

ENVIRONMENTAL ASSESSMENT

CYBER CENTER FOR EDUCATION AND INNOVATION HOME OF THE NATIONAL CRYPTOLOGIC MUSEUM ANNE ARUNDEL COUNTY, MARYLAND



NATIONAL CRYPTOLOGIC
MUSEUM FOUNDATION



Draft - August 2016

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Prepared For:

THE NATIONAL CRYPTOLOGIC MUSEUM FOUNDATION

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LIST OF ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation	ESCP	Erosion and Sediment Control Plan
ACM	asbestos-containing materials	ESD	Environmental Site Design
APE	area of potential effect	FAA	Federal Aviation Administration
AQCR	Air Quality Control Regions	FCA	Forest Conservation Act
AR	Army Regulations	FCP	Forest Conservation Plan
AST	aboveground storage tank	FEMA	Federal Emergency Management Agency
BMP	Best Management Practices	FICAN	Federal Interagency Committee on Aviation Noise
CAA	Clean Air Act	FPPA	Farmland Protection Policy Act
C&D	construction and development	FRP	Facility Response Plan
CCEI	Cyber Center for Education and Innovation – Home of the National Cryptologic Museum	FSD	Forest Stand Delineation
CEQ	Council on Environmental Quality	Fort. Meade	Fort George G. Meade
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	FY	Fiscal Year
CO	carbon monoxide	GHG	greenhouse gas
COMAR	Code of Maryland Regulations	GTA	Geo-Technology Associates, Inc.
Corps	United States Army Corps of Engineers	HAP	hazardous air pollutant
CWA	Clean Water Act	HUD	U.S. Department of Housing and Urban Development
CY	cubic yard	INRMP	Integrated Natural Resources Management Plans
CZMA	Coastal Zone Management Act	kg	kilogram
CZMP	Coastal Zone Management Program	LBP	lead-based paint
dB	decibel	L _{eq}	equivalent noise level
dba	A-weighted decibels	LOS	level of service
DNL	day-night average A-weighted noise level	MARC	Maryland Area Regional Commuter
DOD	Department of Defense	MBTA	Migratory Bird Treaty Act
EA	Environmental Assessment	MDE	Maryland Department of the Environment
EISA	Energy Independence and Security Act	MDNR	Maryland Department of Natural Resources
ELG	Effluent Limitations Guideline	MHT	Maryland Historical Trust
EO	executive order	mgd	million gallons per day
ESA	Endangered Species Act	MMBtu/hr	British thermal units per hour
		MMRP	Military Munitions Response Program

MOU	memorandum of understanding	ppm	parts per million
MRA	Morris & Ritchie Associates, Inc.	PSD	prevention of significant deterioration
NAAQS	National Ambient Air Quality Standards	PTE	Potential to Emit
NAGPRA	Native American Graves Protection and Repatriation Act	RCRA	Resource Conservation and Recovery Act
NCM	National Cryptologic Museum	RONA	Record of Non-Applicability
NCMF	National Cryptologic Museum Foundation	ROI	Region of Influence
NEPA	National Environmental Policy Act of 1969	SCP	Sediment Control Program
NESHAP	National Emissions Standards for Hazardous Air Pollutants	SF	square feet
NHPA	National Historic Preservation Act	SIP	System Improvement Program
NNSR	Nonattainment New Source Review	SO ₂	sulfur dioxide
NOAA	National Oceanic and Atmospheric Administration	SPCC	Soil Prevention Control and Countermeasures
NOI	notice of intent	SPL	sound pressure level
No _x	oxides of nitrogen	STEM	Science, Technology, Engineering and Math
NPDES	National Pollutant Discharge Elimination System	SWPPP	Stormwater Pollution Prevention Plan
NRCS	Natural Resources Conservation Service	TCP	traditional cultural properties
NRHP	National Register of Historic Places	TIA	Traffic Impact Analysis
NSA	National Security Agency	TMDL	total maximum daily load
NSPS	New Source Performance Standards	typ	tons per year
NSR	Minor New Source Review	TSCA	Toxic Substances Control Act
O ₃	Ozone	US	United States
OTR	Ozone Transport Region	USAR	United States Army Reserve
Pb	Lead	USDA	United States Department of Agriculture
PCB	polychlorinated biphenyl	USEPA	United States Environmental Protection Agency
pCi/L	picocuries per liter	USFWS	United States Fish and Wildlife Service
Percent g	Percent weight in grams	UST	underground storage tank
PM	particulate matter	VOC	volatile organic compound
		WOUS	Waters of the United States
		WWTP	wastewater treatment plant

DRAFT

ENVIRONMENTAL ASSESSMENT

**ADDRESSING THE CONSTRUCTION AND OPERATION OF THE
CYBER CENTER FOR EDUCATION AND INNOVATION – HOME OF THE NATIONAL
CRYPTOLOGIC MUSEUM
AT FORT GEORGE G. MEADE, MARYLAND**

PROPONENT:

LARRY CASTRO Chief Operating Officer Cyber Center for Education and Innovation – Home of the National Cryptologic Museum National Cryptologic Museum Foundation	DATE
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RECOMMEND APPROVAL:

JEFFERY WILLIAMS Office of Occupational Health, Environment and Safety Services National Security Agency	DATE
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APPROVAL:

ELIZABETH BROOKS Chief of Staff National Security Agency	DATE
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ENVIRONMENTAL ASSESSMENT
ADDRESSING THE CONSTRUCTION AND OPERATION OF THE
CYBER CENTER FOR EDUCATION AND INNOVATION – HOME OF THE NATIONAL
CRYPTOLOGIC MUSEUM
AT FORT GEORGE G. MEADE, MARYLAND

NATIONAL CRYPTOLOGIC MUSEUM FOUNDATION
FORT MEADE, MARYLAND

AUGUST 2016

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COVER SHEET

DRAFT

ENVIRONMENTAL ASSESSMENT

**ADDRESSING THE CONSTRUCTION AND OPERATION OF THE
CYBER CENTER FOR EDUCATION AND INNOVATION – HOME OF THE NATIONAL
CRYPTOLOGIC MUSEUM
AT FORT GEORGE G. MEADE, MARYLAND**

Responsible Agency: The National Cryptologic Museum Foundation (NCMF)

Affected Area: Fort George G. Meade, Maryland

Report Designation: Draft Description of Proposed Action and No Action Alternative

Proposed Action: The NCMF proposes to demolish the existing museum and construct a new larger Cyber Center for Education and Innovation – Home of the National Cryptologic Museum (CCEI) and associated infrastructure within the existing museum site.

Abstract: This Draft Environmental Assessment describes the NCMF's proposal to construct the new CCEI that will include space for, but not limited to: museum exhibits, library, classrooms, auditorium, café, kitchen, gift shop, storage, office space, and ancillary uses that will replace the existing aging museum that cannot be easily updated. The new CCEI will be integrated with the NSA facility and infrastructure, allowing NSA to play a large role in the new CCEI's security, operations, and maintenance. The analysis herein considers the Proposed Action and No Action alternative to help determine whether a finding of No Significant Impact can be prepared or an Environmental Impact Statement is needed.

For additional information, contact Mr. Larry Castro, Chief Operating Officer, National Cryptologic Museum Foundation, P.O. Box 1563, Millersville, MD 21108, 443-292-0091.

