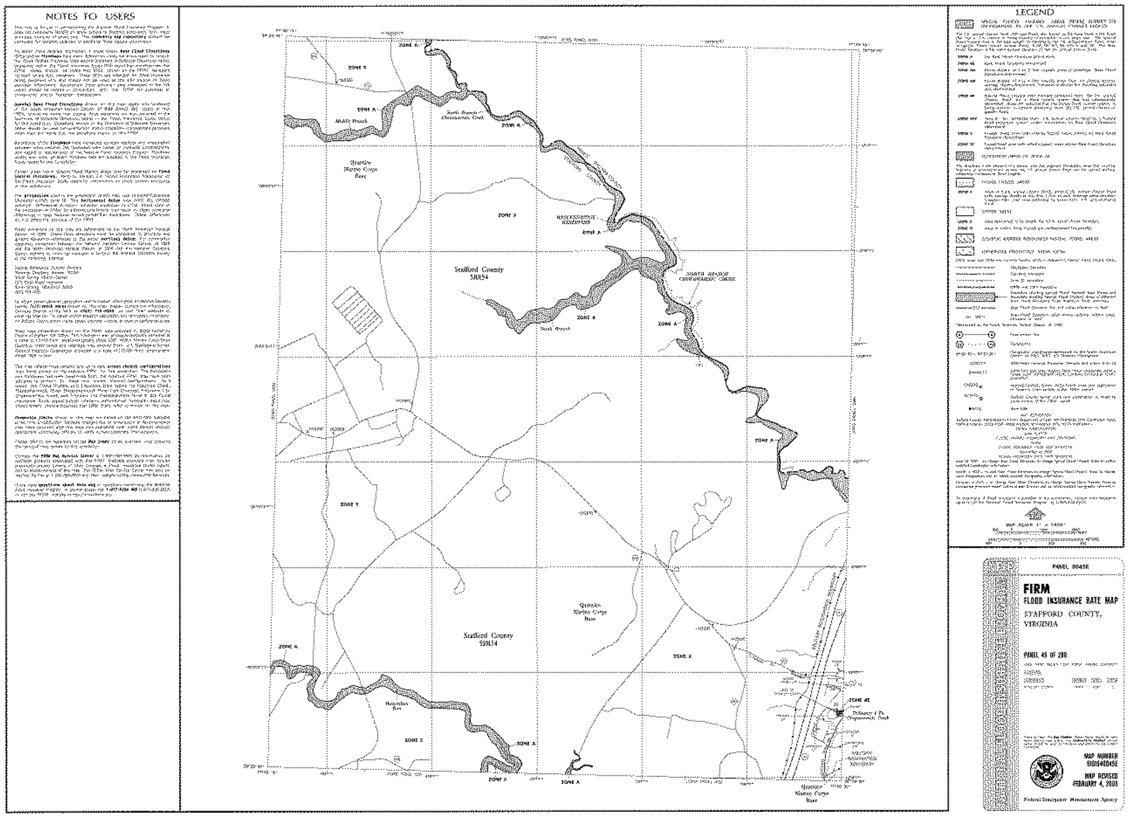

NOTES TO USERS
LEGEND
Stafford County
510154
FIRM
FLOOD INSURANCE RATE MAP
STAFFORD COUNTY,
VIRGINIA
Federal Emergency Management Agency

Figure 3.2.4

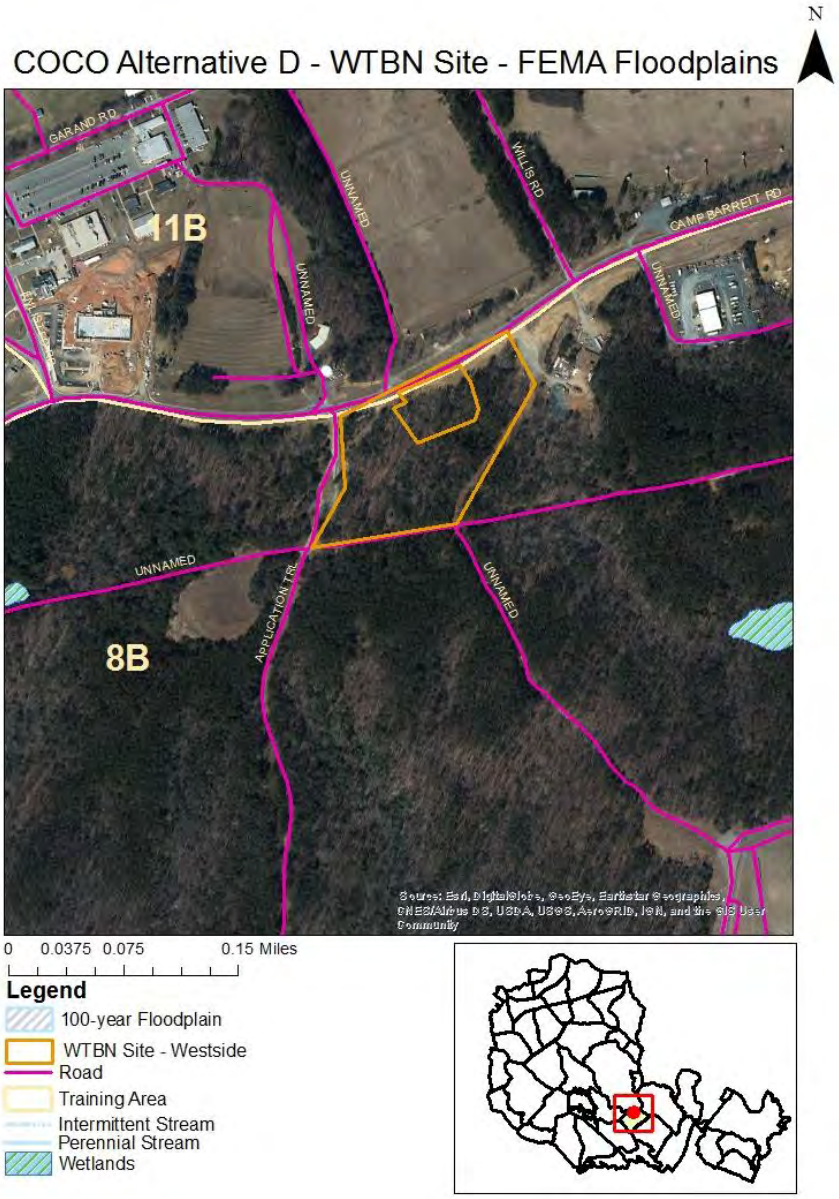


Figure 3.2.4

3.2.4 Groundwater

The Potomac Aquifer extends from New Jersey in the north, to North Carolina in the south, and eastward under the Chesapeake Bay. 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.

3.2.5 Coastal Zone Management Act

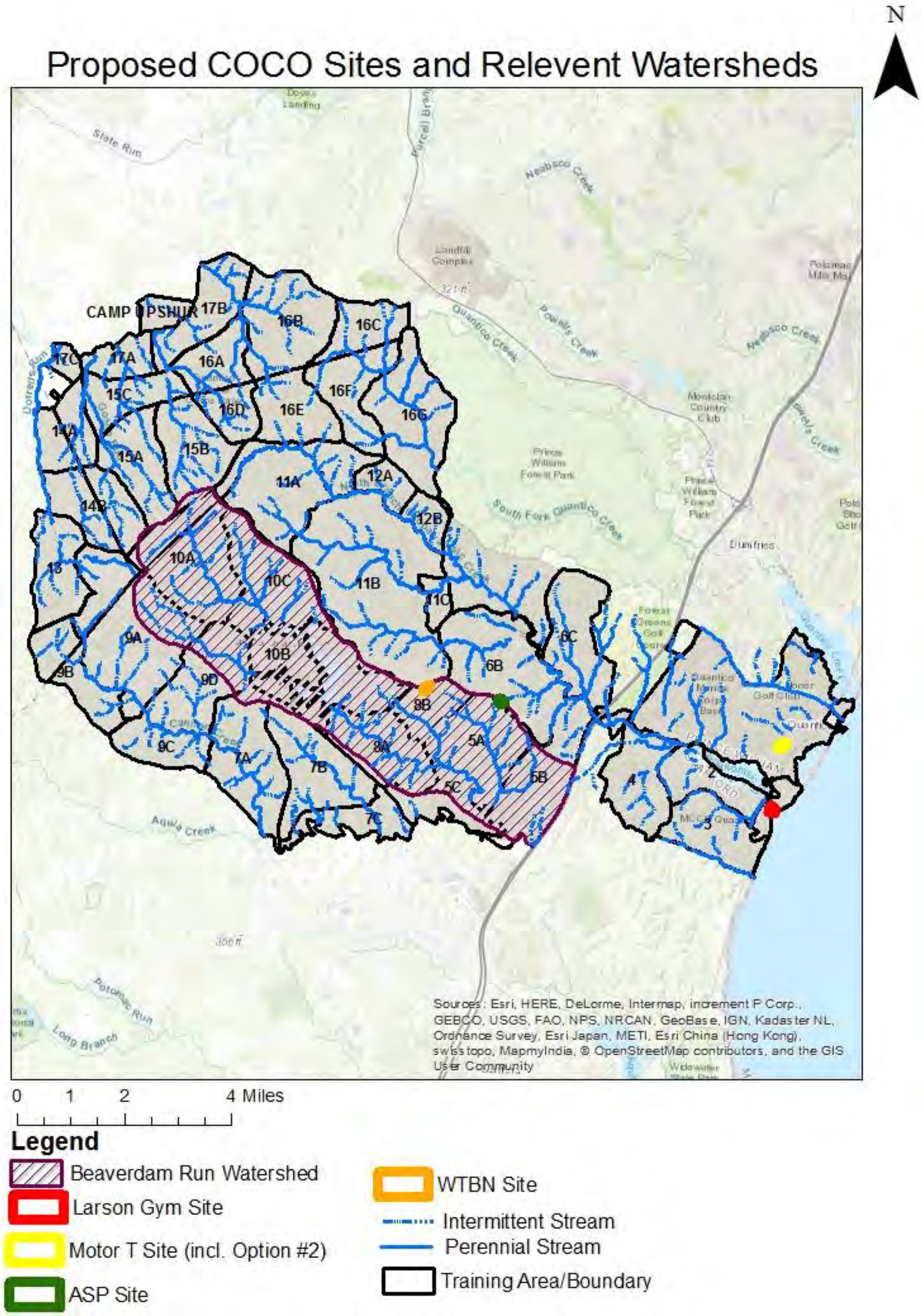
The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. §1451, et seq., as amended) provides guidance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. The CZMA states that "the boundary of a State's coastal zone must exclude lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the Federal Government, its officers, or agents" [16 U.S.C. §1453 (1)]. According to this statute, MCBQ is not within Virginia's coastal zone.

The CZMA 16 U.S.C. §1456 (Section 307) covers coordination and cooperation issues. Section 307 mandates that federal projects that affect land uses, water uses, or other coastal resources of a state's coastal zone must be consistent to the maximum extent practicable with the enforceable policies of that state's federally-approved coastal management plan. If a proposed federal project or activity affects coastal resources or uses beyond the boundaries of the federal property, Section 307 of the CZMA applies.

The Commonwealth of Virginia has developed and implemented a federally-approved coastal resources management program (CRMP) describing current coastal legislation and enforceable policies. The Virginia CRMP has nine enforceable policies which include: Wetlands management, fisheries management, subaqueous lands management, dune management, non-point source pollution control, point source pollution control, shoreline sanitation, air pollution control, and coastal lands management.

3.2.6 Stormwater

The Motor T, ASP and Larson Gymnasium sites all lie within the Chopawamsic Creek Watershed. The WTBN site lies within the Beaverdam Run Watershed. The Beaverdam Run Watershed occupies a total of 12,083 acres and occurs near the south-central portion of the base (See Figure 3.2.5). The Chopawamsic Creek Watershed occupies a total of 20,461 acres (See Figure 3.2.6). The Chopawamsic Creek Watershed and the Beaverdam Run Watershed are part of the Potomac River Watershed which occupies a total of 9,388,800 acres across the states of Maryland, Pennsylvania, Virginia and West Virginia (See Figure 3.2.7).


Proposed COCO Sites and Relevent Watersheds
N
CAMP UPSHUR
17A
17B
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16A
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7C
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6C
5A
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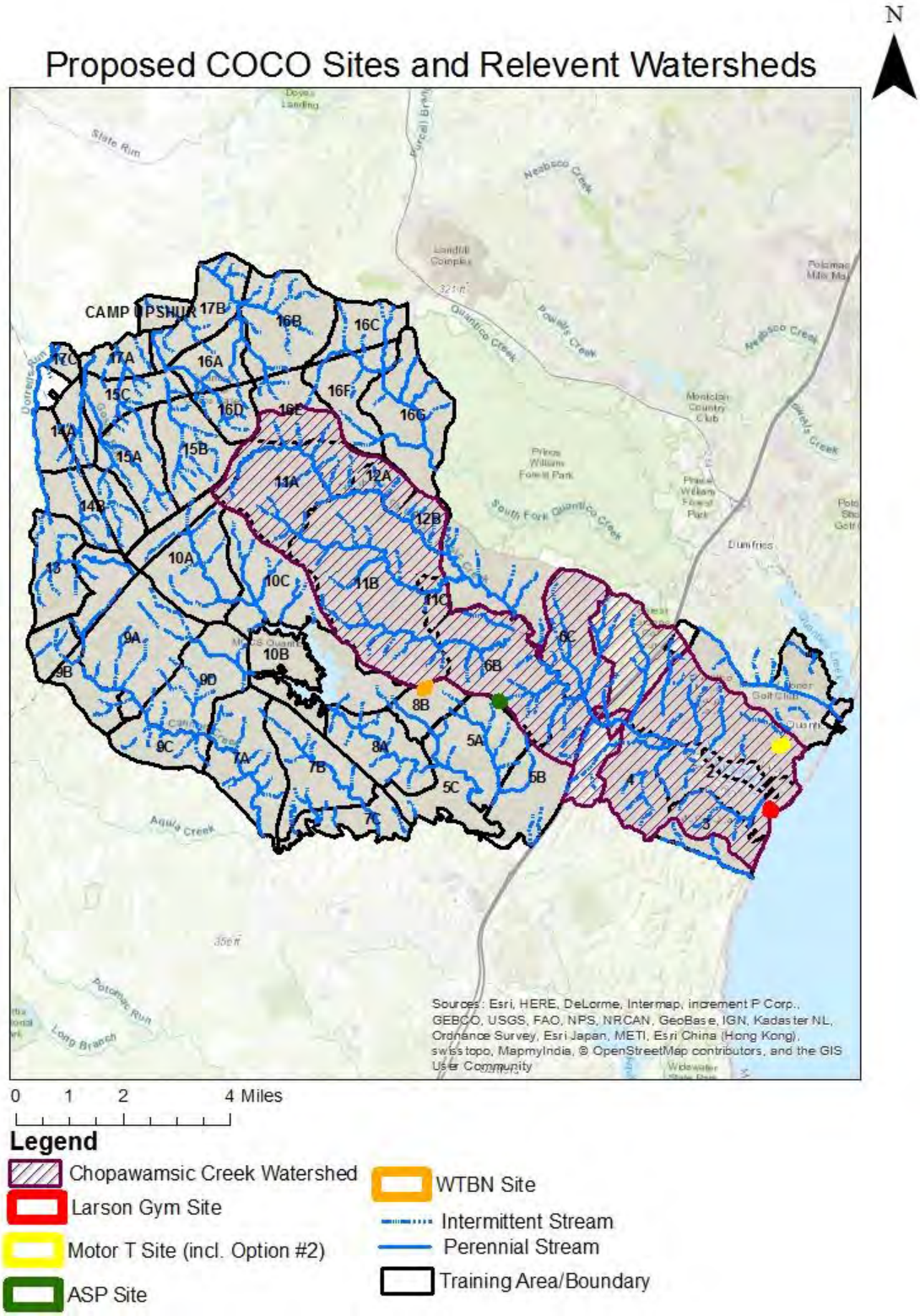
5C
4
3
2
Slate Run
Neabsco Creek
Quantico Creek
Powells Creek
South Fork Quantico Creek
Aquia Creek
Potomac Run
Long Branch
Dumfries
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
0
1
2
4 Miles
Legend
Beaverdam Run Watershed
Larson Gym Site
Motor T Site (incl. Option #2)
ASP Site
WTBN Site
Intermittent Stream
Perennial Stream
Training Area/Boundary

Figure 3.2.5


Proposed COCO Sites and Relevent Watersheds
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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
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Chopawamsic Creek Watershed
Larson Gym Site
Motor T Site (incl. Option #2)
ASP Site
WTBN Site
Intermittent Stream
Perennial Stream
Training Area/Boundary