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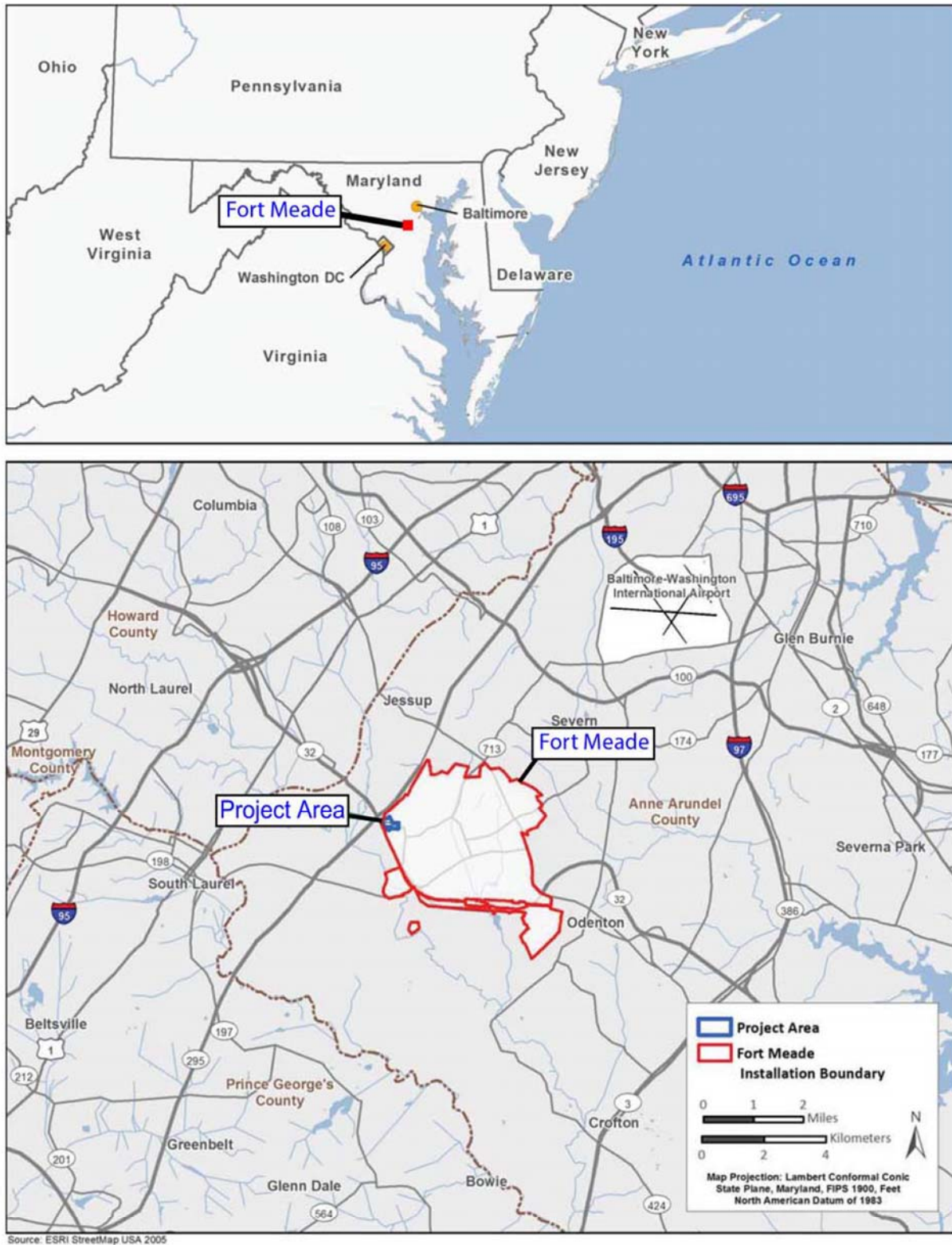
1. Purpose of and Need for the Proposed Action

1.1 Introduction

This Draft Environmental Assessment (EA) has been prepared to address the potential environmental impacts of the proposal by the National Cryptologic Museum Foundation (NCMF) to continue its partnership with the National Security Agency (NSA) in the enrichment and enhancement of the National Cryptologic Museum (NCM) by replacing the existing museum with an upgraded facility, the new Cyber Center for Education and Innovation – Home of the National Cryptologic Museum (CCEI), and associated infrastructure at Fort George G. Meade, Maryland. This EA will comply with the requirements of the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] §4321–4347); the Council on Environmental Quality's (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] §§ 1500–1508); U.S. Department of Defense (DOD) Directive 4715.1E, *Environment, Safety, and Occupational Health*; and for guidance, NSA's *Draft National Environmental Policy Act Procedures*.

The NSA Campus is located near the MD Rte. 32 and MD Rte. 295 intersection on the western side of the Fort George G. Meade installation, which encompasses 5,131 acres in Anne Arundel County, Maryland, 17 miles southwest of Baltimore, Maryland. Established in the 1950s, the NSA Campus has existed on Fort Meade for more than 60 years. The current NCM facility, located at 8290 Colony Seven Road, was originally built in the 1950's as the Colony 7 Motel which consisted of 5 buildings and a swimming pool. **Figure 1-1** shows the project area within Ft. Meade. The DOD acquired the land and facility in the late 1980s and subsequently demolished all but one of the buildings and the swimming pool. The remaining building was renovated to house the NCM which opened to the public in 1991. With 60,000 to 70,000 visitors annually, the current NCM facility is not able to accommodate the volume of visitors or multitude of cryptologic artifacts and exhibits currently in storage facilities.

This EA is organized into six sections and two appendices. **Section 1** states the purpose, need, scope, and public involvement efforts associated with the Proposed Action. **Section 2** contains a detailed description of the Proposed Action and the No Alternative considered. **Section 3** describes the affected environment and the environmental consequences anticipated from implementing the Proposed Action. **Section 4** presents the cumulative impacts analysis. **Section 5** contains the list of preparers. **Section 6** lists the references used in preparing the EA. **Appendix A** contains documentation of interagency coordination and public involvement activities. **Appendix B** contains the traffic impact analysis executive summary. **Appendix C** contains the Wetland Delineation Report. **Appendix D** contains the Forest Stand Delineation.



General Location Map
of Fort Meade, MD

Figure 1-1

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide a new facility that can accommodate the growing spatial and programming needs of the NCM and NSA. The Proposed Action is needed because the existing NCM building is aging and can no longer support the needs of the NCM to showcase our nation's cryptologic history and to further transparency and increase public dialog about the NSA mission. The existing NCM structure was originally constructed as a motel building, and, despite renovations in the 1990s to accommodate the museum, the structure does not meet the standards typical to a National museum. The existing museum needs constant maintenance and upkeep to run as desired. It has inadequate amenities needed for its staff, to host visitors, and to maintain existing exhibits. There is also inadequate security, fire, and theft protection for the artifacts. The current size of the facility (approximately 19,200 SF) cannot display all of the exhibits the NCM owns. Therefore, many invaluable books and historical artifacts are stored in warehouses. There is limited library and classroom space, and no capacity for conferences or large meetings. Because of the age and condition of the existing facility, it cannot be easily updated and expanded to address these issues.

1.3 Scope of the EA

The scope of this EA consists of the proposed action, no action alternative, and impacts to be considered. The scope of the Proposed Action and the No Action Alternative are presented in detail in **Section 2**. In accordance with CEQ regulations, the No Action Alternative is analyzed to provide a baseline against which the environmental impacts of implementing the Proposed Action can be compared. The EA identifies appropriate mitigation measures to avoid, minimize, reduce, or compensate for adverse environmental impacts.

1.3.1 Environmental Laws, Regulations, and Executive Orders

To comply with the NEPA, the planning and decision making process involves a study of relevant environmental laws, regulations, and executive orders (EOs). The NEPA process does not replace the procedural or substantive requirements of other environmental laws; it addresses them collectively in an analysis, which enables decision makers to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to the CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively" [40 CFR 1500.2(c)].

The EA examines the environmental impacts of the Proposed Action and the No Action Alternative on the following resource areas: land use, noise, air quality, geologic and soil resources, water resources, biological resources, cultural resources, infrastructure, transportation, hazardous materials and wastes, and socioeconomics and environmental

justice. Summaries of the environmental laws, regulations, and EOs that might apply to this project are described in more detail in the appropriate resource areas within the EA.

1.4 Limitations and Assumptions

In preparation for this EA, Geo-Technology Associates, Inc. (GTA) and Morris & Ritchie Associates, Inc. (MRA) relied on information provided by NSA in the Draft Environmental Assessment - Addressing Upgrades of Vehicle Control Point 1 (VCP-1) at Fort George G. Meade, Maryland. Information from the Final Environmental Assessment - Addressing Construction and Operation of a USCYBERCOM Joint Operations Center at Fort George G. Meade, Maryland was utilized as well. NSA authorized MRA and GTA to utilize specific documentation that is relevant to the new CCEI. This information was integrated into GTA and MRA's analysis information to prepare this report. GTA and MRA cannot independently confirm the accuracy of information provided for our use.

1.5 Interagency and Public Involvement

Agency and public participation in the NEPA process promotes open communication between the proponent and regulatory agencies, the public, and potential stakeholders. All persons and organizations having a potential interest in the Proposed Action are encouraged to participate in the public involvement process. Public participation opportunities with respect to the Proposed Action and this EA are guided by CEQ regulations and DOD Instruction 4715.1E. The *Intergovernmental Coordination Act* and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal.

The NCMF, in conjunction with MRA and GTA, published a scoping letter in regards to the EA. The scoping letter asked federal, state, and local agencies, and other stakeholder groups or individuals to review and assess the proposal for the new CCEI. These agencies, groups, and individuals were given a 30-day public comment period, during which the NCMF, MRA, and GTA requested responses that identified issues that may affect the implementation of the new CCEI project. **Appendix A** contains the list of potentially interested parties and comments provided. Comments have been incorporated into the analysis of potential environmental impacts performed in the EA, where appropriate and applicable.

2. Description of the Proposed Action

2.1 Proposed Action

As discussed in **Section 1.1**, the existing NCM facility is aging and is not suitable to meet the growing needs of the museum. Therefore, it is the intent of the NCMF to construct the new CCEI. The new CCEI will be built within the existing museum site area, east of the existing museum building. This new museum will help the NCMF to realize many of their objectives: to educate the public on the role cryptology has played in our national security; to commemorate those in the cryptologic community that have made significant contributions; and to stimulate visitors, especially the young, to consider careers in STEM fields critical to our nation's economic and national security. **Figure 2-1** shows the Proposed Action layout and configuration of buildings and parking for the new CCEI. Vehicular access to the new CCEI site would remain from Colony Seven Road.



NATIONAL CRYPTOLOGIC MUSEUM

Scale 1" = 40'

Proposed Action Layout
Figure 2-1

2.1.1 National Cryptologic Museum

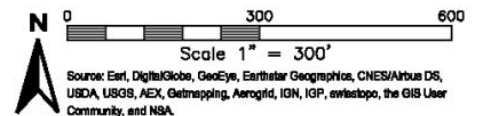
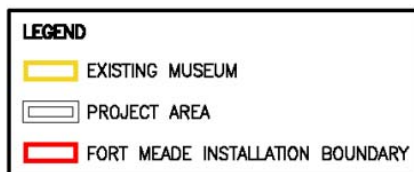
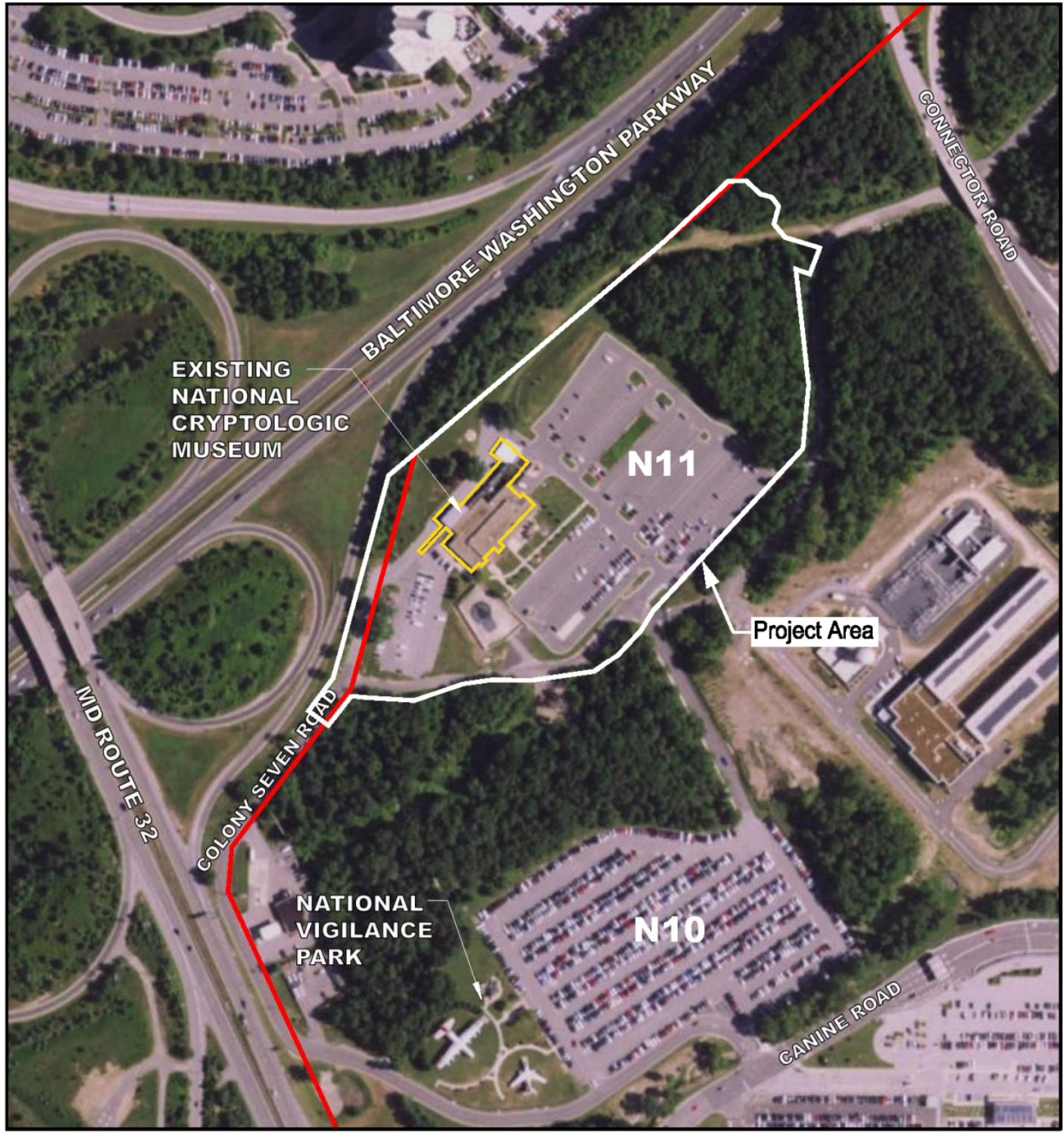
This EA analyzes the construction of a new, 74,500 square foot, two-story facility that will include space for, but is not limited to: museum exhibits, two libraries, classrooms, an auditorium, gift shop, office space, visitor and staff café, kitchen, storage, and ancillary spaces. The new CCEI building is envisioned to be an iconic building that will serve as the NSA's principal gateway to the public. Aside from the daily functions of the museum, the new CCEI building will also provide space for conferences, recruiting events, and celebrations.