Figure 3.2.6

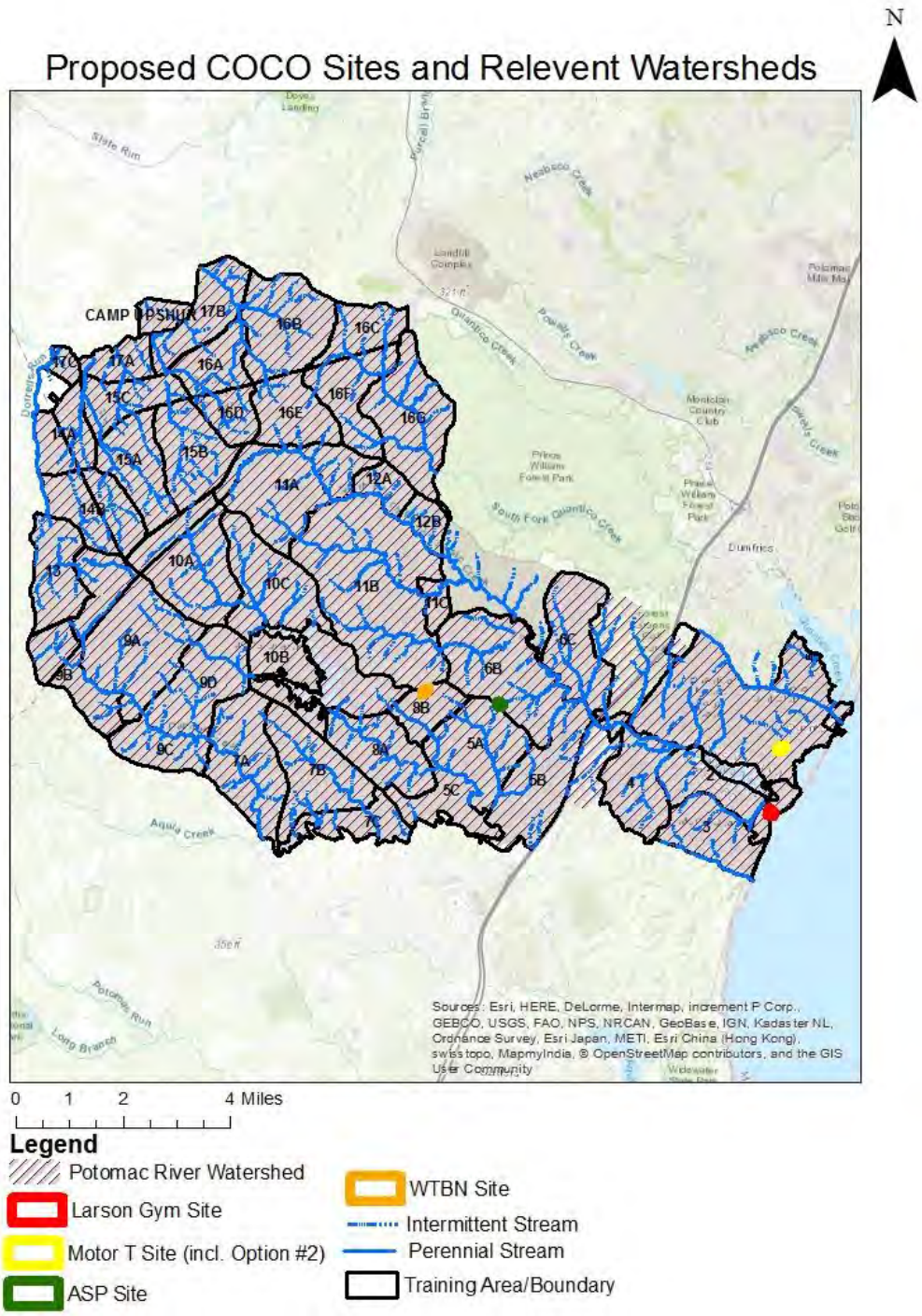

Figure 3.2.7

3.3 Biological Resources

3.3.1 Vegetation

Neither the Larson Gymnasium site nor the Motor T site has any significant types of vegetation as both the sites have been previously developed. The two proposed Westside locations, the WTBN site and ASP site, consist of almost entirely deciduous trees. These locations could potentially provide habitat for a variety of mammals, birds, amphibians and insects. The vegetation located on the ASP site and WTBN site is summarized in Figure 3.2.8 and 3.2.9 below.

Figure 3.2.8

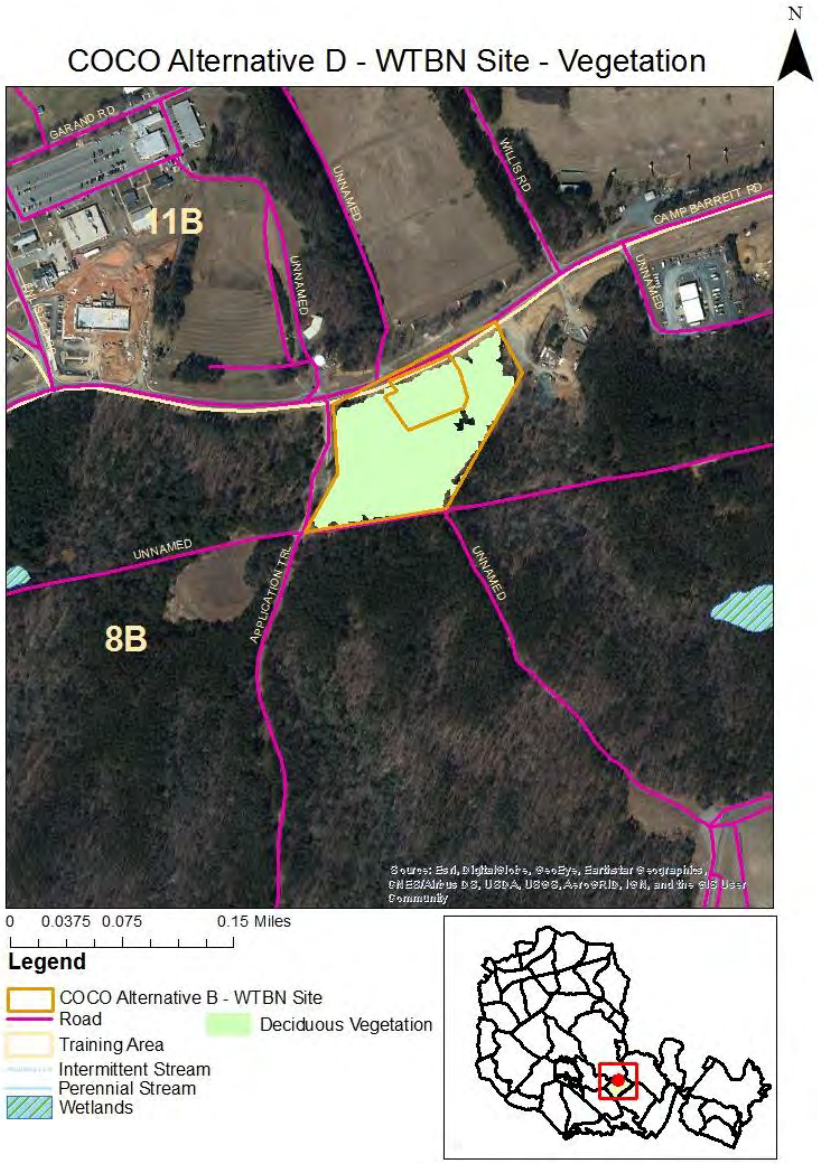

Figure 3.2.9

3.3.2 Wildlife

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.

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. Habitat that would be considered critical to the natural history and/or life cycle of migratory birds is not located within the proposed development areas of Alternatives B, C or D.

Bald eagles, which are protected under the MBTA, are discussed within the threatened and endangered species/species of concern portion (3.3.3) of this EA.

3.3.3 Threatened and Endangered Species

The Endangered Species Act (ESA), 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.

Two plant species on MCBQ are federally-listed as threatened or endangered species. These include Harperella (*Ptilimnium nodosum*) and 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 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.

Two animal species found on portions of MCBQ are federally-listed as endangered. They are the dwarf wedge mussel (*Alasmidonta heterodon*) and the Indiana bat (*Myotis sodalist*).

The dwarf wedge mussel is a small bivalve that lives in freshwater streams and requires highly oxygenated and silt-free waters.

The Indiana bat can be found over most of the eastern half of the United States. 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.

The newly-listed rusty-patched bumblebee (*Bombus affinus*) historically nests on occupied grasslands and tallgrass prairies. The bee has been reported in 13 states across the eastern half and upper Midwest of the United States, including Virginia.

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). According to information obtained from the 2015 Bat Survey at U.S. Marine Corps Base, Quantico, Virginia, both the Indiana bat and the NLEB were detected on base, but none were detected at or near any of the three proposed action locations.

The little brown bat (*Myotis lucigus*) and the tricolored bat (*Perymyotis subflavus*) are listed as state-endangered. Both species were detected on base during 2016.

The bald eagle, *Haliaeetus leucocephalus*, was removed from the Federal List of Endangered and Threatened Wildlife and Plants in 2007 due to population recovery. The bald eagle is still afforded federal protection under the MBTA (see Section 3.3.2) and the Bald and Golden Eagle Protection Act (BGEPA) of 1940, as amended (16 U.S.C. §668-668d, 54 Stat. 250), and is listed as a species of concern in the USFWS Birds of Conservation Concern,

2008. The BGEPA requires a buffer of 660 feet around a nesting site. No Bald Eagle nesting sites have been observed at or near any of the four proposed action locations.

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.

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.

3.4 Cultural Resources

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.

Architectural historians with the U.S. Army Construction Engineering Research Laboratory (USCERL) conducted a survey of Quantico buildings between 1992 and 1994 (USCERL 1994). They identified significant historic buildings and landscapes on the base. Seven themes forming the historic context for the subsequently nominated NRHP Quantico Marine Corps Base Historic District (QMCBHD) include: First Permanent Construction, Aviation, Education, Industrial, Naval Clinic, African American Barracks, and Lustron Housing.

3.4.1 Cultural Resources at the Larson Gymnasium Site.

The Larson Gymnasium building was constructed in 1942 and was initially utilized as an aviation maintenance facility before being converted to a gymnasium in 1953. It is currently located within the MCBQ Historical District. The adverse effects for the demolition of this building were evaluated under Sec. 106 of the NHPA within the EA for the Demolition of Larson Gymnasium and Buildings 2130; 2013 November. If the former Larson Gymnasium site is chosen as the new COCO site, construction would not occur until demolition has been completed.

3.4.2 Cultural Resources at the Motor T Site.

The Motor-T site is located outside the QMCBHD, and the location is not eligible for listing of any type under the NHPA.

3.4.3 Cultural Resources at the ASP Site Location.

The area including the ASP site was surveyed, and there is an archeological site that is near the proposed action footprint. However, that site is ineligible for listing under the NHPA and the National Register of Historic Places (NRHP).

3.4.4 Cultural Resources at the WTBN Site Location.

The WTBN site and the locations around it have been surveyed. There are no sites eligible for listing under the NHPA and NRHP.

3.5 Air Quality

National Ambient Air Quality Standards

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 (SO_2), 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 nonattainment areas. The location of the proposed action is within the Metropolitan Washington (DC) Region that has been designated as a moderate non-attainment area for the 8-hour ozone NAAQS and a general non-attainment for $PM_{2.5}$. NO_X and volatile organic compounds (VOCs) are precursors to ozone formation and are regulated to control ozone pollution.

General Conformity

To ensure that actions taken by federal agencies in a nonattainment 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.

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.

Cutback asphalt is prohibited except when stockpile storage greater than one month is necessary, when used or applied during the months of November through March, or when used or applied as a penetrating prime or tack coat, as per 9 VAC 5-45, Article 7 of VDEQ's air pollution regulations.

Traffic making is limited to 150 grams/Liter of VOC per 9 VAC 5-45, Article 5: Emission Standards for Architectural and Industrial Maintenance Coatings. Building coatings must conform to Table 45-5A in the same rule. Additionally, adhesives and sealants must conform to the limits in Table 45-6A in 9 VAC 5-45, Article 6.

New Source Review Permitting

New Source Review (NSR) is a federally mandated program, implemented by the States, that requires construction or modification of regulated stationary sources undergo a preconstruction permitting process. NSR is used to define what equipment may be installed, pollution controls that may be required, operating parameters, and notification, recordkeeping, and reporting requirements.

The stringency of an NSR permit depends on the size of the stationary source and the region in which it is located. Permitting programs exist for both major and minor sources located in NAAQS attainment or nonattainment areas.

- Minor New Source Review (Minor NSR). Minor NSR permits are required when a source does not meet the definition of a major source, but is large enough to interfere with a state's plan for attaining or maintaining the NAAQS. Minor NSR permits may also be used to limit emissions from a

project that would otherwise be subject to major source permitting.

- Prevention of Significant Deterioration (PSD). PSD permits are issued for new major sources of air pollution or major modifications to existing major sources of air pollution in a NAAQS *attainment* area. PSD permits require application of Best Available Control Technology (BACT), dispersion modeling, and public notification and comment periods.

- Nonattainment New Source Review (N-A NSR). N-A NSR permits are issued for new major sources of air pollution or major modifications to existing major sources of air pollution in a NAAQS *nonattainment* area. N-A NSR requires application of Lowest Achievable Emissions Rate (LAER) and public notification and comment periods. In addition, facilities are required to offset the potential increase in emissions with a greater reduction in actual emissions elsewhere in the region to ensure improvement of the local air quality.

A case-by-case review of each new stationary source or modification is required to determine which permitting program is applicable. Generally, NO_X from fuel combustion is the limiting pollutant at MCBQ. Since MCBQ is a major source of NO_X pollution in an ozone nonattainment area, any project that has a potential to emit (PTE) greater than 40 tpy of NO_X will be subject to N-A NSR permitting. A project with a PTE greater than 10 tpy but less than 40 tpy of NO_X will be subject to Minor NSR permitting. Projects with a PTE less than 10 tpy of NO_X are typically exempt from preconstruction permitting requirements (however, they may still be considered significant equipment in a Title V operating permit).

Title V Permitting

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 nonattainment 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 would occur entirely within Prince William County, which is an ozone attainment area.

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.

3.5.1 Climate Change

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 atmospheric compounds that contribute to the greenhouse effect. GHGs include CO_2, CH_4, and N_2O, and fluorinated gases. The greenhouse effect is a natural phenomenon that causes heat to be trapped within the lowest portion of the earth's atmosphere creating 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).

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 (CO_2e) 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 CO_2e 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 CO_2e 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 2014, base-wide CO_2e emissions from stationary fuel combustion equipment totaled 15,863 tons.

GHG Permitting

The NSR and Title V permitting programs apply to GHGs if a facility is subject to those programs for other pollutants. While traditional permitting thresholds for NSR and Title V 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 CO_2e or more, and the Title V threshold for GHGs is 100,000 TPY of CO_2e or more. If GHG emissions are included in any NSR permit issued to MCBQ, then BACT and other NSR requirements will apply and be reflected in the MCBQ Title V permit.

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 CO_2e or more.

3.6 Noise

Noise, often defined as unwanted sound, is one of the most common environmental issues associated with military installations. The major sources of noise at MCBQ include aircraft, artillery, small arms, explosives, vehicles, heavy equipment, and machinery.

Existing noise levels in the project area are primarily from the Marine Corps Air Facility (MCAF), which is in the area of the Motor T and Larson Gymnasium sites for the Mainside Alternatives. Other noise contributions come from temporary construction activities, but these are usually minor. Ordnance used in live and simulated fire exercises is generally conducted at ranges on the Westside of the base. The proposed COCO site near the ASP is approximately 0.5 mile from Charlie Demolition (C-Demo) Range and the proposed COCO site near the WTBN is roughly 1 mile from C-Demo Range. The WTBN site is across MCB-4 from the WTBN and the C.A. Lloyd Range Complex. The range closest to the proposed COCO site near the WTBN is Range 4 which is used as a rifle training range. Range Noise associated with C-Demo range and Range 4 activities would be similar to noise levels experienced by personnel at the Marine Corps Information and Operations Center (MCIOC), The Basic School (TBS) Fire Station, and other nearby facilities. Other minor additional noise impacts would be associated with vehicle usage on adjacent roads.

3.7 Infrastructure, Utilities, and Transportation

3.7.1 Infrastructure and Utilities.

All four proposed action locations have underground or above ground electrical lines that occur within or adjacent to the site footprints. According to G.I.S. data, the proposed COCO site at the former Larson Gym location has underground electrical, water, sewer and stormwater lines within the site footprint. The proposed Motor T site location has an underground electrical line that occurs near the eastern boundary of the site and in encircled by underground water lines. The proposed action site located near the ASP on the Westside has an overhead powerline but there are no underground electrical, water or sewer lines within or near the proposed action location. The WTBN site has an overhead powerline however there are no other utility lines near or within the footprint of the proposed action location.

3.7.2 Transportation

No roads, parking lots, or parking structures will be demolished as a part of the proposed alternatives.

3.8 Environmental Justice

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.

3.9 Hazardous Materials/Waste

MCBQ is located in three counties. According to the United States EPA's Map of Radon Zones, Stafford County is located in Zone 1 and Prince William and Fauquier Counties are located in

Zone 2. Zone 1 counties have a predicted average radon screening level greater than 4 picocuries per liter (pCi/L), and Zone 2 counties have a predicted average radon screening level between 2 and 4 pCi/L. Historic data and geologic conditions indicate there is a high risk of radon being present in buildings at MCBQ above the action level of 4 pCi/L.

3.9.1. Health, Safety and Munitions Response Program.

Many portions of MCBQ consist of historic munitions impact sites. Neither the ASP site nor the Motor T Site are within or near a known Munitions Response Site or former impact area. However, excavation activities may expose lead or other munitions constituents during excavating activities.

Larson Gym lies adjacent to Unexploded Ordnance (UXO) Site 015. Explosive Safety documentation and UXO construction support will likely be required based on the scope of the project if this alternative is selected.

3.10 Solid Waste

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.

3.11 Recreation

The areas surrounding the Larson Gym and the Motor T site proposed action locations at Mainside are within a no hunting zone. There are no trails or other recreation areas adjacent to this area. Hunting activities do not occur at either of these locations. Fishing is available at the Joe Fox Pier at the south end of the MCAF. Fishing and hiking activities are not available at or near the proposed ASP site location. The proposed ASP site location does have opportunities for hunting in the vicinity. The proposed WTBN site location has hiking opportunities as it is located adjacent to the Application

Trail. The proposed WTBN site location also has archery hunting opportunities in the vicinity.