The new CCEI project area, as shown in **Figure 2-2**, is 14 acres \pm and includes the existing museum and associated parking, the N11 parking lot, and three small wooded areas totaling 3.2 acres. Of the 3.2 acres of existing woodland in the project area, 0.2 acres are proposed to remain. In order to mitigate for the 3.0 acres of proposed woodland clearing, 0.8 acres of reforestation are proposed. The new CCEI building will be located east of the existing museum building within the current N11 parking lot area. The current museum shall continue to operate until the transition to the new CCEI can be made. The existing museum, associated parking, and N11 parking lot shall be demolished in phases for the construction of the new CCEI. The new CCEI will meet the requirements outlined in the DOD, Unified Facilities Criteria (UFC), UFC 4-010-01, and DOD Minimum Antiterrorism Standards for Buildings (dated February 9, 2012, changed October 1, 2013). The new CCEI site will not utilize a controlled perimeter. The building exterior will be constructed primarily of reinforced masonry which dictates an 86-foot standoff. A loading area, loading aisle, and fire lane will be provided around two sides of the building, which will encroach into this standoff zone, as permitted by NSA. These areas will be isolated from general vehicular traffic with security gates. Parking for the new CCEI will be located outside of the 86-foot standoff zone. The new CCEI building will be designed to achieve Leadership in Energy and Environmental Design (LEED) Silver, in compliance with DOD Instruction 4170.11, *Installation Energy Management*, for construction of new buildings starting in 2017.

At the main vehicular entrance into the new CCEI site, there will be a guard station. This guard station will be manned only during events at the new CCEI that dictate higher security requirements.

2.1.2 National Vigilance Park

The existing National Vigilance Park (NVP), a memorial to honor those who died while performing airborne signals intelligence missions during the Vietnam conflict and the Cold War, shall be relocated to the new CCEI project area. The current NVP houses three aircraft, a refurbished Air Force C-130, an Army RU-8D Seminole, and a Navy EA-3B aircraft. A new NVP area will be created within the new CCEI project area and will house all three of the existing aircraft.



**Project Area Location on
NSA Campus, Fort Meade**
Figure 2-2

2.1.3 Parking Facilities and Infrastructure

A reconfigured parking lot shall be provided within the project area. The parking lot will include a drop-off area at the front of the new CCEI building, a bus parking area, and approximately 492 parking spaces. The proposed parking will accommodate the daily parking needs of the new CCEI building and NVP. In addition to accommodating the daily parking needs, the parking lot will accommodate larger gatherings/events held at the new CCEI building during and outside of NSA work and/or museum hours. The current NCM site has two parking lots with a total of 541 parking spaces. One lot is dedicated to museum visitors and staff with 92 parking spaces and a second lot, the N11 parking lot, contains 449 parking spaces which are currently being utilized by NSA staff. The NSA staff parking will be accommodated elsewhere within the NSA campus.

Existing water, sewer, gas, electric, and telecommunications services to the existing NCM will need to be relocated or newly constructed to serve the new CCEI. Temporary services will be constructed during various phases of development to ensure that the existing museum can remain active during construction of the new CCEI as long as possible.

2.2 Consideration of Other Alternatives & Identification of Preferred Alternative

The Preferred Alternative is the same as the Proposed Action. The Proposed Action intends for the new CCEI to be built in the same project area as the existing museum. Access from MD Rte. 32 to Canine Road and then to Colony Seven Road will remain as the main access and entrance to the facility. Existing parking lots and minimal existing forest will be redeveloped to accommodate the new CCEI. Building in the same area as the existing museum provides benefits to the NCMF by saving land and infrastructure costs and by coordinating the new CCEI facilities with the needs of the NSA. Given these facts, the proposed improvements would effectively represent a single development alternative. Although there may be differences in facility design and orientation as the design is fully developed (e.g., road layout, building orientation, parking lot areas, sidewalk locations) these differences are expected to be equally weighted in terms of environmental consequences of site layout. Resource implications (e.g., increase or decrease in stormwater management needs or the number of trees to be cleared) among various design options would be negligible. The boundaries of the Project Area have been configured in such a way that minimizes environmental impacts to the extent practicable. The isolated forested wetland within the northeast portion of the Project Area will be impacted to provide the needs of the facility but no other wetland impacts are anticipated. Minimal forest will be cleared and existing limits of disturbance along the north, west, and south sides of the Project Area will be maintained and/or reduced.

The NCMF previously assessed two other sites for relocation of the new CCEI. Those were the Oak Hill Youth Detention Center site and the Fort Meade Golf Course Club House site. However, neither site was deemed viable for the new CCEI. The Preferred Alternative is based

on the need to be proximate to the NSA campus so the new CCEI can take advantage of agency expertise and facilities. The Proposed Action is the best option of the three assessments, therefore the other two sites do not warrant further review.

2.3 No Action Alternative

CEQ guidance advocates consideration of the No Action Alternative in the alternatives analysis (40 CFR § 1502.14). The No Action Alternative is analyzed to provide a baseline of the existing conditions against which potential environmental and socioeconomic impacts of the Proposed Action can be compared. Under the No Action Alternative the Proposed Action would not be implemented and the existing museum and associated infrastructure would remain unchanged.

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3. *Affected Environment and Environmental Consequences*

3.1. Land Use & Visual Resources

3.1.1 Definition of Resource

The term “**land use**” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning master plans. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels,” and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. A variety of land use categories result from human activity. Descriptive terms for human activity land uses include residential, commercial, industrial, military, agricultural, institutional, transportation, communications, utilities, and recreational.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include master plans, management plans, and zoning regulations. In appropriate cases, the location and extent of a Proposed Action needs to be evaluated for its potential effect on the project site and adjacent land uses.

The foremost factor affecting a Proposed Action in terms of land use is its compliance with applicable land use or zoning regulations. Other relevant factors include existing land use at the project site, surrounding land use, and the duration of a proposed activity and its “permanence.”

For the purposes of this EA, “**visual resources**” are defined as the natural and man-made features that give a particular setting or area its aesthetic qualities. These features define the landscape character of an area and form the overall impression that an observer receives of that area. Evaluating the aesthetic qualities of an area is a subjective process, because the value that an observer places on a specific feature varies depending on his/her perspective.

3.1.2 Existing Conditions

Land use. Fort Meade encompasses 5,131 acres in the northwestern corner of Anne Arundel County, Maryland. The installation is 17 miles southwest of Baltimore, Maryland and 24 miles northeast of Washington, DC. (see **Figure 1-1**). The NSA Campus located in Fort Meade includes administrative, laboratory, warehouse, and utility support facilities (NSAW 2013). Fort Meade is bounded by the Baltimore Washington Parkway (MD Rte. 295) to the north, Annapolis Road (MD Rte. 175) to the east, and Patuxent Freeway (MD Rte. 32) to the