3.12 Military Training

The Larson Gym and Motor T Site locations on Mainside are previously disturbed areas. Both locations already have significant automobile and pedestrian traffic. The Larson Gym location is situated within an area designated as an imaginary surface zone. Imaginary surface zones are areas of airspace that are constrained by surrounding manmade and natural features. These include buildings, towers, poles and other vertical obstructions. Coordination and implementation of the proposed action at this facility will require coordination with MCAF. Any site design must not in any way conflict with Air Installation Compatible Use Zone (AICUZ) restrictions.

The proposed ASP site lies in Training Area 6B which is primarily used for Maneuver Training. It also is used significantly for land navigation (LANDNAV) activities.

The WTBN site is located on MCB-4 Rd. in Training Area 8B across from the WTBN and the C.A. Lloyd Range Complex. The range that lies directly across MCB-4 from the proposed COCO site near the WTBN is Range 4 which comprises a total of 36 acres and serves as a rifle range that trains Marines to accurately shoot stationary targets.

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 (Alternative A), Alternative B, Alternative C, and Alternative D.

Alternative B involves implementing the proposed action at the Larson Gym site on the Mainside and the site near the ASP on the Westside. Alternative C involves implementing the proposed

action at the Motor T Facility on the Mainside and the site near the ASP on the Westside. Alternative D involves implementing the proposed action on the northern portion of the Motor T Facility and the site across from the WTBN on the Westside.

4.1 Land Use

Under Alternative A, government vehicles would utilize the fuel facilities that are currently available. Alternative A would allow the current geologic, topographic and soil conditions at MCBQ and the surrounding area to remain the same.

Neither Alternative B, Alternative C, nor Alternative D would be expected to significantly change or affect the geology of the area, nor would they impact the topography of the base.

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

Soils that are prone to ponding, flooding or have poor load-bearing characteristics can cause problems during and after any type of construction/excavation work is performed. It may also lead to structural damage in the future. A summary of these soils and their limitations is discussed within Appendix B.

To prevent the loss or movement of soils from the disturbed areas, E&SC measures would be implemented during construction. Approximately 4.75 acres of land would be disturbed to implement the Westside (ASP) component of Alternative B and Alternative D. 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 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.

4.2 Water Resources

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.

Impact of Alternative A - No Action: Under the No Action alternative, government vehicles would utilize the fuel facilities that are currently available. It is expected that

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

Impact of Alternative B - Construct COCO Facility at Larson Gymnasium Site and near ASP: Constructing the proposed COCO Retail Service Facility at the Larson Gym site would not involve the removal of any vegetation. There are potential impacts to the RPA due to the site location. If the Larson Gym site is selected as the proposed action location, it must be constructed 50 ft. from the low tide location to eliminate any impacts to the RPA and conflicts with the CBPA. There are also potential impacts to the Potomac Aquifer, the associated groundwater, and the surface water associated with the Chopawamsic Creek and Potomac River Watersheds due to the placement of ASTs in this area. This is due not only to urban runoff but also to any type of fuel spill. The Larson Gym site is located outside of the 100-year floodplain and there are no actual or potential wetlands within the site footprint. Therefore, these water resources would not be impacted by the proposed action. Area stormwater would flow eastward into inlets and would be discharged at the mouth of Chopawamsic Creek and into the Potomac River. The proposed site near the ASP would involve the removal of 4.75 acres of deciduous vegetation and the conversion of this area into an impervious surface. The flow of stormwater runoff would be to the northeast of the site location. The site is not located in or near a 100-year floodplain. As a result, constructing the Westside COCO Facility at this site will not negatively impact a floodzone. There are no wetlands on or near the proposed action location. As long as all required BMPs, requirements outlined in an approved E&SC plan, and SWPPP are followed, any impacts to water resources at the proposed site near the ASP would be negligible.

It is estimated that between 8-12 trucks each month would transport approximately 41,400 gallons of the fuel to each of the fuel facilities every month. To minimize the possibility of a spill during transport, particularly at the Larson Gym site, the contractor must follow all United States Department of Transportation and DoD regulations pertaining to fuel transport.

Impact of Alternative C - Construct COCO Facility at Motor T Site and near ASP: It is expected that impacts to water resources would remain unchanged if the Mainside COCO Facility was constructed at the existing Motor T Site. Area stormwater flows eastward towards inlets on Catlin and Anderson Avenues. The water is then discharged into the Potomac River and Chopawamsic Creek. There are no wetlands on or near the site

footprint. The Motor T site is also not located within a 100-year floodplain, which is considered an RMA under the CBPA, and no fill would be required in this location. Any potential surface water impacts would be mitigated through the implementation of required BMPs, requirements outlined in an approved E&SC plan, and SWPPP. No additional structural requirements would be necessary to protect Chopawamsic Creek or the Potomac River at the Motor T location. There would be no impacts to water resources if the proposed action for the Mainside is implemented at the Motor T location.

Impact of Alternative D – Construct COCO Facility at Northern Portion of the Motor T Site and near WTBN: It is expected that there would be no impacts to water resources if the Westside COCO Facility is constructed across from the WTBN. Area stormwater flows in a southeasterly direction on the site footprint. There are no wetlands on or near the site footprint. The site across from the WTBN is not located within or near a 100-year floodplain. As long as all required BMPs, requirements outlined in an approved E&SC plan, and SWPPP are followed, there would be no impacts to water resources if the COCO Retail Service Station is constructed across from the WTBN.

As a COCO facility, the contractor is responsible for compliance with Federal and State Environmental Regulatory requirements. The Base has established spill emergency response procedures in MCINCR-MCBO 5090.6, Oil and Hazardous Substances Spill Prevention and Response. As part of complying with the Base Order, the Contractor is required to prepare a facility specific SPCC in accordance with 40 Code of Regulations 112. In addition, the Contractor is required to prepare and submit to the Virginia Department of Environmental Quality an ODCP in accordance with Title 9 Virginia Administrative Code 25-91. Copies of these plans would also be provided to the Base NREA Storage Tank Program Manager.

There are no wetlands located within the footprint of any of the proposed action locations. As a result, none of the four proposed action locations will require a Section 404 permit. Neither E.O. 11990 nor the Navy's "no net loss" policy would apply to any of the four proposed action locations.

Potential water quality impacts from soil disturbances will be mitigated through the implementation of Best Management Practices (BMPs) per the Virginia Erosion and Sediment Control Handbook (1992), the Virginia BMP Field Guide (2009) and the

Virginia BMPs For Water Quality Technical Manual (2011) for Forestry Management.

Alternatives B, C, and D will require installation of proper erosion and sediment control (E&SC) measures (such as proper silt fence and storm drain inlets) prior to the onset of land disturbing activities.

In order to protect the surface waters of these watersheds from degradation, each of the proposed site locations will require E&SC plans and a Virginia Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would consist of a Virginia Stormwater Management Plan (VSMP) general construction permit that must be submitted to NREA and then forwarded to VDEQ. All stormwater plans must comply with Virginia stormwater regulations for runoff, the Navy's Low Impact Development policy and the Energy Impact Security (EISA) Section 438 requirements. The four proposed action locations and their locations within the Beaverdam Run, Chopawamsic Creek and Potomac River Watersheds are summarized in Figures 3.2.5, 3.2.6 and 3.2.7.

4.3 Biological Resources

Impact of Alternative A – No Action: Under this alternative, government vehicles would utilize the fuel facilities that are currently available. Implementation of this alternative would not have a significant impact on vegetation, wildlife, or threatened or endangered species.

Impact of Alternative B - Construct COCO Facility at Larson Gymnasium Site and near ASP: Alternative B would have no adverse effects on wildlife, including migratory birds, or wildlife habitat.

No colonies of SWP are located in the proposed project area at the Larson Gym site. Suitable habitat for the SWP has not been identified in the project area. While it is possible that the NLEB, Indiana, Tri-Colored and Little Brown bats may be found here in the summer, it would likely be roosting in trees within deciduous forests.

The construction of the COCO Facility at the ASP site will also likely have no adverse effect on wildlife, including migratory birds, and wildlife habitat. USFWS mandates that no trees greater than 3 inches in diameter at breast height may be removed between 15 April and 15 September to comply with time of

year restrictions to protect the NLEB and Indiana bat. As a result, there is no adverse effect to the NLEB or Indiana Bat at this location. The proposed action location must be surveyed for the SWP. This survey cannot be initiated until the 2018 growing season, and the proposed action may not be initiated until the survey is completed. The dwarf wedge mussel and harperella are not found in areas that would be affected by implementation of the proposed action at the ASP site nor is there suitable habitat for either species at the site. The endangered rusty-patched bumblebee has not been located on MCBQ and has a very low probability of being found at the proposed site near the ASP or any of the other proposed action locations.

Although the Tri-Colored and Little Brown bats have been detected on MCBQ, there are no known summer roosts or winter hibernacula for these species on the base according to the Virginia Department of Game and Inland Fisheries. If there is a maternity colony or summer roosts for either species discovered while implementing the proposed action, cease activities and contact NREA.

If the site near the ASP is chosen as the preferred alternative, a small-whorled pogonia survey will be required.

The construction of the COCO Facility at the ASP Site will remove approximately 4.75 acres of deciduous forest vegetation from MCBQ and Training Area 6B. MCBQ performed a timber assessment on 15 February 2017 to ensure that the government is fully reimbursed at market value for the removal of merchantable timber at this location (see Appendix C). Over 52,000 acres of forested lands would remain at MCBQ. Over 2,650 acres of land would be available for training at Training Area 6B.

Impact of Alternative C - Construct COCO Facility at Motor T Site and near ASP: No colonies of SWP are located in the proposed Motor T project area. Suitable habitat for the SWP has not been identified in this project area. While it is possible that the NLEB, Indiana, Tri-Colored and Little-Brown bats may be found in the vicinity during the summer, it would likely be roosting in trees within deciduous forests.

Alternative C would have no adverse effects on wildlife (including migratory birds), threatened and endangered species, or wildlife habitat.

Impact of Alternative D – Construct COCO Facility on northern portion of the Motor T Site and across from WTBN:

During the time period of 5 June 2017 – 12 June 2017, MCBQ biologists conducted a bat survey at the WTBN site. During this time frame, the Indiana Bat or NLEB was not detected on the site (See Appendix B). The state endangered Tri-Colored and Little Brown bats were detected on the southern and western boundaries of the site (See Appendix B).

The dwarf wedge mussel and harperella are not found in areas that would be affected by implementation of the proposed action at the WTBN site, nor is there suitable habitat for either species within the proposed action footprint.

On 15 June 2017, a SWP survey was performed at the WTBN site. No SWP or suitable habitat for the SWP was located within the proposed action footprint (See Appendix B).

The construction of the COCO Facility at the WTBN Site will remove approximately 4.75 acres of deciduous forest vegetation from MCBQ and Training Area 8B. On 13 June 2017, MCBQ performed a Timber Assessment to ensure that the government is fully reimbursed for all merchantable timber at the site (see Appendix C). Over 52,000 acres of forested lands would remain at MCBQ. Over 610 acres of land would still be available for training at Training Area 8B if the Westside COCO Retail Service Station were constructed at this location.

4.4 Cultural Resources

Impact of Alternative A – No Action: Under this alternative, government vehicles would utilize the fuel facilities that are currently available. This alternative would have no adverse effects upon the NRHP-eligible QMCBHD. Archeological resources would not be impacted.

Impact of Alternative B - Construct COCO Facility at Larson Gymnasium Site and near ASP: Construction of the COCO facility at this location is will have no impact on archaeological resources (see Appendix D). As stated earlier, adverse effects pertaining to the demolition of Larson Gymnasium were discussed within the EA for the Demolition of Larson Gymnasium and Buildings 2130; 2013 November. Construction of the Westside COCO near the ASP is not expected to have an impact on archaeological resources. The area near the site was surveyed in 1998. There is an archeological site in the area, however it is not eligible for listing under the NHRHP due to limited

information potential and lack of integrity. Additional documentation on this site is in Appendix D.

Impact of Alternatives C: The 2011 Programmatic Agreement with the Virginia State Historic Preservation Officer (SHPO) and MCBQ states that if a project is occurring outside of a historic district or viewshed, consultation may be streamlined. The Motor T Site occurs outside of the QMCBHD and its viewshed. As a result, no formal consultation with the Virginia SHPO was necessary. Alternative C is not expected to have an impact on archaeological resources. The site is located outside of the and there are not any known archeological sites at this location.

Impact of Alternative D – Construct COCO Facility on northern portion of the Motor T Site and across from WTBN:

The Motor T Site has been previously disturbed. The proposed Westside location across from the WTBN was surveyed in 2017 August and it no resources associated with the NHPA, NRHP or other cultural resources were located on the site (See Appendix D). The proposed action location also occurs outside of the QMCBHD and viewshed. As a result, no additional consultation with the SHPO was necessary.

For excavations 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/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 or unusual soil zones are encountered during excavation.

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 Air Quality

Impact of Alternative A: Under the no action alternative, government vehicles would utilize the fuel facilities that are currently available. Alternative A would not have any additional impacts on air quality.

Impact of Alternative B, C and D The portion of MCBQ located in Prince William County is designated as a marginal ozone non-attainment area, within the Ozone Transport Region, and in a $PM_{2.5}$ maintenance area. The construction and operation sites associated with Alternative B are located in Stafford County, which is currently designated as an area in attainment of NAAQS. The pollutant *de minimis* criterion for General Conformity evaluations is 50 tons per year (tpy) for volatile organic compounds (VOC), 100 tpy for NO_x, 100 tpy for $PM_{2.5}$, and 100,000 tpy for CO_2. The sources of these pollutants associated with Alternatives B,C and D would include emissions from mobile construction equipment and vehicles traveling through Prince William County. Emissions produced from the construction and operation of Alternatives B,C and D which would be located in Stafford County, are not being included in the General Conformity assessment of Alternative B, C and D. For the General Conformity assessment, the projected emissions from Alternative B are estimated to fall within the *de minimis* levels.

New sources of air emissions are being proposed with Alternative B, C and D. Emissions sources could include, but are not limited to, any combustion equipment (e.g., generators and hot water heaters) and the gasoline dispensing facilities themselves. All new stationary air emissions sources will need to be assessed for permit program applicability, including, but not limited to, pre-construction minor NSR permitting. This assessment requires a detailed description of all pollutant emitting sources associated with the project. In order to determine if permitting actions are necessary, more information

regarding the size and number of sources of air emissions are needed. The location of Alternatives B does not exclude the project from complying with applicable permitting or regulatory requirements. Alternatives B would need to comply with all applicable permitting programs and applicable regulations.

General Conformity

The General Conformity Rule ensures that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet the NAAQS.

A federal agency must perform a General Conformity applicability analysis prior to initiating any non-exempt action that will cause emissions of criteria pollutants for which the area is designated nonattainment or maintenance. The analysis must include reasonable estimates of direct emissions (caused by the action; occur at the same time and place) and indirect emissions (caused by the action; may occur later in time or in a different location than the action). The analysis must be performed for each year of the action and one year of typical operations. If the analysis indicates that the emission levels are below *de minimis* thresholds for all years, then no further action is necessary.

Annual direct and indirect emissions from the proposed action are calculated to be below all applicable *de minimis* thresholds in 40 C.F.R. part 93.153(b). A General Conformity Determination is not required.

			PROJECTED ACTUAL EMISSIONS					
			VOC	**CO**	**NOx**	**PM**	**CO_2**	**SO_2**
HIGHWAY VEHICLES	**Vehicle-Days**	**Miles/Day**	**(lbs)**	**(lbs)**	**(lbs)**	**(lbs)**	**(lbs)**	**(lbs)**
Light Heavy Duty (Diesel)	480	60	10.55	48.76	313.00	2.80	32,952.21	0.00
Heavy Heavy Duty Tractor (Diesel)	650	60	14.32	76.98	898.99	18.87	138,891.11	0.00
TOTAL PROJECTED EMISSIONS (tons)			**0.01**	**0.06**	**0.60**	**0.01**	**85.92**	**0.00**
Notes:								
Assumptions:								
RSMEANS Crew A-3G x 120 days								

RSMEANS Crew Q-4 x 120 days					
RSMEANS Crew A-2B x 50 days					

Figure 4.5.1

Virginia SIP Regulations

The proposed action is subject to the following Virginia regulations:

- 9 VAC 5-40, Article 37 - 37: Emission Standards For Petroleum Liquid Storage and Transfer Operations (Rule 4-37)
- 9 Virginia Administration Code (VAC) 5-40, Article 1 - Visible Emissions and Fugitive Dust/Emissions
- 9 VAC 5-40, Article 2 – Odor

Emission Standards For Petroleum Liquid Storage and Transfer Operations (Rule 4-37)

9VAC5-40-5230 E: No owner or other person shall transfer or permit the transfer of gasoline from any tank truck into any stationary storage tank unless such tank is equipped with a vapor control system that will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions.

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.

Odor

No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any emissions, which cause an odor objectionable to individuals of ordinary sensibility.

New Source Review Permitting

Alternatives B, C and D may be subject to NSR permitting. Prior to construction, a Form 7 Permit Application must be submitted to the VA DEQ for all proposed equipment with the appropriate application fee in 9 VAC 5-80, Article 10 ($1,594 as of 1 January 2017). Several months lead-time is necessary as construction cannot begin until a permit is issued by the VA DEQ.

The NSR permit would include emissions limits and provisions to make those limits enforceable as a practical matter. The proposed equipment will be required to meet emissions limitations. This may include pollution control devices, restrictions on fuel type or operating time, and recordkeeping and reporting requirements.

Title V Permitting

If Alternatives B, C or D is subject to NSR permitting, an application to modify the Title V permit must be submitted to the VA DEQ with the appropriate application fee in 9 VAC 5-80, Article 10 ($3,721 as of 1 January 2017).

New Source Performance Standards (NSPS) Requirements

If emergency diesel generators are installed, Alternative B, C and D would subject to the following NSPS regulations:

- 40 C.F.R. 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

If Alternative B, C and D includes the installation of a stationary diesel-fueled emergency generator. The engine must be certified by EPA to meet the emissions standards for new, nonroad, compression-ignition engines in 40 C.F.R. 60.4202, for all pollutants, for the same model year and maximum engine power. The engine certification and emissions data must be provided to the NREA Branch before entering a purchasing agreement.

The engine must use ultra low sulfur (15 ppm max) diesel fuel with either a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent. Fuel supplier certifications are required. The engine must be equipped with a non-resettable hour meter.

The engine and control device (if applicable) must be installed and maintained in accordance with manufacturer's written instructions. The engine may be operated up to 100 hours per year for maintenance and testing purposes. Total hours of operation, with maintenance hours separated, must be provided to NREA on a monthly basis after installation.

Special restrictions apply to emergency generators that are operated in nonemergency conditions, such as in a demand-response program. Prior to entering such an agreement, the operator must coordinate with NREA to determine additional requirements that will apply.

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements
The gasoline dispensing facilities associated with Alternative B would be required to comply with all applicable sections of the following NESHAP regulations:

- 40 CFR Part 63, Subpart CCCCCC - National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities.

Efforts to comply will include, but may not be limited to the following:

For tanks that store gasoline and gasoline/ethanol blends, the GDF must only load gasoline into storage tanks by utilizing submerged filling, as defined in § 63.11132, and as specified in

paragraphs (b)(1), (b)(2), and (b)(3) of section 63.11117. Records of total monthly throughput, differentiating between types of fuel, must be maintained and be able to be made available upon request. These records will need to be submitted to the NREA Branch on a monthly basis. Copies of these monthly records are to be maintained by the GDF, and must be provided to NREA by the 7th day of the month following the month for which they represent.

A notification must be given to the NREAB 120 days prior to startup of the GDF. MCBQ is required to submit a Notification of Compliance Status, which must be signed by the Responsible Official (MCBQ Commanding Officer), and submitted to the EPA and Virginia DEQ upon startup. The notification must contain all information required by 40 CFR 63.11124.

Impact of Alternative C and Alternative D: The portion of MCBQ located in Prince William County is designated as a marginal ozone non-attainment area, within the Ozone Transport Region, and in a $PM_{2.5}$ maintenance area. The pollutant *de minimis* criterion for General Conformity evaluations is 50 tons per year (tpy) for volatile organic compounds (VOC), 100 tpy for NO_x, 100 tpy for $PM_{2.5}$, and 100,000 tpy for CO_2. The sources of these pollutants associated with Alternatives C and D that would include emissions from mobile construction equipment and emissions produced from the construction and operation of both Alternatives. For the General Conformity assessment, the projected emissions from Alternative C are estimated to fall within the *de minimis* levels.

			PROJECTED ACTUAL EMISSIONS					
			VOC	**CO**	**NOx**	**PM**	**CO_2**	**SO_2**
HIGHWAY VEHICLES	**Vehicle-Days**	**Miles/Day**	**(lbs)**	**(lbs)**	**(lbs)**	**(lbs)**	**(lbs)**	**(lbs)**
Light Heavy Duty (Diesel)	480	60	10.55	48.76	313.00	2.80	32,952.21	0.00
Heavy Heavy Duty Tractor (Diesel)	650	60	14.32	76.98	898.99	18.87	138,891.11	0.00
	Usage (Hrs)							
Construction Equip								
Crane	120		19.75	49.38	354.92	19.60	33330.90	67.41

Above Ground Tank Operation	Breathing Losses (lb/yr)	Loading Losses (lb/1000 gal)						
Gasoline Tank	2400	11.7	3874.20					
E-85 Tank	2400	11.7	2849.28					
Biodiesel Tank	2.24	0.029	3.56					
Diesel Tank	2.24	0.029	5.20					
TOTAL PROJECTED EMISSIONS (tons/yr)			**3.39**	**0.09**	**0.78**	**0.02**	**102.58**	**0.03**
Notes:								
Assumptions:								
RSMEANS Crew A-3G x 120 days for tank delivery and install								
RSMEANS Crew Q-4 x 120 days for tank install								
RSMEANS Crew A-2B x 50 days for fuel delivery								
Crane x 120 Hours for tank install								
Tank operations estimated using projected annual throughput listed in project Performance Work Statement (May '16). Breathing and loading losses estimated using emission factors from AP-42 Section 5.2 and tank data from 2012 Emissions Inventory of current MCBQ Gasoline Dispensing Facility.								

Figure 4.5.2

General Conformity

The General Conformity Rule ensures that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet the NAAQS.

A federal agency must perform a General Conformity applicability analysis prior to initiating any non-exempt action that will cause emissions of criteria pollutants for which the area is designated nonattainment or maintenance. The analysis must include reasonable estimates of direct emissions (caused by the action; occur at the same time and place) and indirect emissions (caused by the action; may occur later in time or in a different location than the action). The analysis must be performed for each year of the action and one year of typical operations. If the analysis indicates that the emission levels are below *de minimis* thresholds for all years, then no further action is necessary.

Annual direct and indirect emissions from the proposed action are calculated to be below all applicable *de minimis* thresholds in 40 C.F.R. part 93.153(b). A General Conformity Determination is not required.

Virginia SIP Regulations

Alternatives C and D are subject to the following Virginia regulations:

- 9 VAC 5-40, Article 37 - 37 - Emission Standards For Petroleum Liquid Storage and Transfer Operations (Rule 4-37)
- 9 VAC 5-40, Article 1 - Visible Emissions and Fugitive Dust/Emissions
- 9 VAC 5-40, Article 2 – Odor

Emission Standards For Petroleum Liquid Storage and Transfer Operations (Rule 4-37).

9VAC5-40-5230 E: No owner or other person shall transfer or permit the transfer of gasoline from any tank truck into any stationary storage tank unless such tank is equipped with a vapor control system that will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions.

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.

Odor

No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any emissions which cause an odor objectionable to individuals of ordinary sensibility.

4.5.1 Climate Change

CEQ's NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions states that "if a proposed action would be reasonably anticipated to cause direct emissions of 27,563 tpy (25,000 metric tons) or more of CO_2-equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public." These recommendations are consistent with the EPA's Mandatory Reporting of Greenhouse Gases rule (40 C.F.R. part 98) (2009), which applies to all stationary sources emitting 27,563 tpy or more of GHG emissions. The rule allows for data collection to help shape future climate change policies and programs but does not require control of GHGs.

Impact of Alternative A: Under the no action alternative, government vehicles would utilize the fuel facilities that are currently available. The no action alternative would not cause an increase in greenhouse gas emissions and would not have new effects on climate change.

Impacts of Alternative B, Alternative C and Alternative D: The proposed project will add new emission sources; however, it is not expected to cause direct emissions totaling 27,563 tpy (25,000 metric tons) or more of CO_2-equivalent GHG emissions on an annual basis.

GHG Reporting

Actual emissions from the proposed action are not expected to cause the total GHG emissions from MCBQ to exceed mandatory reporting thresholds.

GHG PSD Permitting

The GHG PTE from the proposed action does not exceed 75,000 tpy. The proposed action is exempt from PSD permitting for GHGs.

GHG Title V Permitting

Actual emissions from the proposed action are not anticipated to cause the GHG PTE of the entire base to exceed 100,000 tpy, so the base will remain exempt from Title V permitting requirements for GHGs.

4.6 Noise

Most existing noise near Alternatives B and C consists of noise generated from MCAF, military training, automobile traffic and pedestrian traffic.

Impact of Alternative A – No Action: Under the no action alternative, government vehicles would utilize the fuel facilities that are currently available. The no action alternative would not impact existing noise levels on the base or the surrounding area.

Impact of Alternatives B, C, and D: The implementation of Alternative B and Alternative C would generate short-term, temporary noise from construction and logging operations (i.e., noise from construction equipment, supply trucks, and worker vehicles). Neither of the alternatives would cause a permanent increase on noise levels.

Noise associated with construction activities under Alternatives B, C, and D 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 construction/demolition activities is not expected to result in significant noise impacts. No post-construction noise in addition to existing noise generated from training is expected at the site.

4.7 Infrastructure, Utilities, and Transportation

Impacts of Alternative A – No Action: Under the no action alternative, there would be no impacts to existing infrastructure or utilities. Traffic patterns and modes of transportation will remain the same.

Impacts of Alternative B, C or D: Implementing Alternative B would involve the removal of an area adjacent to Larson Gym that currently used by civilian personnel for parking, however it is not officially designated as a parking lot by MCBQ. There would also be an increase in traffic on Bauer Rd. due to civilian vehicles accessing this location during the construction period. There will be an increase in government vehicles utilizing Bauer Road to refuel vehicles. Bauer Road may have to be improved to accommodate these traffic increases. Constructing the Westside COCO Facility near the ASP would require utility connections from MCB-1 to the construction site. Alternative C would not have any impacts to existing infrastructure or require upgrading Catlin, McCawley, or Anderson Avenues as these infrastructures are sufficient to handle traffic associated with the proposed COCO.

Implementing Alternative D would involve converting the northern portion of the Motor T Site into the Mainside COCO Facility. It would also allow civilian personnel to continue to utilize not just the area adjacent to the Larson's Gym site for parking but eventually the entire footprint. Part of the existing Motor T parking would also be relocated to the Larson's Gym site. Any lighting installed must be compliant with nightvision training devices. The CNG facility would not be impacted and would not be included as part of the proposed action. While the COCO Facility is being constructed, the existing Motor T Facility would have to remain open and operational. Constructing the Westside COCO Facility across from WTBN would require utility connections from MCB-4 to the construction site. However, due to the scope of the proposed work, implementation of any of the alternatives would not be expected to significantly alter the existing infrastructure or utilities within MCBQ and will not significantly affect traffic patterns. Construction crews would not have a significant impact on traffic or parking space availability. If any excavation is required, the action proponent must acquire the necessary permits as well as clearly mark the locations of underground utility lines.

4.8 Environmental Justice

Impact of Alternative A, B, C or D: Implementing any of the proposed alternatives would not be 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 construction activities. However, 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.

4.9 Health/Safety and Munitions Response Program

Impact of Alternative A: Under the no action alternative, government vehicles would utilize the fuel facilities that are currently available. This alternative would maintain the status quo and would not have additional effects on health and safety.

Impact of Alternative B - Construct COCO Facility at Larson Gymnasium Site and near ASP: The Larson Gym site has a UXO site located adjacent to the project footprint. Explosive Safety documentation and UXO construction support will be necessary prior to the implementation of the proposed action at the site location. Larson Gym is also located adjacent to the MCAF and one of its runways. If any cranes are going to be used during the implementation of the proposed action, MCAF must be notified so any potential for obstruction is mitigated. The proposed ASP site does not contain a UXO site, a munitions response site, is not a known impact area, and is located 0.5 miles from both Charlie Demolition's (C-Demo) explosive arc and the ASP.

Impact of Alternative C - Construct COCO Facility at Motor T Site and near ASP: The location of the Motor T Site is not a UXO site, munitions response site, or a known former impact area.

Impact of Alternative D – Construct COCO Facility on northern portion of the Motor T Site and across from WTBN: The location of site across from the WTBN is not a UXO site, munitions response site, or a known former impact area.

The project proponent must adhere to the following guidance:

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. Also:

"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."

4.10 Hazardous Materials/Waste/Solid Waste

There is no adverse impact from hazardous materials/waste or solid waste anticipated with this project.

Impact of Alternative A: Under the no action alternative, government vehicles would utilize the fuel facilities that are currently available. This alternative would have no effect on general procedures and practices for hazardous material removal, hazardous waste management, or solid waste management at MCBQ.

Impact of Alternatives B, C and D: All Action Alternatives would result in construction demolition debris (CDD) and waste. Reports of waste generated (including recycling) including material type (CDD, concrete, scrap metal, used oil, etc.), tons, disposal destination, and disposal cost shall be reported via the Construction Waste Management Report to NREA within 30 days of the close of the project, and no later than October 15, to be included in annual report submissions (see Appendix E). All spoils and debris generated by the demolition and construction operations shall be transported off base and disposed of in accordance with all federal, state, and local regulations.

The construction contractor is responsible for coordinating all solid waste disposal at a landfill that meets all Federal, State, and local regulatory standards. The contractor will support the solid waste diversion philosophy outlined in E.O. 13514 by recovering/recycling.

Alternative B will not generate and hazardous materials and/or waste due to the construction of the COCO Retail Service Facility.

Alternative C and D would generate construction/demolition debris, recycling, and solid waste for disposal during and after construction. This would occur at the Motor T-Site, the proposed location for the Mainside COCO Facility. This area is already being utilized for similar purposes. There is also established area's for parking. All RCRA regulatory requirements would/will still need to be met during the construction of the COCO facility at the Motor T site and area identified near the ASP on Westside. All contractors (prime and sub and employees representing either) shall adhere to all of the following requirements which could/may apply while performing work at MCB Quantico: Resource Conservation and Recovery Act (RCRA) of 1976, Federal Facilities Compliance Act of 1992, 40CFR 260-279, 29 CFR 1910.120.q and CFR 1910.1200, MCO P5090.2A w/ CH 3, Chapter 9, MCBO 5090.2D, MCBO 6240.4B, MCBQ Environmental Compliance and Protection Standard Operating Procedures chapters (ECPSOP) 3-Hazmat, 4-Hazwaste, and 5-Solid Waste. During construction at Alternative C:

- Any laydown area which will store hazardous material on Govt. property shall be secured at the end of every work shift to ensure there is no unauthorized entry. The action proponent shall ensure that all emergency POC names and numbers are posted and legible from 50' on all four sides. If hazardous materials are stored on site at laydown area, a NFPA diamond must be posted declaring the severity of each hazard being stored. Contractor shall ensure all specific Safety Data Sheets (SDS) are on site and all employees are trained and aware of each hazard. Contractor shall ensure that all employees are trained in spill response in case of a hazmat spill during the contract period.
- The action proponent/contractor shall ensure all hazardous and non-hazardous liquid materials and liquid waste are stored on secondary containment. Contractor shall ensure that all flammable liquids and compressed gas cylinders stored inside the laydown area are stored at the most distance point from the closet highway.
- Action proponent/contractor shall ensure there is a certified and working eyewash station where chemicals are used and stored and, it is inspected weekly.
- Action proponent/contractor shall ensure all employees are trained and certified to work with any/all hazardous materials required to properly execute this contract. All certificates of training for all contractor employees shall be provided to the Contracting Officer (KO) before any onsite work is initiated.
- Action proponent/contractor shall ensure no soil being removed, graded, turned shows signs of being contaminated. If soil contamination is identified, work shall stop immediately and the KO notified. Work shall not resume until permission is granted by the KO.
- Action proponent/contractor shall perform radon-testing on new buildings upon the completion of the proposed action.

None of the alternatives would have an effect on general procedures for removal of hazardous materials and hazardous waste management at MCBQ. No hazardous materials would be introduced under either of the alternatives.

4.11 Recreation

Fishing and hiking areas do not exist in the immediate proposed project areas. There is restricted hunting within the Mainside portion of MCBQ however implementing the proposed action at the Larson Gym and Motor T sites will not impact hunting opportunities. Hunters are still permitted to hunt in the vicinity of the proposed ASP site footprint as long as they remain 100 ft. from the road. If the proposed action is implemented at the ASP site or the WTBN site, hunting will still be allowed near the location, however hunters will have to remain 200 ft. from the developed location. There will be a loss of 4.75 acres of hunting opportunities if the proposed action is implemented at the ASP site. Roughly 55,000 acres of hunting opportunities will remain at MCBQ. Implementation of the proposed action at the ASP site will have no significant effect on hunting activities at MCBQ. Fishing would continue to be permitted from the Joe Fox Pier for eligible uers.

4.12 Military Training

Impact of Alternative A – No Action: Under the no action alternative, government vehicles would utilize the fuel facilities that are currently available. This alternative does not involve any construction or demolition, and would not have any additional effects on military training.

Impact of Alternative B - Construct COCO Facility at Larson Gymnasium Site and near ASP: The Larson Gym site footprint is located within an imaginary surface of the MCAF and also borders the Clear Zone. The Clear Zone is an area adjacent to the runway that extends 3,000 ft. outward along the runway centerline. AICUZ guidance states that new above ground structures, buildings, or utilities should not be built within the Clear Zone due to the high potential for accidents. The primary airfield safety concern with placing the COCO facility at the Larson Gym site would be the height of the ASTs, the height of the small office building and the height of a fence. Coordination with the MCAF and Federal Aviation Administration (FAA) evaluation and approval will be required if the Larson Gym site is selected for the location of the Mainside COCO Facility. This approval is mandatory to ensure that AICUZ restrictions are not compromised and any impacts to the AICUZ are eliminated. Construction of the Westside COCO facility near the ASP would potentially impact training due to the location being near heavily-used land navigation courses (LANDNAV) in Training Area 6B. The proposed action location is roughly 0.5 mile from both the ASP and the explosive arc of the C-Demo range. However, prior to implementing the proposed action at the Westside

location, the Base Explosives Safety Officer must be contacted to ensure that the explosive arcs of the ASP and C-Demo Range will not impact the facility.