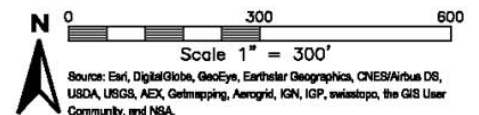
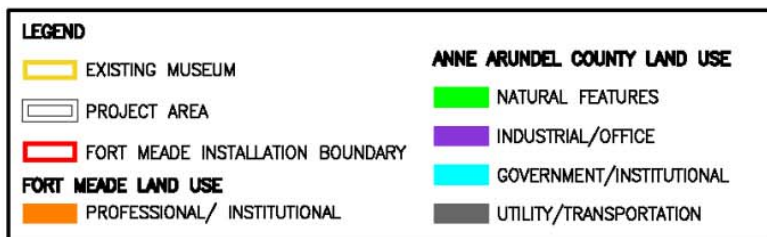
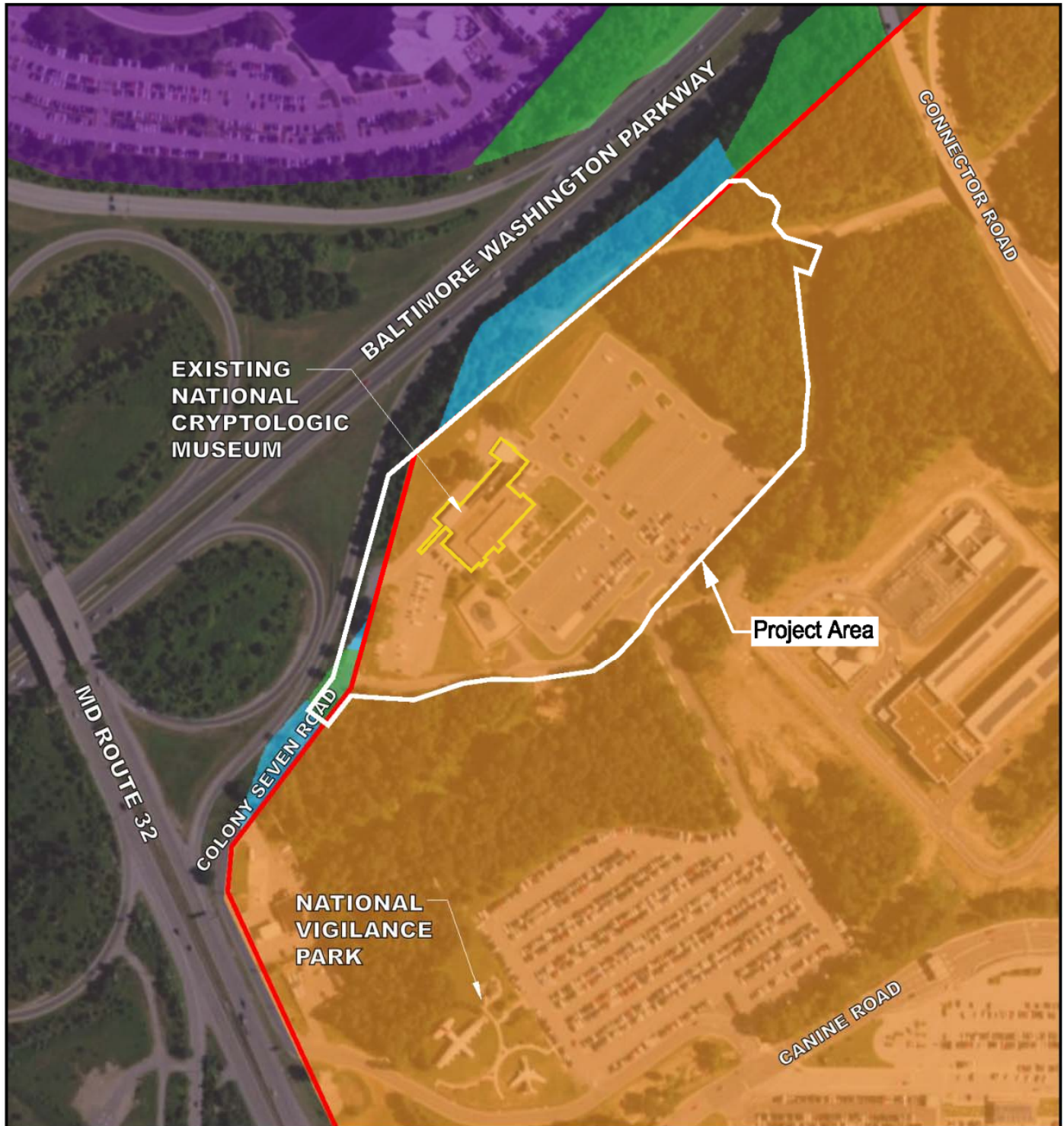
south and west. The land use at the Project Area is professional/institutional. Uses surrounding the project area include professional/institutional, utility/transportation, and government/institution (see **Figure 3-1**). The project area occupies approximately 14 acres in the northwestern corner of the NSA Campus. The Project Area is bounded by Colony Seven Road and the Baltimore-Washington Parkway (MD Rte. 295) to the northwest, Connector Road to the northeast, a large wooded area to the southwest, and the MPO North Substation to the southeast.

The nearest town is Odenton, approximately three miles to the southeast of the NSA Campus. Activities occurring on the installation do not conflict with any land use in the surrounding communities of Anne Arundel County. Fort Meade is part of the Baltimore Metropolitan Region, which includes Baltimore City and the five surrounding counties of Anne Arundel, Baltimore, Carroll, Harford, and Howard. The Anne Arundel 2009 General Development Plan directs local development, road infrastructure and public transit, agricultural land preservation, and local water resource protection (AAC 2009). Fort Meade is zoned R1 Residential by Anne Arundel County; however, the County does not have jurisdiction over federal land. **Figure 3-1** shows the Anne Arundel County-designated land uses occurring in the vicinity of the Proposed Action outside of Fort Meade.

The 2013 NSA-Washington (NSAW) Facilities Master Plan is a tool designed to guide future development of the NSA Campus to ensure that its personnel have the facilities and infrastructure required to be successful. The 2013 NSAW Facilities Master Plan uses the following measures to address facility requirements that have resulted from changing mission and technology:

- Ensure a safe, secure environment
- Improve reliability of utility systems, including providing redundancy
- Alleviate overstressed utility systems
- Provide an adequate campus transportation network
- Accommodate projected mission changes.

Visual Resources. Fort Meade, including parts of the NSA Campus, is divided into six visual themes (administrative, industrial, troop, residential, community, and campus) based on the architectural character and land use patterns on the installation. These themes are different from land use categories. The Project Area is located within the administrative theme on the NSA Campus. Notable visual resources in the vicinity of the Project Area include NVP and the Baltimore Washington Parkway (MD Rte. 295) which is on the National Register of Historic Places.



Existing Land Uses in
Vicinity of New Museum
Figure 3-1

3.1.3 Environmental Consequence

3.1.3.1 Evaluation Criteria

Land Use. The evaluation of potential land use impacts is based on the degree of land use sensitivity in areas affected by a Proposed Action and compatibility of Proposed Actions with existing conditions. Land use can remain incompatible, become compatible, or become incompatible. Effects on land use are assessed by evaluating the following criteria. Impacts on land use would be considered major if the following criteria are substantially exceeded:

- Inconsistency and lack of compliance with existing land use plans, zoning, or policies
- Alteration of the viability of existing land use
- The degree to which the Proposed Action precludes continued use or occupation of an area
- The degree to which the Proposed Action conflicts with planning criteria established to ensure the safety and protection of human life and property
- The degree to which the Proposed Action precludes use of recreational areas.

Visual Resources. The significance of potential impacts on visual resources is based on the level of visual sensitivity in the area. Visual sensitivity is defined as the degree of public interest in a visual resource and concern over adverse changes in the quality of that resource. In general, an impact on a visual resource is considered significantly adverse if implementation of a Proposed Action were to result in substantial alteration to an existing sensitive visual setting.

3.1.3.2 No Action Alternative

Under the No Action Alternative, the new CCEI would not be constructed and the existing museum would remain unchanged. Therefore, no impacts on land use and visual resources would be expected under the No Action Alternative.

3.1.3.3 Proposed Action

The Proposed Action is to construct the new CCEI building within substantial proximity to the existing museum building. Therefore, there would be no impacts on land use anticipated because there would be no change in land uses.