Impact of Alternative C - Construct COCO Facility at Motor T Site and near ASP: Constructing the COCO facility at the Motor T site will have no impact on military training.

Impact of Alternative D – Construct COCO Facility on northern portion of the Motor T Site and across from WTBN: The proposed COCO site on the Westside located across from the WTBN is located on the northern boundary of Training Area 8B. There is maneuver training and LANDNAV that does occur in Training Area 8B but the proposed site footprint as well as the immediate area adjacent to it are not currently utilized for training by MCBQ. The site is also is also located adjacent to both Application Trail and MCB-4 which also makes this location and most training is performed deeper in the wooded vegetation. Construction the COCO facility at the northern portion of the Motor T site or the WTBN site will have no impact to military training.

4.13 Cumulative Impacts

For NEPA analysis, a cumulative impact is defined as the impact on the environment, which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future action. Impacts can result from individually minor but collectively significant actions taking place over a period of time.

The following actions are either recent past, ongoing, or future projects adjacent to Alternatives B and C:

Past projects – Alternative B (Larson Gym)

- Construction of a Communications Building Near Elrod Road and Timmerman Rd at OCS.
- Demolition of Military Brig at Officer Candidates School (OCS).
- Demolition of Bobo Hall at OCS.

Ongoing projects – Alternative B (Larson Gym)

- Demolition of Communications School Trailer Building 3186.

- Virginia Railway Express (VRE) Cherry Hill, 3rd Track – Installation of a third track to increase efficiency and rail capacity along VRE Fredericksburg Line.

Future projects – Alternative B (Larson Gym)

- Demolition of Larson Gym, building 2112. This building is a contributing building to the Quantico Marine Corps Base Historic District. This building is not compliant with the air installation compatible use zone/land use.
- Construction of the Physical Candidate Training Facility – This Facility will replace Larson Gym and the physical training structure.
- Demolition of Administrative Office Building 2189.
- Demolition of Storage Dome Building 3236.
- Demolition of Latrine OCS Building 5004.
- Demolition of OCS 202K Training HQ Facility Building 3266.
- Construction of an Entry Control Point, MCAF

Past projects – Alternative B (Westside Location near ASP)

- Construction of (MCIOC).
- Construction of Addition to Building 27410 for Marine Corps Network Operations Center (MCNOC).

Ongoing Projects – Alternative B (Westside Location near ASP)

- Construction of Mini Mart near intersection of MCB-1 and Hotpatch Rd.

Future Projects – Alternative B (Westside Location Near ASP)

- Improve the intersection of MCB-1 and MCB-2 with the addition of a traffic circle. This is to increase safety and future service levels at a key intersection at MBCQ.
- Construct new TBS fire station

Past Projects – Alternative C (Motor T Facility)

- Construction of Support Services Section (SSS) Legal Trailers.

Ongoing Projects – Alternative C (Motor T Facility)

- Demolition of Marine Corps General Warehouse Building 44112.
- Demolition of Storage Air/Ground Org Buildings 3221-3223.
- Demolition of Administration Buildings 3224-3225.
- Demolition of Storage Buildings 3226.
- Demolition of Operational Training Facility.

Future Projects – Alternative C (Motor T Facility)

- Demolition of Building 3252, Public Works Shop
- Demolition 1.5 acres of facilities within Chop Annex Area. This area will be used for the relocation of facilities that conflict with MCAF.
- Construct addition on front of the existing Naval Health Clinic.
- Construct new administrative facilities east of Lejeune Hall and south of Barnett Ave.
- Develop parking area west of Building 3259.
- Remove Dunlap Circle, widen Barrett Road and re-align Thombs Street. Add traffic circle at the intersection of Barnett Rd. and Catlin Rd.
- Demolition of Building 3028, Photographic Building.
- Demolition of Building 3028A, Photographic Building.
- Demolition of Building 3037, Marine Corps General Warehouse.

Past Projects – Alternative D (Westside location across from WTBN)

- Demolition of Building 27220, Target Warehouse.
- P644 Dining Facility.

Mitigation measures similar to those outlined in this EA for construction of COCO Service Stations have either been completed for the above mentioned projects or will be completed in the future as necessary. Consultation with the SHPO is also completed for all construction and demolition projects at MCBQ as applicable.

4.14 Mitigation Measures

4.14.1 Mitigation of Effects to Water Quality

The implementation of basic erosion and sediment control practices will be required during construction as specified in

the Virginia Erosion and Sediment Control Handbook (VDCR 1992), the Virginia BMP Field Guide (2009) and the Virginia BMPs For Water Quality Technical Manual (2011) for Forestry Management. The proper installation and maintenance of E&SC measures will minimize the movement of disturbed soils off-site and into the Potomac River, Beaverdam Run and Chopawamsic Creek watersheds. Following construction, the disturbed area will be seeded and returned to pervious surfaces.

Alternatives B, C, and D will require the action proponent and contractor to include a Spill Prevention Control and Countermeasures Plan, and Facility Response Plan in compliance with 40 CFR 112. The action proponent and contractor will also be responsible to following all VDEQ AST regulations (9VAC21-91) pertaining to tanks with greater than 660 gallons and storing oil. This will include an Oil Discharge Contingency Plan which is also required by (9VAC21-91). All draft and current versions of the plans must be reviewed by NREA prior to implementation of the proposed action.

If the Larson Gym site is chosen as the proposed action location for the Mainside COCO site, additional mitigation measures will be required to protect Chopawamsic Creek, the Potomac River, and associated watersheds from potential negative impacts.
A stormwater collection system must be present at all fuel transfer points. The system must be designed to contain a 100-year storm event within a catch basin that would discharge all stormwater through an oil-water separator. The catch basin must be designed to ensure that water is inspected prior to release into an oil-water separator and discharge into the sanitary sewer system. The action proponent/contractor must ensure that the small office/retail building is constructed 50 feet from the low tide area to ensure compliance with the RPA and CBPA.

4.14.2 Mitigation of Potential Effects to NLEB and Indiana Bat
If Alternative B is chosen, MCBQ will be implementing USFWS time of year restrictions for this proposed action. The USFWS time of year restrictions mandates that trees greater than three inches in diameter at breast height cannot be removed or harvested between 15 April and 15 September to reduce impacts to the NLEB and the Indiana Bat.

4.14.3 Summary of all Potential Effects

Forest Cover Remaining at MCBQ after Implementation of West Side COCO Fuel Station.	
Current	**52,090.00**
MCIOC	52,089.90
New Fire Station	52,089.60
Mini Mart	52,089.50
Westside COCO Facility Near ASP or Across From The WTBN	**52,084.70**
Net Loss	**-5.3 acres**

Figure 4.14.1; Source: 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.

Environmental Impacts Evaluation Matrix				
Resource	**Alternative A -No Action**	**Alternative B - Larson Gym & ASP Site**	**Alternative C - Motor T Facility & ASP Site**	**Alternative D -Northern Portion of Motor T Facility and WTBN Site.**
Land-Use	None	None at Larson Gym; negligable at ASP site.	None at Motor T; negligible at ASP.	None
Water Resources	None	At Larson Gym Site: Must create Spill Prevention Control and Countermeasures Plan and Facilities Response Plan in compliance with 40 CFR 112 and pertinent regulations pertaining to 9VAC21-91; must follow all mitigation guidelines that have been outlined to protect the Potomac River, Chopawamsic Creek and associated watersheds; negligible at ASP site.	None at Motor T; negligible at ASP.	None
Biological Resources	None	None at Larson Gym; negligible at ASP site.	None at Motor T; negligible at ASP site.	None
Cultural Resources	None	None at Larson Gym; none at ASP site.	None at Motor T Site; negligible at ASP Site	None
Air Quality	None	Negligible at Larson Gym; negligible at ASP site	Negligible at Motor T Site; negligible at ASP	
Noise	None	None	None	None
Infrastructure, Utlilities and Transportation	None	None	None	None
Environmental Justice	None	None	None	None
Health, Safety and Munitions Response	None	Explosive safety guidance must be followed at Larson Gym Site prior to construction;none at ASP site.	None	None
Hazardous Waste/Materials	None	None	None	None
Military Training	None	At Larson Gym due to location within an imaginary surface and bordering the Clear Zone unless action proponent/ contractor meets height restriction requirements for fuel tanks and fenceline. Location is subject to FAA evluation and approval ; design must not in any way interfere with AICUZ restrictions; ASP site is used for LANDNAV training.	Negligible at Motor T Site; ASP site is utilized for a significant amount of LANDNAV training.	None

Figure 4.14.2

5.0 CONCLUSION

Three alternatives, including the No Action Alternative, have been evaluated regarding the construction of two COCO Facilities at MCBQ. The effects of Alternative A, the No Action Alterative would maintain existing conditions at MCBQ and its environment. The two issues pertaining to Alternative B (Constructing the COCO Facility at the former Larson Gym site on the Mainside and the site near the ASP on the Westside) that would have to be addressed prior to implementation of the proposed action at this location are:

- The location of the Larson Gym Site near the confluences of Chopawamsic Creek and the Potomac River (See Figure 4.15.2).
- The location of the Larson Gym site within an Imaginary Surface and the Clear Zone of the MCAF (See Figure 4.15.2).
- Impacts to LANDNAV training occurring in Training Area 6B.

Alternative C (Constructing the COCO Facility at the Motor T Facility on the Mainside and near the ASP on the Westside) has the following benefits:

- The Motor T location utilizes a previously developed location and no clearing would be needed.
- The Motor T location already has existing utilities, water lines, sewer line and other required infrastructure in place.
- The Motor T location has existing fuel facilities and fuel infrastructure.
- Is not located near water resources such as Chopawamsic Creek and the Potomac River. As a result, there would be no significant impacts to the CBPA, the RPA, or the CWA and there is little to no risk of impact to these resources due to potential fuel discharge.
- Is not located within the AICUZ for the MCAF.

Although Alternative C had environmental benefits, it is not preferred by the action proponent because:

- The Motor T Facility lacks the necessary access roads to support the COCO Facility.
- The MCBQ Base Master Plan had designated the future land-use for the Motor T Facility as an Administrative area. In order to comply with the requirements of the Base Master Plan, the Motor T Facility must be closed.

Initially, the action proponent determined that Alternative B, Constructing the COCO Facility at the Former Larson Gym site on the Mainside and the site near the ASP on the Westside to be the preferred alternative because:

- Utilities at the Larson Gym site are available for immediate use (See Figure 4.15.2).
- The Larson Gym site complies with the long-term MCBQ Base Master Plan.

- The size of the Larson Gym site has the size and the capacity necessary to support the COCO Retail Service Station on the Mainside of MCBQ.

However, there is significant LANDNAV training occurring within Training Area 6B and constructing the Westside COCO Facility at that location would disrupt Marine Corps readiness. Also, it was determined that placing the Mainside COCO Facility at the former Larson Gym site would potentially involve future negative environmental risks to Chopawamsic Creek and the Potomac River. An indirect effect of Alternative B would also include the necessary widening and repairs to Bauer Rd. which currently does not have the capacity to support anticipated traffic patterns associated with the proposed Mainside COCO Facility. Lastly, the former Larson's Gym Site is located within the base AICUZ. Placing the Mainside COCO Facility at this location could potentially impact MCBQ's AICUZ restrictions. As a result, this alternative was dismissed from further consideration.

Alternative D would involve constructing the proposed Mainside COCO Facility on the northern portion of the Motor T Facility. The Westside COCO Facility would be established across from the WTBN on MCB-4 adjacent to Application Trail. As with the proposed site near the ASP, it would remove 4.75 acres of deciduous vegetation however over 52,000 acres of forest landscapes would still remain at MCBQ. This alternative:

- Utilizes existing infrastructure.
- Does not interfere with Marine Corp training and readiness.
- Does not pose potential future risks to Waters of the U.S. (Chopawamsic Creek and the Potomac River) as well as have no impacts to the CBPA, the RPA, or additional impacts to the CWA due to potential future fuel discharges.
- Does not interfere with the MCBQ AICUZ.
- Will not require significant infrastructure upgrades.
- Better complies with long-term MCBQ Base Master Plan.

As a result of these conclusions, it was determined that Alternative D is both the project proponent and environmentally preferred alternative. After analysis, it was determined that implementing the proposed COCO Facility per Alternative D will not have significant impacts to human health and the environment.

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

9.0 LIST OF ACRONYMS

ACHP – Advisory Council on Historic Preservation
AICUZ – Air Installation Compatible Use Zone
ASP – Ammunition Supply Point
AST – Above Ground Storage Tanks
AvB – Aura Gravelly Fine Sandy Loam, (2-6% slopes)
AvC2 – Aura Gravelly Fine Sandy Loam, (6-10% slopes), slightly eroded
BaA – Bertie Very Fine Sandy Loam, (0-3% slopes)
BACT – Best Available Control Technology
Bf – Bertie Fine Sand Loam
BGPA – Bald and Golden Eagle Protection Act
BMP – Best Management Practices
C.A.A. – Clean Air Act
CDD – Construction Demolition Debris
Cb – Caroline Fine Sandy Loam (2-6% slopes)
Cf – Caroline Fine Sandy Loam (6-12% slopes)
CAA – Clean Air Act
CBPA – Chesapeake Bay Preservation Act
CDD – Construction Demolition Debris
CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
CH_4 – Methane
CNG – Compressed Natural Gas
CO – Carbon Monoxide
CO_2E – Carbon Dioxide Equivalent
COCO – Contractor Owned, Contractor Operated
CRMP – Coastal Resources Management Program
Cw – Cut and fill land
CWA – Clean Water Act
CZMA – Coastal Zone Management Act
DC – District of Columbia
DEQ – Virginia Department of Environmental Quality.
DERF – Defense Environmental Restoration Program
DLA – Defense Logistics Agency
DoD – Department of Defense
DoDD – Department of Defense Directives
EA – Environmental Assessment
ECPSOP - Environmental Compliance and Protection Standard Operating Procedures
EISA – Energy Impact Security
E&SC – Erosion and Sediment Control
EPA – Environmental Protection Agency
ERN – Environmental Restoration Program
ESA – Endangered Species Act
FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map
GHG – Greenhouse Gases
GIS – Geographic Information System
GOCO – Government Owned, Contractor Operated
HVAC – Heating, Ventilation and Air Conditioning
LANDNAV – Land Navigation
MBTA – Migratory Bird Treaty Act
MCO – Marine Corps Order
MCAF – Marine Corps Air Facility
MCBQ – Marine Corps Base Quantico
MCIOC – Marine Corps Information and Operations Center
MCNOC – Marine Corps Network and Operations Center
MILCON – Military Construction
Minor NSR – Minor New Source Review
MMBtu/hr – One Million British Thermal Units Per Hour
MOU – Memorandum of Understanding
MSW – Municipal Solid Waste
NAAQS – National Ambient Air Quality Standards
NAVSUPP – Naval Supply Systems Command
NAVFACENGCOM – Naval Facilities Engineering Command
NAVFAC – Naval Facilities Engineering Command
NHPA – National Historic Preservation Act
NRHP – National Register of Historic Places
NLEB – Northern Long-Eared Bat
NO_x - Nitrogen Dioxide
N_2O – Nitrous Oxide
N-A, NSR – Non-attainment, New Source Review
NWI – National Wetlands Inventory
NSR – New Source Review
OCS – Officer Candidates School
ODS – Ozone Depleting Substances
OPANAVINST – Chief of Naval Operations Instructions
pCi/L –Picocuries per Liter
PM – Particulate Matter
PSD – Prevention of Significant Deterioration
PTE – Potential to Emit
QMCBHD – Quantico Marine Corps Base Historic District
RMA – Resource Management Area
RPA – Resource Protection Area
SHPO – State Historical Preservation Officer
SIP – State Implementation Plan
SWPPP – Stormwater Pollution Prevention Plan
SRM – Sustainment Restoration and Modernization
SWP – Small-Whorled Pogonia
SSS – Legal Support Service Section
TBS – The Basic School
Tpy – Tons per Year

VAC - Virginia Administrative Code
VOC – Volatile Organic Compounds
USCERL – United States Army Construction and Engineering Laboratory
UXO – Unexploded Ordnance
VDEQ – Virginia Department of Environmental Quality
VOCs – Volatile Organic Compounds
VRE – Virginia Railway Express
VSMP – Virginia Stormwater Management Program
WTBN – Weapons Training Battalion

APPENDIX A
Soil Survey Information

Soil Map—Prince William County, Virginia
(COCO Station - Motor T site)

Map Scale: 1:1,930 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 13, Sep 26, 2016