Land Use. The Proposed Action consists of the construction of the new CCEI building, a reconfigured parking lot, and the relocation of NVP. The proposed Project Area consists of approximately 14 acres surrounding the existing museum. The new CCEI building and reconfigured parking lot represents a continuation of existing uses and would not, therefore, require a change to the existing land use category. The expansion of activities at the new CCEI as compared to the existing museum would still be categorized as professional/institutional land uses. The new construction's architectural theme, site development, and landscape design would serve as an iconic structure and notable feature of the NSA Campus. The introduction of

the NVP to the Project Area would also not constitute a change to the existing land use category.

Although, the Proposed Action would occur primarily on already developed areas of the NSA Campus, the new CCEI building and parking areas will be partially constructed within areas of existing woodland which will result in a loss of open space. Despite a cumulative 3.0 acre loss in woodland area, 0.8 acres of reforestation is proposed within the project area. In addition, the existing woodland buffer that surrounds the Project Area will be retained and enhanced where feasible.

The existing museum parking lot and the N11 parking lot will be impacted by the CCEI project. The Proposed Action will replace the parking spaces that will be demolished to facilitate construction. The proposed facilities and site design would meet all antiterrorism/force protection requirements including the DOD Minimum Antiterrorism Standards for Buildings (Unified Facilities Criteria 4-010-01). Therefore, the proposed facilities would be compatible with the planning criteria established to ensure the safety and protection of human life and property.

Visual Resources. Negligible impacts on visual resources would be expected because the Project Area is not considered a sensitive visual resource and the area is already developed. Therefore, the Proposed Action would not result in substantial alteration to the existing sensitive visual setting. However, the relocation of NVP to the Project Area will be a change to an existing visual resource. The Proposed Action includes relocating the three existing aircraft at the existing NVP to a new NVP site within the Project Area. The impact to the NVP visual resource will be insignificant since the new NVP will provide a visually appropriate setting for the aircraft and will be accessible to the public as is the existing NVP. The new NVP location will be approximately ¼ mile from the existing NVP location.

While the Project Area is not considered a sensitive visual resource, it is directly adjacent to a portion of the Baltimore Washington Parkway (MD Rte. 295) that is on the National Register of Historic Places. As such, views from the Baltimore Washington Parkway are considered visual resources. The Proposed Action will have no adverse impact on views from the Baltimore Washington Parkway. The existing vegetation between the Baltimore Washington Parkway and the Project Area will be retained, enhanced, or removed and replaced. In addition, the Proposed Action includes siting the building further away from the Baltimore Washington Parkway than the location of the existing museum and limiting the building height to two stories, approximately 35 feet, so that it is less likely to be seen by motorists traveling on the Baltimore Washington Parkway. The exterior finishes of the main portions of the new CCEI will consist of light-colored limestone, glass windows and a glass curtain wall with a perforated metal solar screen/canopy at the main entrance. The rear of the building, facing away from the public view and towards the NSA campus, will be precast concrete panels. The exterior plaza and the relocated NVP will be designed with materials and finishes that will complement the new CCEI.

3.2 Transportation

3.2.1 Definition of Resource

For purposes of this EA, the transportation system is based on the capacity of the transportation network in the area affected by the proposed action and compatibility of a proposed action under existing conditions.

3.2.2 Existing Conditions

3.2.2.1 Study Area

The Traffic Impact Analysis (TIA), prepared by Wells and Associates, dated October 26, 2015, documents the existing conditions and travel patterns to the proposed new CCEI and in the vicinity of the site and surrounding area. The Executive Summary from the TIA is included in **Appendix B** and a copy of the full report is available upon request. The analysis focused on the number of vehicle trips currently generated by the NSA and the NCM as it exists. The project is favorably situated in proximity to regional arterial road systems. See **Figure 1-1**. Public access to the Project Area exists from Canine Road which has direct access off of MD Rte. 32. The TIA assessed traffic that travels through the Canine Road/Colony Seven Road intersection during morning and afternoon peak hours. Intersection capacity and vehicle queuing were also evaluated.

3.2.2.2 Transportation System Network

Currently all vehicular trips enter and exit the study area via the MD Rte. 295/MD Rte. 32 interchange to Canine Road. Therefore, vehicular trips will enter the site by completing a left turning movement from eastbound Canine Road on to Colony Seven Road, and will exit the site by completing a right turning movement from Colony Seven Road to westbound Canine Road, making this intersection the main intersection of the study.

3.2.2.3 Existing Traffic Operations

Core hours of the operation for the museum are from 9:00 AM to 4:00 PM. Based on the vehicular traffic counts collected at the museum parking lot entrance on Colony Seven Road, the peak hours of the museum during operating hours were 8:15-9:15 AM and 2:30-3:30 PM. Based on the vehicular traffic counts collected at the Canine Road/Colony Seven Road intersection, which is utilized as the primary point of ingress and egress for NSA employees, the peak hours of the NSA were 6:45-7:45 AM and 4:00-5:00 PM.

Currently, the NCM hosts approximately 60,000 visitors annually, many of whom are large groups of school students and scouts on field trips visiting during the core museum hours of 9:00 AM to 2:00 PM. In addition, the NCM hosts training classes on a bi-weekly basis, with

class sizes ranging from 25 to 40 students. Training classes typically occur during the core hours from 9:00 am to 3:00 pm.

The museum currently generates 12 trips during the NSA AM peak hour, 54 trips during the museum AM peak hour, 31 trips during the museum PM peak hour, and 45 trips during the NSA PM peak hour. During the museum AM peak hour, 1,078 trips were counted at the Colony Seven Road/Canine Road intersection, and 1,084 trips were counted during the museum PM peak hour.

Based on the parking occupancy counts as taken on Thursday, June 12, 2014, a maximum of 34 vehicles were parked at the museum parking lot compared with a total supply of 92 parking spaces. According to the National Cryptologic Museum, the day the traffic counts were taken was a relatively light day for museum visitations. In the approach to the trip generation analysis, it is assumed that a relatively heavy day of museum visitations corresponds to a 90% parking occupancy rate (or 83 parking spaces.)

Applying the 90% parking attendance method to the parking rate for conference center trip generation, plus an average vehicle occupancy of 1.10 persons/vehicle (accounts for the potential of some carpooling), a total of 368 peak hour trips inbound/outbound were calculated. Using the same 90% ratio and 1.1 persons per vehicle methodology, 111 vehicles were calculated as peak hour trips for classroom trip generation.

The NSA generates 1,720 trips during the NSA AM peak hour, 1,024 trips during the museum AM peak hour, 1,053 trips during the museum PM peak hour, and 1,260 during the NSA PM peak hour. During the afternoon, NSA traffic exits the parking lot over a period starting at 2:00 PM until approximately 6:00 PM. During the NSA AM peak hour, 1,732 trips were counted at the Colony Seven Road/Canine Road intersection, and 1,305 trips were counted during the NSA PM peak hour.

The signalized intersection of Canine Road/Colony Seven Road and its turning movements currently operate at acceptable levels of service. The turning movements of the Colony Seven Road/NSA Lot intersection currently operate at acceptable levels of service.

3.2.3 Environmental Consequence

3.2.3.1 Evaluation Criteria

The evaluation of impacts on the transportation systems is based on the capacity of the transportation network in an area affected by a proposed action and compatibility of a proposed action under existing conditions. Impacts would be considered major if a proposed action were to result in any of the following:

- Increase in traffic volumes or delays to levels that impair a roadway's handling capacity or increase traffic safety hazards
- Reduction in the intersection and state or federal highway functions from LOS A through D to LOS E and F
- Substantial increase in vehicle queue length
- Substantial disruption of traffic operations.

The No Action Alternative is analyzed to provide a baseline of the existing conditions against which potential impacts of the Proposed Action can be compared.

3.2.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented, the existing access would remain unchanged, and no major adverse impacts on traffic would be expected.

3.2.3.3 Proposed Action

The NCMF is proposing to redevelop the site with 74,500 square feet (SF) of enclosed building space integrated into a park-like setting. The building will consist of museum exhibit space; a state-of-the-art research library; reconfigurable classrooms with the capacity of 30 to 150 students; an auditorium; a cafeteria and kitchen; a gift shop; storage and ancillary rooms; and office space for the museum and NCMF staff. With the redevelopment of the NCM and new CCEI, the number of annual visitors could increase to approximately 150,000 to 200,000, up from the current visitor rates of 60,000 guests. The proposed development would have long-term, minor, adverse impacts on traffic.

The new CCEI will host seminars and conferences in the new auditorium, with the intent to host multiple conferences and activities each month. Core hours of the Conference Center are anticipated to be 8:00 a.m. to 4:00 p.m., Monday through Friday and possibly some weekend programming. Thus, the conference and museum visitors will be arriving and leaving the site during the time period of 8:00 to 5:00 pm.

Approximately 492 parking spaces are proposed to serve the new CCEI. In addition, NSA is planning to relocate VCP 1 and provide additional parking and reconfigure the road access from Canine Road to Colony Seven Road. Access to the new CCEI is proposed to remain via Colony Seven Road.

The TIS was prepared in October 2015 utilizing different proposed assumptions than what is currently proposed for the new CCEI. The study was prepared when an 88,500 SF new CCEI was initially designed during the schematic plan phase. Therefore, the TIS was based on a worst case scenario and the revised building square footage will reduce the impacts on intersection and queue levels of service as described below.

Future peak hour levels of service with the redevelopment of the new CCEI were estimated at the Canine Road/Colony Seven Road and Colony Seven Road/NSA Lot study intersections based on future forecasts detailed in the Wells and Associates TIA and the Highway Capacity Manual (HCM) methodologies, using Synchro Software, version 9 (build 902, revision 153).

During the museum peak hours of 8:15-9:15 AM and 2:30-3:30 PM, the concurrent uses of the museum, auditorium, and reconfigurable classrooms would add 792 AM peak hour and 659 PM peak hour trips to the roadway network and they would add 479 AM peak hour and 590 PM peak hour trips to the roadway network during the peak hours of NSA.

With the museum exhibit space, the auditorium, and the classrooms, the total intersection volume would increase to 1,673 trips for the museum AM peak hours and intersection volume would increase to 1,639 trips for the museum PM peak hours.

Ultimately, with the redevelopment of the new CCEI, the signalized study intersection of Canine Road/Colony Seven Road intersection and its turning movements would operate at acceptable levels of service during the AM peak hours. The turning movements of the Colony Seven Road/NSA Lot intersection would also operate at acceptable levels of service during the AM peak hours. However, the proposed redevelopment without any road improvements would cause both of these intersections to operate near or beyond capacity during the PM peak hours if the multiple users, such as the auditorium operate concurrently with either the museum or the classrooms.

3.2.3.4 Recommendations

Recommendations for improvements based on the study and evaluation of the NCMF redevelopment is as follows:

- Retiming the Canine Road/Colony Seven Road intersection to allocate more green time to Colony Seven Road would improve the level of service at this intersection, particularly during the PM peak hours.
- Schedule overlapping uses to avoid peaks travel times to minimize the potential for undesirable levels of service and queuing along Colony Seven Road.
- Utilize a shuttle service to encourage an alternative to vehicle travel.
- With the anticipated redesign of the Colony Seven Road/Canine Road intersection, special consideration should be given to the northbound approach of Canine Road and the eastbound right turn lane of Colony Seven Road, which would have critical queuing issues during the AM and PM peak hours, respectively. The eastbound Colony Seven Road approach at Canine Road could be reconfigured to provide dual right turn lanes to improve the operation during peak hours with the expanded museum, classrooms, and auditorium all in use. In addition, dual left turns could be provided to the northbound approach of

- Canine Road to diffuse queuing and provide additional capacity, particularly during the AM peak hours.
- Utilize off-site parking options with busing of event attendees to the new CCEI facility to reduce the strain on ingress and egress during NSA and new CCEI peak AM and PM periods.
- Longer-term options to improve ingress and egress to the new CCEI site location could include adding an exit ramp from the new CCEI site to the northbound Baltimore-Washington Parkway (MD Rte. 295). Further investigations of these changes would be required, and it is acknowledged that these changes would be both expensive and lengthy to execute.

Not included in the traffic analysis outlined in this section but critical to the evaluation of traffic impacts on the new CCEI project is the VCP-1 relocation project proposed by NSA and currently in the review and design process. The VCP-1 project includes relocating the existing visitor control point, VCP-1, realigning Canine Road, relocating and reconfiguring the intersection of Canine Road and Colony Seven Road, and relocating the ingress/egress locations and parking field for the N10 parking lot. These proposed improvements, in addition to addressing security concerns at the Fort Meade campus, will alleviate or eliminate many of the traffic issues identified in this section by:

- Providing greater separation between the interchange ramp of Maryland Route 32 and VCP-1 to allow for more queueing on Canine Road, which will reduce the likelihood that traffic entering the Fort Meade campus, will back up on Maryland Route 32.
- Providing greater separation between the intersection of Canine Road and Colony Seven Road and the VCP-1 to allow for more queueing on Canine Road which will reduce conflicts between traffic entering and exiting Colony Seven Road and traffic entering and exiting the Fort Meade campus.
- Providing access from NSA parking areas directly onto Canine Road instead of onto Colony Seven Road which will reduce conflicts between traffic entering and exiting Colony Seven Road and traffic entering and exiting the parking area.

3.3 Noise

3.3.1 Definition of Resource

For the purposes of this EA, noise is defined as sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. Affected receptors are specific (e.g., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

Noise Matrix: Sound varies by both intensity and frequency. Sound Pressure Levels (SPLs), described in decibels (dB) are used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of an SPL to a standard reference level. The cycles from high to low pressure per second, also called Hertz, are used to quantify sound frequency. The human ear responds differently to different frequencies. A-weighted decibels (dBA) are used to characterize sound levels that can be sensed by the human ear. “A-weighted” denotes the adjustment of the frequency content of a sound-producing event to represent the way in which the average human ear responds to the audible event. Sound levels discussed in this EA are A-weighted.

The SPL noise metric describes instantaneous noise levels; there is no time domain associated with an SPL. The equivalent noise level (Leq) is often used to describe an average noise level occurring over a stated period of time, usually an hour. Being an average, it is the total energy of the noise, so it is easier to measure and a better indicator of the likelihood that a noise would generate complaints. Many noise standards and noise ordinances are based on Leq. The Day-Night Average A-weighted Noise Level (DNL) is a form of 24-hour average noise level. DNL is the energy-averaged sound level measured over a 24-hour period, with a 10-dBA penalty assigned to nighttime noise events (10:00 p.m. to 7:00 a.m.) to account for increased annoyance. DNL is a useful descriptor for noise because it averages ongoing, yet intermittent, noise, and it measures total sound energy over a 24-hour period.

Federal Regulations: The federal government established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. According to United States (U.S.) Army, Federal Aviation Administration (FAA), and U.S. Department of Housing and Urban Development (HUD) criteria, noise guidelines and regulations for residential units and other noise-sensitive land uses are “clearly unacceptable” in areas where the DNL noise exposure exceeds 75 dBA, “normally unacceptable” in regions exposed to noise between 65 and 75 dBA, and “normally acceptable” in areas exposed to noise of 65 dBA or less. The Federal Interagency Committee on Aviation Noise (FICAN) developed land use compatibility guidelines for noise in terms of DNL (FICAN 1992). For outdoor activities, the U.S. Environmental Protection Agency (USEPA) recommends a DNL of 55 dBA as the sound level below which there is no reason to suspect that the general population would be at risk from any of the effects of noise (USEPA 1974).