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

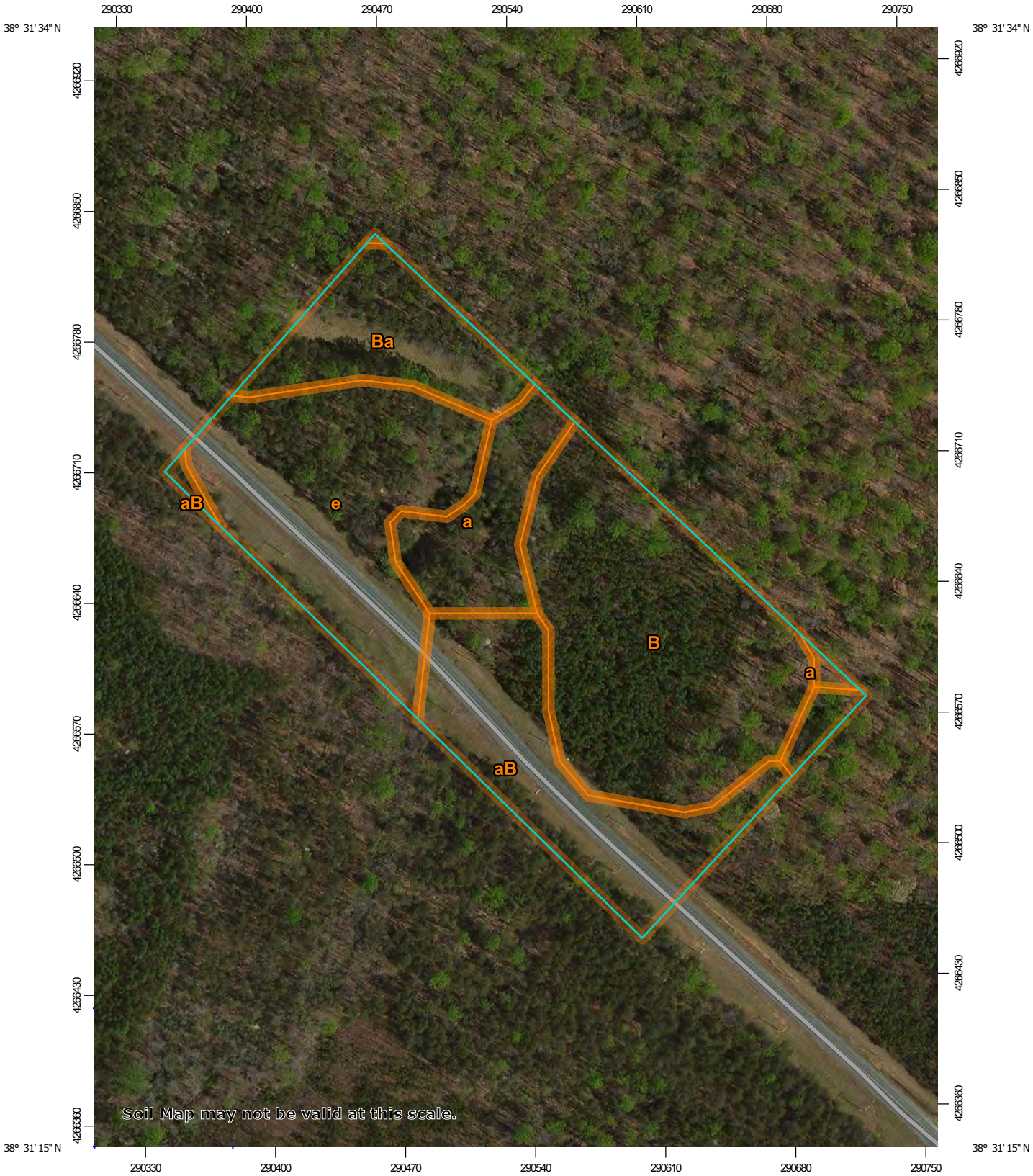
Date(s) aerial images were photographed: Data not available.

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

Prince William County, Virginia (VA153)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cw	Cut and fill land	9.4	95.1%
KfB	Kempsville fine sandy loam, gravelly substratum, 2 to 6 percent slopes	0.3	3.3%
TeB	Tetotum fine sandy loam, 2 to 6 percent slopes	0.2	1.6%
Totals for Area of Interest		**9.9**	**100.0%**

Soil Map—Stafford and King George Counties, Virginia
(COCO Station - Westside site)



Map Scale: 1:2,930 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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: Stafford and King George Counties, Virginia
Survey Area Data: Version 12, Dec 13, 2013

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

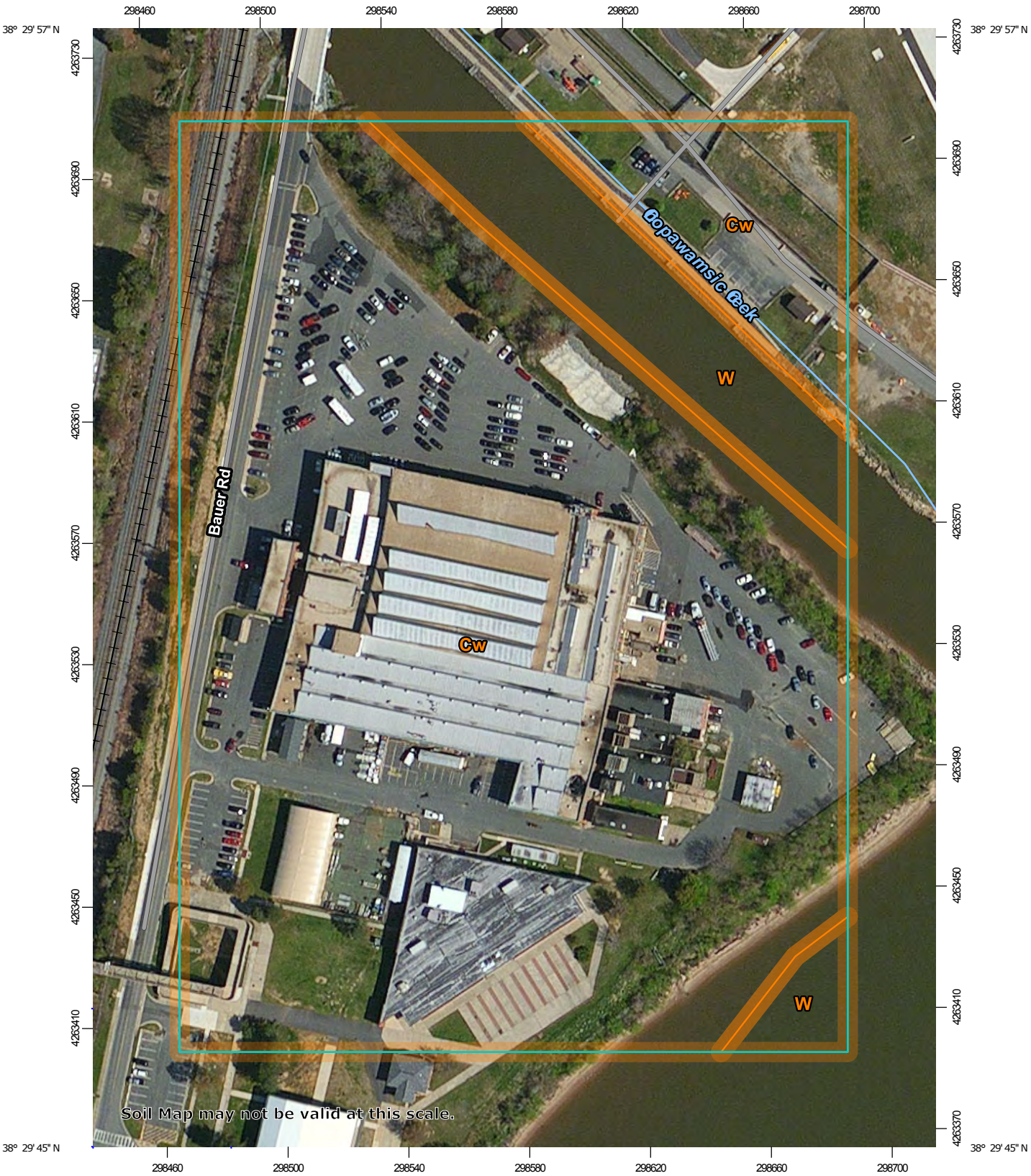
Date(s) aerial images were photographed: Data not available.

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

Stafford and King George Counties, Virginia (VA179)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BaA	Bertie very fine sandy loam, 0 to 3 percent slopes	1.8	11.5%
CaB2	Caroline fine sandy loam, 2 to 6 percent slopes, eroded	3.0	19.3%
CaC2	Caroline fine sandy loam, 6 to 10 percent slopes, eroded	1.5	9.7%
CcC3	Caroline clay loam, 6 to 10 percent slopes, severely eroded	0.2	1.5%
MkC2	Mecklenburg loam, 6 to 10 percent slopes, eroded	0.0	0.0%
SfB	Sassafras fine sandy loam, 2 to 6 percent slopes	5.1	32.8%
TeA	Tetotum fine sandy loam, 0 to 2 percent slopes	3.9	25.2%
Totals for Area of Interest		**15.5**	**100.0%**

Soil Map—Charles County, Maryland, and Stafford and King George Counties, Virginia
(COCO Station - Larson Gym site)



Map Scale: 1:1,800 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 scales ranging from 1:12,000 to 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: Charles County, Maryland
Survey Area Data: Version 10, Sep 19, 2016

Soil Survey Area: Stafford and King George Counties, Virginia
Survey Area Data: Version 12, Dec 13, 2013

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: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Charles County, Maryland (MD017)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
W	Water	0.3	1.5%
Subtotals for Soil Survey Area		**0.3**	**1.5%**
Totals for Area of Interest		**16.8**	**100.0%**

Stafford and King George Counties, Virginia (VA179)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cw	Cut and fill land	15.1	89.9%
W	Water	1.4	8.6%
Subtotals for Soil Survey Area		**16.6**	**98.5%**
Totals for Area of Interest		**16.8**	**100.0%**

Appendix B
Small-Whorled Pogonia Survey, Bat Survey and Endangered Species Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date: 21 July 2017

Self-Certification Letter

Project Name: Conctractor Owned Contractor Operated (COCO) , Westside Optior

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,

Cynthia A. Schulz

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:
Consultation Code: 05E2VA00-2017-SLI-3184
Event Code: 05E2VA00-2017-E-06256
Project Name: Contractor Owned, Contractor Operated (COCO), Westside Option #2

May 23, 2017

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: 05E2VA00-2017-SLI-3184

Event Code: 05E2VA00-2017-E-06256

Project Name: Contractor Owned, Contractor Operated (COCO), Westside Option #2

Project Type: LAND - CLEARING

Project Description: COCO Westside Option #2,

Project Location:

Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/38.52838545214981N77.43008750617071W

Counties: Stafford, VA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on your 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. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat *(Myotis septentrionalis)*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

Flowering Plants

NAME	STATUS
Harperella *(Ptilimnium nodosum)*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3739

Small Whorled Pogonia *(Isotria medeoloides)*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1890

Critical habitats

There are no critical habitats within your project area.

USFWS National Wildlife Refuges And Fish Hatcheries

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.

There are no refuges or fish hatcheries within your project area.

Siddall CIV Darien G

From: Stephenson, Chelsey <chelsey_stephenson@fws.gov>
Sent: Friday, August 11, 2017 10:08 AM
To: Siddall CIV Darien G
Cc: Rohm CIV John H
Subject: Re: [Non-DoD Source] Re: CMI Contacts and NREA Biologists who performed Bat Survey for WTBN COCO Site

Hi Darien,

I wanted to close the loop on this project-- I heard back from Michael St. Germain and he vouched for the survey results. To help streamline the review process, I suggest getting John Rohm or other MCBQ staff that will be performing in-house bat surveys on our approved surveyor list.

https://www.fws.gov/northeast/virginiafield/pdf/endangeredspecies/HowToGetOnSurveyorList.pdf
<https://www.fws.gov/northeast/virginiafield/pdf/endangeredspecies/HowToGetOnSurveyorList.pdf>

We have reviewed the COCO Westside Option 2 project and have no further comments.

Best,
Chelsey

On Wed, Aug 9, 2017 at 3:46 PM, Stephenson, Chelsey <chelsey_stephenson@fws.gov
<mailto:chelsey_stephenson@fws.gov> > wrote:

I don't see any of the other names on our approved bat surveyor list. I will reach out the Michael to inquire about qualifications for the CMI staff. If MCBQ staff, Jim Ma and Brad Watkins, would like to get on our approved surveyor list they can send their credentials to our office following this guidance:

https://www.fws.gov/northeast/virginiafield/pdf/endangeredspecies/HowToGetOnSurveyorList.pdf
<https://www.fws.gov/northeast/virginiafield/pdf/endangeredspecies/HowToGetOnSurveyorList.pdf>

I will let you know once I hear back from Michael.

Thanks,
Chelsey

On Wed, Aug 9, 2017 at 3:35 PM, Siddall CIV Darien G <darien.siddall@usmc.mil
<mailto:darien.siddall@usmc.mil> > wrote:

From what I understand, he was not. He just developed the protocols that they used.

Darien Siddall
Natural Resource Specialist

NEPA Program
Natural Resources and Environmental Affairs (NREA)
Environmental Planning Section
3049 Bordelon St.
Phone: 703-432-6770
Fax: 703-784-4953
DSN: 278-4030
E-mail: darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil>

-----Original Message-----
From: Stephenson, Chelsey [mailto:chelsey_stephenson@fws.gov <mailto:chelsey_stephenson@fws.gov>]
Sent: Wednesday, August 9, 2017 3:32 PM
To: Siddall CIV Darien G <darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil> >
Subject: [Non-DoD Source] Re: CMI Contacts and NREA Biologists who performed Bat Survey for WTBN COCO Site

Darien,

Thanks for the information. I'm unclear--was Michael St. German on site for the acoustic survey?

Thanks,
Chelsey

On Wed, Aug 9, 2017 at 12:16 PM, Siddall CIV Darien G <darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil> <mailto:darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil> > > wrote:

Chelsey,
Here is an additional biologist and the three requested CMI personnel involved in the WTBN COCO, Westside Option #2 site.

Jim Ma, MCBQ Wildlife Biologist
Phone: 703-432-6780
Cell: 703-675-5942
E-mail: jim.ma@usmc.mil <mailto:jim.ma@usmc.mil> <mailto:jim.ma@usmc.mil <mailto:jim.ma@usmc.mil> >

CMI personnel

Audrey McCrary, CMI
mccrary4@vt.edu <mailto:mccrary4@vt.edu> <mailto:mccrary4@vt.edu <mailto:mccrary4@vt.edu> >
(540) 231-7348

Kenneth Erwin, CMI

kerwin@vt.edu <mailto:kerwin@vt.edu> <mailto:kerwin@vt.edu <mailto:kerwin@vt.edu> >
(540) 231-7348

Used protocols developed by Michael St. Germain, CMI

Michael St. Germain,
mstgerma@vt.edu <mailto:mstgerma@vt.edu> <mailto:mstgerma@vt.edu
<mailto:mstgerma@vt.edu> >
(540)231-9176

Darien Siddall
Natural Resource Specialist
NEPA Program
Natural Resources and Environmental Affairs (NREA)
Environmental Planning Section
3049 Bordelon St.
Phone: 703-432-6770
Fax: 703-784-4953
DSN: 278-4030
E-mail: darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil>
<mailto:darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil> >

--

Chelsey Stephenson
Virginia Field Office
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061
804-824-2405

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2017 Bat Survey for U.S. Marine Corps Base Quantico, Virginia
Westside COCO Retail Station Clearing Project

Methods

Marine Corps Base Quantico (MCBQ) Fish and Wildlife Program and Conservation Management Institute at Virginia Tech University deployed Songmeter SMZC units (Wildlife Acoustics, Inc. Maynard, MA) to record bat calls in Training Area 8B for the Westside COCO Retail Station Clearing Project from 5 June 2017 until 12 June 2017 (Table 1). We sampled 2 sites for a total of 14 trap nights (Figure 1). All sampling followed the US Fish and Wildlife Service (USFWS) 2017 Range-Wide Indiana Bat Summer Survey Guidelines (USFWS 2017). Acoustic units were placed in areas adjacent to the project site that had the highest probability of detecting bat calls. Selected recording sites included suitable foraging corridors, flyways, creeks, ponds, other water sources, and forested roads and trails with closed canopies (Kunz and Kurta 1988, Murray et al. 1999).

All raw acoustic data were analyzed using USFWS-approved software Kaleidoscope Pro v4.0.0 (Wildlife Acoustics 2016). We used the most sensitive setting (-1) and a 95% confidence from the maximum likelihood estimator ($\alpha < 0.05$) screening for 11 bat species whose ranges include northern Virginia (Table 2). Once calls were classified at the 95% confidence level, we calculated an average nightly activity index [i.e., activity = (# calls classified to species / nights survey)] for each species by site (Table 4).

Results

Five of the 11 bat species found on MCBQ were detected between the 2 sites surveyed. The most detected species was the eastern red bat accounting for 60% of the total detections followed by big brown bat (21%), and little brown bat (13%). All others species accounted for approximately 5% of the total detections (Table 3).

Site QWTA8B04 was located more interior than QWTA8B05 and accounted for 78% of the total detections (Figure 1). All 5 of the species found were detected at this site, with both the silver-haired bat and the state endangered tri-colored bat having only been detected at this site. Both sites detected the big brown bat, eastern red bat and the state endangered little brown bat (Table 4).

Literature Cited

Kunz, T.H., and A. Kurta. 1988. Capture Methods and Holding Devices. Pages 1-29 *in* T.H. Kunz, editor. Ecological and Behavioral methods for the study of bats. Smithsonian Inst. Press, Washington, DC.

Murray, K.L., E.R. Britzke, B.M. Hadley, L.W. Robbins. 1999. Surveying bat communities; a comparison between mist nets and the Anabat II detector system. Acta Chiropterologica, 1: 105–112.

US Fish and Wildlife Service (USFWS). 2017. Range-Wide Indiana bat summer survey guidelines. https://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2017INBASummerSurveyGuidelines9May2017.pdf

Wildlife Acoustics. 2016. Kaleidoscope Pro Software v 4.0.0 http://www.wildlifeacoustics.com/products/kaleidoscope-software

Table 1. Site names, habitat type, and detector deployment dates, at Marine Corps Base Quantico, Virginia June 5 – June 12, 2017.

Site Names	Habitat Type	Deployment Dates
QWTA8B04	Mixed hardwood; trail	5 June 2017 – 12 June 2017
QWTA8B05	Hardwood regeneration	5 June 2017 – 12 June 2017

Table 2. Species included for coarse screening of acoustic files at Marine Corps Base Quantico, Virginia June 5 – June 12, 2017.

Species Code	Common Name	Scientific Name
EPFU	Big brown bat	*Eptesicus fuscus*
LABO	Eastern red bat	*Lasiurus borealis*
LACI	Hoary bat	*Lasiurus cinereus*
LANO	Silver-haired bat	*Lasionycteris noctivagans*
MYAU	Southeastern myotis	*Myotis austrioriparius*
MYLU†	Little brown bat	*Myotis lucifugus*
MYSE*	Northern long-eared bat	*Myotis septentrionalis*
MYSO*	Indiana bat	*Myotis sodalis*
NYHU	Evening bat	*Nycticeius humeralis*
PESU†	Tri-colored bat	*Perimyotis subflavus*
TABR	Brazilian free-tailed bat	*Tadarida brasiliensis*

* Denotes federally threatened or endangered species
† Denotes species considered threatened or endangered in the state of Virginia

Table 3. Bat species recorded and classified to species at the 95% confidence level during acoustic surveys at Quantico Marine Corps Base, Virginia, June 5 – June 12, 2017.

Species Code	Common Name	# of calls classified to species	Percentage of total calls
EPFU	Big brown bat	133	21.31
LABO	Eastern red bat	375	60.1
LANO	Silver-haired bat	14	2.24
MYLU†	Little brown bat	83	13.3
PESU†	Tri-colored bat	19	3.04
		Total: 624	100

† Denotes species considered threatened or endangered in the state of Virginia

Table 4. Average nightly activity indices of bat species detected during acoustic surveys on Marine Corps Base Quantico, Virginia, June 5 – June 12, 2017.

Site	EPFU	LABO	LACI	LANO	MYAUS	MYLU	MYSE	MYSO	NYHU	PESU	TABR
QWTA8B04	13.3	45.9	0.0	2.0	0.0	5.3	0.0	0.0	0.0	2.7	0.0
QWTA8B05	5.7	7.7	0.0	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0

Siddall CIV Darien G

From: Reynolds, Rick (DGIF) <Rick.Reynolds@dgif.virginia.gov>
Sent: Thursday, May 4, 2017 11:23 AM
To: Siddall CIV Darien G
Subject: [Non-DoD Source] FW: Hell Rick, this is Darien Siddall...this is concerning the Little Brown Bat and Tri-Colored Bat.

See below.

Rick

-----Original Message-----
From: Reynolds, Rick (DGIF)
Sent: Thursday, May 04, 2017 11:01 AM
To: 'Siddall CIV Darien G'
Subject: RE: Hell Rick, this is Darien Siddall...this is concerning the Little Brown Bat and Tri-Colored Bat.

According to DGIF records we are not aware of summer roosts or winter hibernacula for either tri-colored or little brown bat on the Quantico Base.

Rick Reynolds
Wildlife Biologist
Virginia Department of Game and Inland Fisheries P.O. Box 996 Verona, VA 24482
540-248-9360

-----Original Message-----
From: Siddall CIV Darien G [mailto:darien.siddall@usmc.mil]
Sent: Thursday, May 04, 2017 10:52 AM
To: Reynolds, Rick (DGIF)
Subject: Hell Rick, this is Darien Siddall...this is concerning the Little Brown Bat and Tri-Colored Bat.
Importance: High

Hello Rick,

We spoke at today concerning the State Endangered Little Brown Bat and Tri-Colored Bat. Per our conversation and use of your system, you stated that there were no known colonies of either of these species.
They have been detected on our base though. Please send me your concurrence/non-concurrence on this issue. I have attached the map to this e-mail Thanks!

Darien Siddall
Natural Resource Specialist
NEPA Section
Natural Resources and Environmental Affairs (NREA) Environmental Planning Section
3049 Bordelon St.
Marine Corps Base (MCB) - Quantico, VA 22134
Phone: 703-432-6770
Fax: 703-784-4953
DSN: 278-4030
E-mail: darien.siddall@usmc.mil

Figure 1. Map of acoustic bat detector locations deployed for Westside COCO Retail Service Station Clearing Project at Quantico Marine Corps Base, Virginia, June 5 – June 12, 2017.

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
17 JUL 17

MEMORANDUM FOR THE RECORD

From: Natural Resource Specialist, Natural Resources Section, Natural Resources and Environmental Affairs Branch (B 046)
To: File

Subj: COCO WTBN/FBI SITE

Encl: (1) Map of Survey Area for COCO WTBN Site

1. On 15 June 2017, the proposed site for the COCO WTBN was surveyed for the small whorled pogonia (SWP), *Isotria medeoloides*, a federally listed threatened species. The enclosure provides a map of the survey area. Survey personnel were Brad Watkin, Kenneth Erwin and Joe Montemayor of the Natural Resources and Environmental Affairs Branch(B 046).

2. Habitat at the site consisted of xeric mixed pine - hardwood forest primarily composed of mature Virginia pine (*Pinus virginiana*), oak (*Quercus* spp.) and a high concentration of non-native shrubs and weeds. Conditions at the site were not characteristic of known SWP colony sites in the region. The site has been significantly disturbed by invasive forbs, historic dumping and past military training. We did not locate any Indian cucumber root (*Medeola virginiana*), a species commonly found in association with SWP.

3. The SWP was not found during the survey. The COCO WTBN Site project should not have any impacts on this federally listed species.

B. W. WATKIN

Copy to:
Head, NEPA Section

COCO Alternative D - WTBN Site

ENCLOSURE (1)

More Info (http://www.ccbbirds.org/what-we-do/research/species-of-concern/species-of-concern-projects/va-colonial-waterbird-survey/2013-virginia-colonial-waterbird-survey/)
Black Skimmer
Black-crowned Night-Heron
Brown Pelican
Caspian Tern
Cattle Egret
Common Tern
Double-crested Cormorant
Forster's Tern
Glossy Ibis
Great Black-backed Gull
Great Blue Heron
Great Egret
Gull-billed Tern
Herring Gull
Laughing Gull
Least Tern
Little Blue Heron
Royal Tern
Sandwich Tern
Snowy Egret
Tricolored Heron
White Ibis
Yellow-crowned Night-Heron
Colonial Waterbirds 2008
Zoom to Extents
A systematic aerial and ground survey of colonial waterbirds in coastal Virginia during the 2008 breeding season. More than 800 surveys were conducted of 446 colonies and 24 species.
More Info (http://www.ccbbirds.org/what-we-do/research/species-of-concern/species-of-concern-projects/va-colonial-waterbird-survey/)
(http://www.cartodb.com)

BALD EAGLE ROOST CENTROID


Layers
Toggle Draw Tools
Generate Link
Print Report
Search
Leaflet | CartoDB attribution, Tiles © Esri — Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, UPR-EGP, and the GIS User Community
Bald Eagle
VA Eagle Nest Locator
Zoom to Extents
Most recent data CCB has on bald eagle nest locations in Virginia. Data is largely from two annual aerial flights conducted in winter and spring of all tributaries of the lower Chesapeake Bay and other prominent bodies of water. Reported ground survey data is also included.
More info
VA Eagle Nest Buffers
Eagle Roosts
Eagle Roost Polygons
Eagle Roost Buffers
Eagle Roosts by Topoquad
Waterbirds
Chesapeake Bay Herons 2013
Colonial Waterbirds 2013
Colonial Waterbirds 2008
Colonial Waterbirds 2003
Osprey
OspreyWatch Nests
Chesapeake Bay Osprey Nests 1995-1996
Nightjars
Nightjar Survey Network Routes
50 m
300 ft
BALD EAGLE
VA Eagle Nest Locator

Search
Toggle Legends
VA Eagle Nest Locator
Eagle Roosts

INTRODUCTION

In May 2003, the U.S. Department of the Navy, Engineering Field Activity-Chesapeake, entered into a cooperative agreement with the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) to conduct surveys for harperella (*Ptilimnium nodosum*) at Marine Corps Base Quantico (MCBQ). Fieldwork for the project was originally planned for the summer of 2003, but very high water levels in the stream habitat where the species occurs made inventory for the species impossible that year. Therefore, by a modification to the cooperative agreement signed in October 2003, fieldwork for the project was postponed until 2004.

Harperella is a diminutive herb in the carrot family. On September 28, 1988, the plant was listed as an endangered species under the federal Endangered Species Act of 1973, as amended, which is administered by the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service 1988). On January 26, 2004, the plant was listed as an endangered species under the Virginia Endangered Plant and Insect Species Act (Virginia Board of Agriculture and Consumer Services 2004). Harperella is ranked as G2 (very rare and imperiled throughout its range) by NatureServe (the network of natural heritage programs) and The Nature Conservancy. Thirteen extant populations of the species were known from seven states (Alabama, Arkansas, Georgia, Maryland, North Carolina, South Carolina, and West Virginia) when the U.S. Fish and Wildlife Service recovery plan for the species was prepared in 1990. This represented a 50 percent decline in the number of sites known historically. The recovery plan lists surveys for additional populations as a task necessary for the long-term protection of the species and its habitat. Such surveys are needed to meet the objective of removing the plant from the list of species protected under the Endangered Species Act (Maddox and Bartgis 1990).

Harperella was discovered for the first time in Virginia in 2002. The location was along Aquia Creek at the southern boundary of Marine Corps Base Quantico in Stafford County. An estimated 350 ramets were located within a 10 by 20 meter area extending from the northern bank to about the middle of the creek (Figure 1). The plants were found where the creek makes a sharp (ca. 90 degree) bend a short distance upstream from the Fall Line. Plants were growing from several bedrock fissures in the mafic bedrock that underlies the creek in this area. Additional information about this population is found in Belden and Van Alstine (2002). The discovery of this population raised the possibility of additional locations for the rare plant at MCBQ and served as the impetus for this survey study.

Some authors split *Ptilimnium nodosum* (Rose) Mathias into two or three separate species. If two species are recognized (*Ptilimnium nodosum* (Rose) Mathias and *Ptilimnium fluviatile* (Rose) Mathias), the Virginia material is *Ptilimnium fluviatile* (Rose) Mathias. If three species are recognized (*Ptilimnium nodosum* (Rose) Mathias, *Ptilimnium fluviatile* (Rose) Mathias, and *Ptilimnium viviparum* (Rose) Mathias), the Virginia material is *Ptilimnium viviparum* (Rose) Mathias (Rose 1905, Rose 1911, Mathias 1936, Easterly 1957, Maddox and Bartgis 1990). In listing the plant as an endangered species in 1988, the U.S. Fish and Wildlife Service used the name *Ptilimnium nodosum* to include all three of these entities.

areas or alter the widely fluctuating hydrologic regime to which the species is adapted. The latter includes siltation caused by run-off from construction, development, or agriculture; stream acidification from acid deposition (acid rain); and stream eutrophication from sewage or other nitrate deposition (Maddox and Bartgis 1990).

Based on this review of habitat requirements for harperella, it was determined that the following watercourses at MCBQ had potential for the rare species: Aquia Creek above Smith Lake, Chopawamsic Creek below Breckenridge Reservoir and west of I-95, and Cedar Run. Beaverdam Run was also considered, but it appeared that the free-flowing portions of this waterway were too narrow to provide the open, sunny conditions required by the rare species. Several points along Beaverdam Run were checked during field surveys for this project, and the creek did, in fact, appear too shaded for the plant.

Fieldwork for this project was conducted between August 10 and August 19, 2004, by DCR-DNH field botanist Allen Belden Jr. Dr. Elizabeth Fortson Wells, Associate Professor of Botany at The George Washington University in Washington, D.C., and two of her students assisted with fieldwork on August 10, 2004. Those watercourses with potential habitat for harperella were walked and waded during that time, and all sand/gravel/cobble bars, shoals, water willow beds, and bedrock fissures were carefully checked for the diminutive plant. Figures 2-7 show the exact areas that were searched for the rare species.

RESULTS AND DISCUSSION

No new populations or colonies of harperella were found at MCBQ in 2004.

Extensive potential habitat for harperella was found along Aquia Creek. The portion of the creek that appeared most favorable begins west of Smith Lake. The eastern terminus of the survey route shown in Figure 7 indicates the end of the free-flowing portion of Aquia Creek upstream from the lake and, thus, the eastern boundary of potential habitat along the creek. Favorable habitat extends west for 2.2 straight-line kilometers to where an unnamed tributary (whose headwaters begin just north of the town of Sheltons Shop) enters the creek from the south.

In this area, Aquia Creek has a relatively steep gradient as it passes over the Fall Line. Sand/gravel/cobble bars and small rock outcrops are numerous. Shallow riffles, shoals, and water willow beds are frequently encountered. The creek is sufficiently wide in this area to provide ample sunlight to creek bed vegetation. There is, however, a major problem for harperella in this area. Extensive residential and commercial development in the watershed in recent years on private lands to the south and west of MCBQ has resulted in serious sediment loading into the creek. The deeper pools along the watercourse are often clogged with several feet of watery silt. A less serious problem is the presence of aggressive non-native species that could compete with the rare plant. These include eulalia (*Microstegium vimineum*), marsh

CHAPTER 7

THREATENED AND ENDANGERED SPECIES

SECTION 5: HARPERELLA

7500. DESCRIPTION, LIFE HISTORY, AND HABITAT REQUIREMENTS

1. General Description. Harperella (*Ptilimnium nodosum*) is an annual herb belonging to the carrot family (Apiacae). In 1988, the plant was listed as a federal endangered species. In 2004, it was listed as an endangered species under the Virginia Endangered Plant and Insect Species Act. Harperella grows to a height of 40 - 100 centimeters, with hollow, quill-like leaves. Its flowers are similar in appearance to Queen Anne's Lace, a common roadside plant (USFWS 1990).

2. Reproduction. Harperella produces small white flowers in clusters called umbels during the flowering period, May - June. The plant germinates, grows and flowers in one season. Seedling germination has not been observed, but the fall die-back of adults suggests that germination occurs in late spring (USFWS 1990).

3. Habitat. This plant is found in rocky substrate along edges of coastal plain ponds and seasonally flooded streams (USFWS 1990). In the northern part of its range, it grows on sandy or gravelly shoals or in bedrock crevices of clear, swift-flowing streams or rivers. It appears to favor sunny areas and is often associated with the herb water willow (*Justicia Americana*) (Maddox and Bartgis 1990).

7501. MCBQ HISTORICAL INFORMATION.

1. The VDCR found a harperella site along Aquia Creek in 2002 (Belden 2002). The site is located about 0.9 mile northwest of Garrisonville Road and about 0.4 mile southwest of the junction of Aquia Creek and Onville Road (Route 641). It is estimated that there were 350 ramets of Harperella within a 10 by 20 meter area extending from the northern bank of Aquia Creek to about the middle of the creek.

2. All riverine habitat on the Base deemed suitable for Harperella was surveyed in 2004. No new populations of harperella were found beyond that found by VDCR in 2002 (Belden 2004). The Aquia Creek population had declined from about 350 in 2002 to only 20 ramets in 2004. It is believed that high water levels and accompanying increase in flood scouring in 2003 from hurricane Isabel may have accounted for the decline. In 2005, the VDCR found 50-60 ramets and it appeared that the population was rebounding (Townsend, pers. comm.).

3. Fieldwork conducted at the Aquia Creek site by VDCR in August, 2009, located 57 Harperella ramets (Belden 2009). While the population appears to be stabilizing, there remains a threat in the

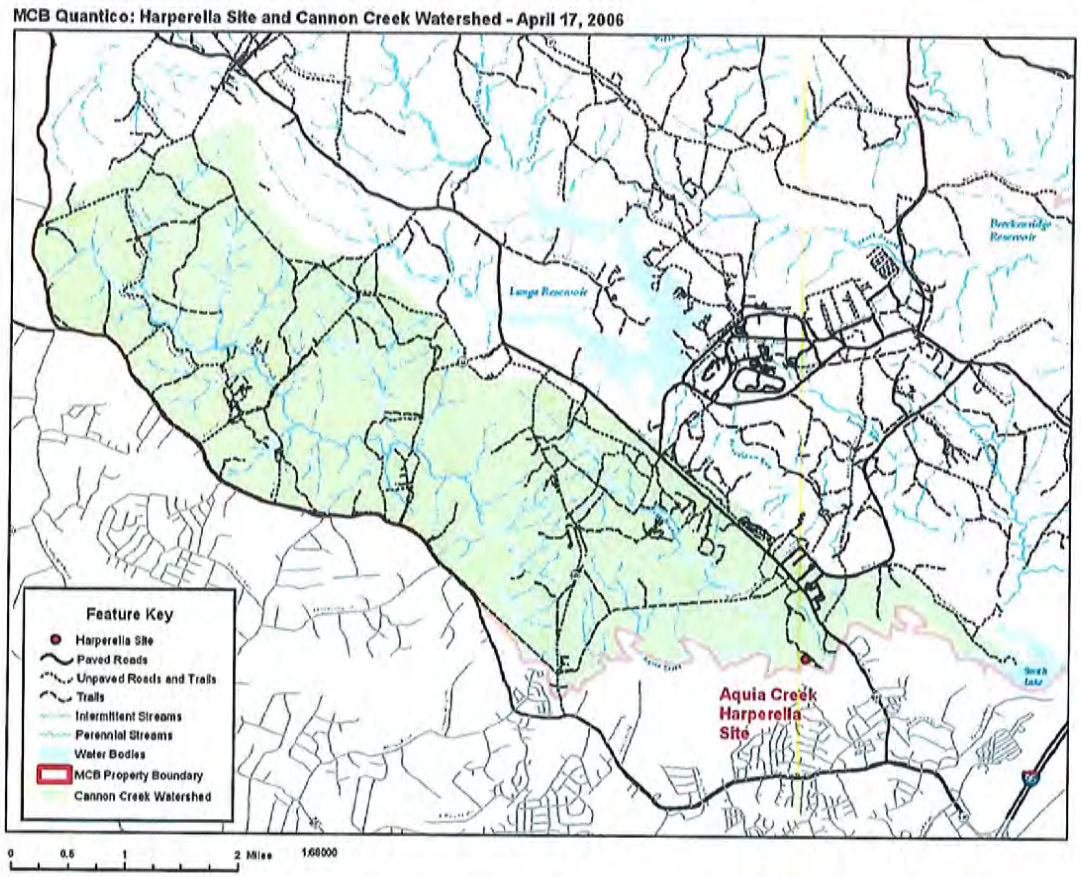


Figure 7-4. Harperella location and watershed.

Appendix C
Timber Assessment

GOVERNMENT ESTIMATE FOR SALE OF TIMBER

CONTRACT #: COCO West Application Trail

INSTALLATION: MCB, Quantico

PRODUCTS FOR SALE

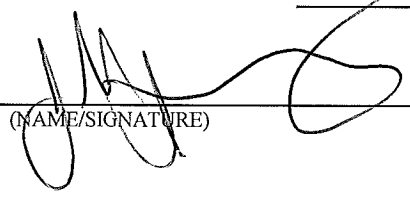
(VOLUMES ESTIMATED USING STANDARD TECHNIQUES)

SPECIES AND PRODUCT	ESTIMATED QUANTITY AND UNIT OF MEASURE	VALUE/ UNIT	TOTAL
Sawtimber			
Virginia Pine	1.1 MBF*	$80	$ 88
Chestnut Oak	1.7 MBF	$200	$ 340
White Oak	0.3 MBF	$350	$ 105
Red Oak	1.1 MBF	$250	$ 275
Pulpwood			
Pine	2 Cords	$25	$ 50
Hardwood	7 Cords	$14	$ 98

* MBF is thousand board feet based on the International 1/4 - Inch Tree Scale

This estimate is based on the most recent timber sales on MCB Quantico, with value adjustments made based on quality, defect, and species of timber. Volumes are based on the acreage of the boundaries identified in the project plans dated Oct. 14, 2016. ***Any changes or additions to these boundaries will require changes to the volume and value of this appaisal. As directed by Marine Corps Base Order 11015.1B section 6c, payment shall be made by the responsible organization prior to any trees being removed from the site.*** *Checks should be made payable to the U.S. Treasury.* ***This appraisal is valid for 120 days.***

TOTAL GOVERNMENT ESTIMATE: $ 956

Submitted By: Justin M. Jennings/ 

(NAME/SIGNATURE)

Title: Forester

Date: June 13, 2017

GOVERNMENT ESTIMATE FOR SALE OF TIMBER

CONTRACT #: COCO West

INSTALLATION: MCB, Quantico

PRODUCTS FOR SALE

(VOLUMES ESTIMATED USING STANDARD TECHNIQUES)

SPECIES AND PRODUCT	ESTIMATED QUANTITY AND UNIT OF MEASURE		VALUE/ UNIT	TOTAL
Sawtimber				
Virginia Pine	25.0	MBF*	$80	$ 2,000
Yellow Poplar	25.2	MBF	$200	$ 5,040
Miscellaneous	2.2	MBF	$175	$ 385
Pulpwood				
Pine	3	Cords	$25	$ 75
Hardwood	15	Cords	$14	$ 210

* MBF is thousand board feet based on the International 1/4 - Inch Tree Scale

This estimate is based on the most recent timber sales on MCB Quantico, with value adjustments made based on quality, defect, and species of timber. Volumes are based on the acreage of the boundaries identified in the latest project plans via email 12/7/16. ***Any changes or additions to these boundaries will require changes to the volume and value of this appaisal. As directed by Marine Corps Base Order 11015.1B section 6c, payment shall be made by the responsible organization prior to any trees being removed from the site.*** *Checks should be made payable to the U.S. Treasury.* ***This appraisal is valid for 120 days.***

TOTAL GOVERNMENT ESTIMATE: $ 7,710

Submitted By: Christopher Crawford/ C. Crawford
(NAME/SIGNATURE)

Title: Forester

Date: February 15, 2017

Appendix D
Archeological and Cultural Resources Information and Correspondence

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

IN REPLY REFER TO:
5090
B 046
MAR 2 2017

Ms. Julie Langan
State Historic Preservation Officer
Department of Historic Resources
2801 Kensington Ave.
Richmond, VA 23221

Dear Ms. Langan:

SUBJECT: CONTRACTOR-OWNED, CONTRACTOR-OPERATED RETAIL SERVICE FACILITY

Your letter dated January 17, 2017 inquired about the reason for the decision to construct the Contractor-Owned Contractor-Operated (COCO) Retail Service Facility on the site of Larson's Gym. This site was chosen as the preferred site is because it is the only location that has the capacity to support the fuel station.

It is important to note that Larson's Gym is not being demolished to build the COCO Retail Service Facility; it was already slated to be demolished since it is considered an airfield obstruction. The COCO Retail Service Facility will be built after the demolition takes place and will be sited so that it is not an airfield obstruction or within the clear-zone.

This letter is provided to comply with 36 CFR 800.2(2), as amended in 2004. We invite you to review and provide comments to the Commander within 30 days of receiving this letter via the Cultural Resource Manager, Catherine Roberts at catherine.roberts@usmc.mil, (703) 432-6781.

Sincerely,

KIRK NELSON
Assistant Chief of Staff
Installation and Environment
Division
By direction of the Commander

VDHR Signature 2016-4184 VDHR File Number 5 April 17 Date

DHR Concurs with No Adverse Effect

the survey area, consisting of a brown to light brown silt loam about 20 centimeters deep. One artifact was found, a large rhyolite flake in Shovel Test B-5. Four close interval tests were dug around it, but no additional material was found, and no site was defined.

5.2.9 Survey Area 17

Survey Area 17 was on a hilltop north of Hot Patch Road covered in mature forest (see Figure 5.15). Ten shovel tests were dug, and no artifacts were found.

5.2.10 Survey Area 18

Survey Area 18 was located on a small ridge south of Hot Patch Road at the northern end of the project area (see Figure 5.15). The ridge overlooks a small stream, and the vegetation consisted of young pine trees. Six shovel tests were dug, and no artifacts were found.

5.2.11 Survey Area 19 and Site 44ST0870

Survey Area 19 was located on the north side of MCB 1 about 610 meters (2,000 feet) east of the intersection with MCB 2 (Figure 5.16). A structure is shown in this location on the 1927 USGS Quantico map, and a site dating to that period was found, designated Site 44ST0870. Of the 26 shovel tests dug in Area 19, six yielded historic artifacts (Table 5.2). One shovel test was dug into the top of a mound of earth measuring about 3 feet high and 15 feet across, possibly some sort of structural remain, and this yielded a large number of wire nails (post 1880), most of which were discarded in the field, and machine-made bottle and jar glass (see Figure 5.3; Plate 5.8). Cast-iron stove fragments were noted on the surface, along with the bottles and galvanized buckets typically seen at farms abandoned when the base was expanded. A possible ice-house pit was also present, along with some remnant domestic plants (blackberry lilies and yucca). The site represents a dwelling dating to the early twentieth century. The presence of the earth mound, and the complete absence of topsoil in some shovel tests, indicates that the site has been severely disturbed by machinery. Because of its low integrity and limited information potential, the site is not considered eligible for listing in the NRHP.

A structure is shown a few hundred feet to the east of Survey Area 19 on the 1927 USGS Quantico map, but Parsons surveyed this area without finding any trace of it (Whitley and Pappas 1998); perhaps it was a barn or stable associated with Site 44ST0870.

Table 5.2: Historic Artifacts from Site 44ST0870

Artifact Type	Count	Artifact Type	Count
Whiteware, metallic band (1890-present)	1	Nails, machine-cut (1800-present)	3
Hard-paste porcelain, plain	2	Nails, wire (1880-present)	10
Hard-paste porcelain, transfer-printed (1820-present)	9	Nails, galvanized roofing (1910-present)	6
Glass		Window glass	4
Bottle/jar, clear	2	Brick	2
Bottle, aqua	3	Fragment of decorative iron grill	1
Bottle, amethyst tint (1880-1915)	1	Unidentified iron	1
Bottle, amber	1		
Lamp chimney	7	**Total**	**53**

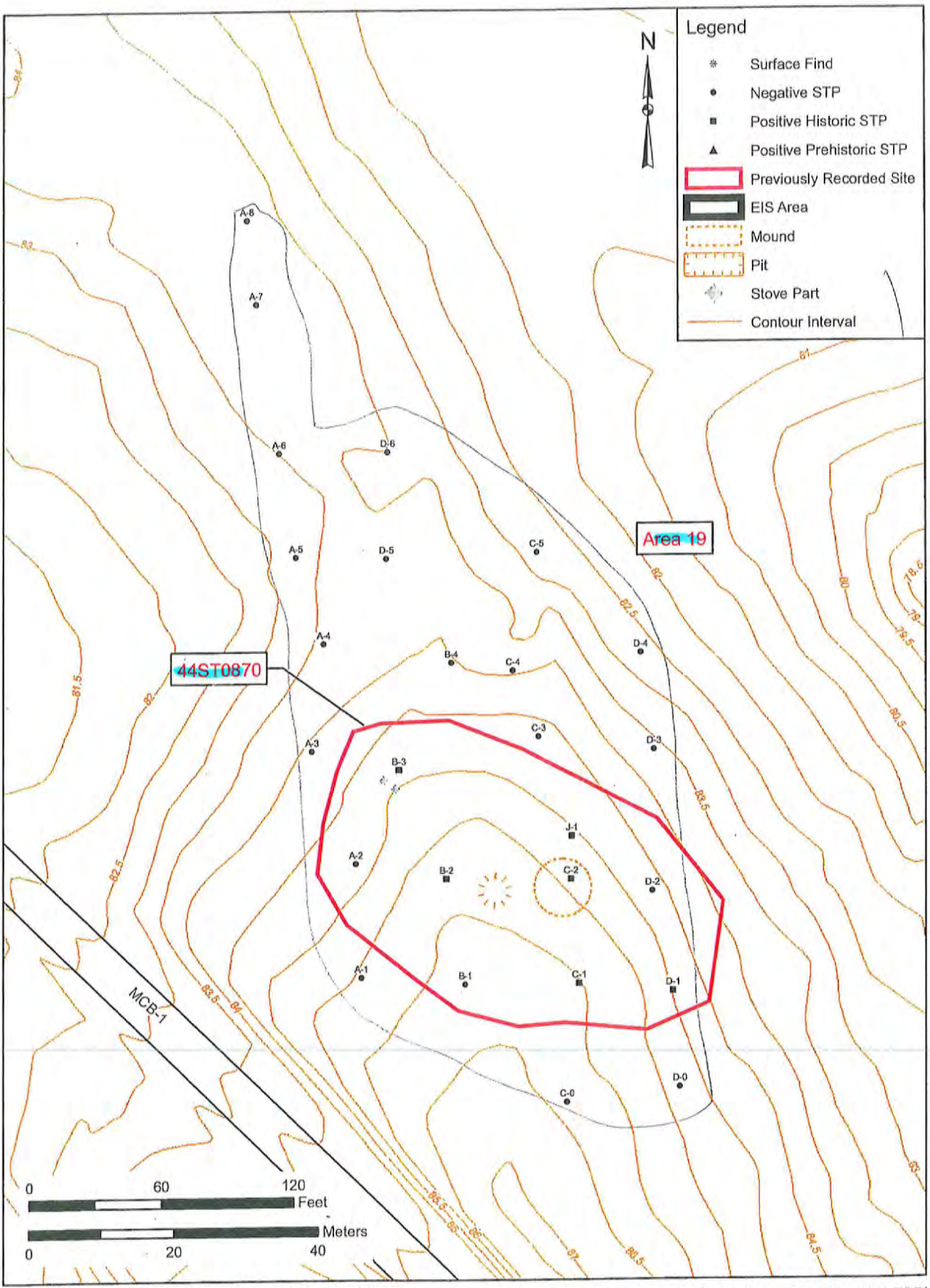


FIGURE 5.16: Survey Area 19 and Site 44ST870

BASE MAP: Marine Corps Base Quantico, ESRI

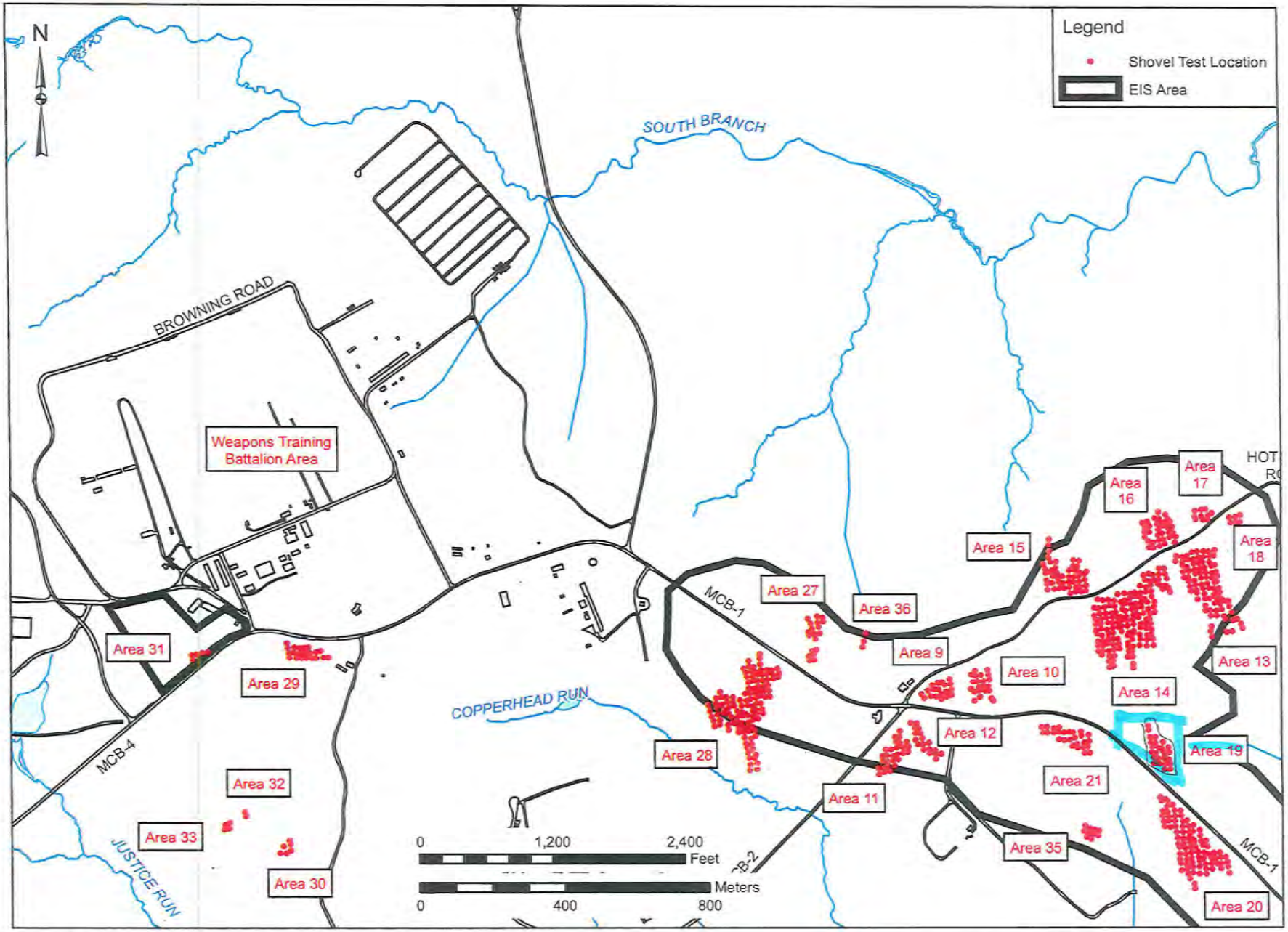


FIGURE 5.11: Archaeological Survey Areas in the MCB 1 Development Area

BASE MAP: Marine Corps Base Quantico, ESRI

Siddall CIV Darien G

From: Roberts CIV Catherine
Sent: Wednesday, August 23, 2017 8:43 AM
To: Siddall CIV Darien G
Subject: project summaries
Signed By: catherine.roberts@usmc.mil

COCO station

One transect (10 meter intervals) was used to test a 4.7 acre area designated for the construction of the COCO station. There were no positive STPs. No cultural resources were located on the surface; no further testing is needed in this area.

12B Realignment

A previous survey was conducted in the area of 12B. No cultural resources were found; no further work in this area is needed.

Range 5 Rehearsal Area

Two transects at 10 meter intervals were used to test 13 acres south of range 5. There were no positive STPs and no visible historic resources located on the surface. No further work is needed in this area.

Marine Corps Base Quantico
Archaeologist
703 432 6781

Appendix E
Construction Waste Management Report

ISWM Program Manager Rcvd: _____
FY Reporting Period: _____

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.