State Regulations: The *State of Maryland’s Environmental Noise Act of 1974* limited noise to the level that will protect health, general welfare, and property. The State of Maryland transferred noise regulation authority to local jurisdictions; however, the state continues to be responsible for setting standards and general exemptions (Code of Maryland Regulations [COMAR] 26.02.03.03, *Control of Noise Pollution*). **Table 3-1** shows the overall noise standards and **Table 3-2** shows the maximum allowable noise levels for residential, industrial, and commercial areas. Construction and demolition activities are exempt from the limits shown in **Tables 3-1** and **3-2** during the daytime hours (i.e., between 7:00 a.m. and 10:00 p.m.). For construction and demolition activities, a person may not cause or permit noise levels that

exceed 90 dBA during daytime hours or exceed the levels specified in **Table 3-2** during nighttime hours (i.e., between 10:00 p.m. and 7:00 a.m.). Blasting operations for construction and demolition activities are exempt from the limits shown during the daytime hours. In addition, noise from pile-driving activities is exempt from the limits during the daytime hours of 8:00 a.m. to 5:00 p.m. Emergency operations are exempt from the regulation [Code of Maryland Regulations (COMAR) 26.02.03].

Per COMAR 26.02.03, an exception to the regulation could be requested if meeting the requirements is not practical in a particular case. The request must be submitted in writing to the Maryland Department of the Environment (MDE) with evidence as to why compliance is impractical.

Table 3-1. State of Maryland Overall Environmental Noise Standards

Zoning District	Noise Level (dBA)	Measure
Industrial	70	L_{eq}
Commercial	64	DNL
Residential	55	DNL

Source: COMAR 26.02.03

Key:

DNL = Day-Night Average Sound Level

L_{eq} = equivalent continuous noise level

Table 3-2. State of Maryland Maximum Allowable Noise Levels (dBA)

	Daytime	Nighttime
Residential Districts	65 dBA	55 dBA
Commercial and Mixed Use Districts	67 dBA	62 dBA
Industrial and Marine Districts	75 dBA	75 dBA

Source: COMAR 26.02.03.03

Ambient Sound Levels: Noise levels vary depending on the housing density and proximity to parks and open space, major traffic areas, or airports. The noise level in a normal suburban area is about 55 dBA DNL, which increases to 60 dBA for an urban residential area, and to 80 dBA in the downtown section of a city. On average, areas where most human activity takes place, i.e. indoor residential areas or outdoor areas, have noise levels ranging from 45 to 55 dBA, respectively (USEPA 1974).

Construction Sound Levels: Building demolition and construction work can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, pavers, and other work equipment. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment, and up to 30 to 35 dBA in a quiet suburban area. Noise, however, does generally attenuate by 6 dBA with each doubling of

distance from a point source such as concrete mixers or generators, or by 3 dBA with each doubling of distance from a line source, such as construction-related truck traffic. **Table 3-3** presents a list of construction equipment that might be used for construction for the new CCEI and the associated noise levels that would result from their use.

Table 3-3. Noise Level Ranges of Typical Construction Equipment

Construction Equipment	Noise Levels in dBA at 50 feet
Trucks	82-95
Cranes (moveable)	75-88
Cranes (derrick)	86-89
Vibrator	68-82
Saws	72-82
Pneumatic Impact Equipment	83-88
Jackhammer	81-98
Pumps	68-72
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Concrete Pumps	81-85
Front Loader	73-86
Back Hoe	73-95
Pile Driving (peaks)	95-107
Tractor	77-98
Scraper/Grader	80-93
Paver	86-88

Source: USEPA 1971.

Note: *Construction equipment equipped with noise control devices (e.g., mufflers) and use of sound barriers would be expected to result in lower noise levels than shown in this table.

3.3.2 Existing Conditions

The new CCEI is located within Fort Meade, as shown on **Figure 1-1**. Fort Meade, including NSA areas, is relatively quiet without significant sources of noise. The main source of noise on Fort Meade and the NSA campus is vehicular traffic. Other sources include the normal operation of heating, ventilation, and air conditioning systems; lawn maintenance; snow removal; and emergency generator testing and maintenance. None of these activities produce excessive levels of noise. Vehicular traffic is the major contributor to the ambient noise levels at Fort Meade (USACE 2007). Two highways in the region that are adjacent to Fort Meade and the NCM include MD Rte. 295 to the north and MD Rte. 32 to the west.

Existing ambient noise levels have been estimated at several locations within Ft. Meade and the NSA campus (NSA 2009b). Noise levels were estimated to be between 55 to 65 dBA

DNL, depending on the noise-sensitive receptor's proximity to major roadways (NSA 2009b). Therefore, present ambient noise levels at Fort Meade and the NSA campus fall into the "normally acceptable" range as defined by U.S. Army and HUD criteria. The existing museum's proximity to major roadways would result in higher ambient noise levels.

Another potential noise source is Tipton Airport, a public airport southwest of Fort Meade. However, aircraft noise in the Fort Meade area is low, because approach paths to Tipton runway are oriented in an east-west direction.

3.3.3 Environmental Consequences

3.3.3.1 Evaluation Criteria

An analysis of the potential effects associated with noise typically evaluates potential changes to the existing acoustical environment that would result from implementation of a Proposed Action. Potential changes in the acoustical environment can be beneficial (i.e., they reduce the number of sensitive receptors exposed to unacceptable noise levels or reduce the ambient sound level), negligible (i.e., the total number of sensitive receptors to unacceptable noise levels is essentially unchanged), or adverse (i.e., they result in increased sound exposure to unacceptable noise levels or ultimately increase the ambient sound level). Effects would be considered significant if noise levels were to be unacceptable to multiple sound receptors.

The main issues concerning noise effects on humans are physiological effects (e.g., hearing loss and non-auditory effects), behavioral effects (e.g., speech or sleep interference and performance effects), and subjective effects such as annoyance. This noise analysis considers potential effects on nearby noise-sensitive receptors, including residential (multi-family housing and barracks), schools, churches, and hospitals. The major sources of noise, their contribution to the overall noise environment, and maximum sound level were estimated for comparison to local noise-control standards. The analysis considers construction and operation of the proposed facilities.

3.3.3.2 No Action Alternative

The No Action Alternative would not result in changes in the ambient noise environment if the Proposed Action were not implemented. Existing functions would continue to be performed at existing NCMF facility. No construction activities associated with NCMF would be undertaken on Fort Meade, and no changes in NCMF operation on Fort Meade would take place. No impacts on the ambient noise environment would be expected.

3.3.3.3 Proposed Action

Construction Noise: Under the Proposed Action, an increase in noise levels will occur from construction equipment and additional vehicle traffic. The primary sources of noise under the Proposed Action would be short-term and would occur from construction equipment.

Operational Noise: Long-term, minor impacts would be expected from the operation and testing of an emergency generator and the use of operational equipment for the building (i.e., heating and cooling systems, and equipment for operation of the facility). The generator would only be operated under emergency situations and during routine testing and not for more than 168 hours per year. The 350-kW generator would have the lowest sound emission levels that are feasible per DOD Instruction 6055.12. Therefore, the generator would likely have the highest available level of sound insulation.

3.4 Air Quality

3.4.1 Definition of Resource

For the purposes of this EA, air pollution is the presence in the outdoor atmosphere of one or more contaminants (e.g., dust, fumes, gas, mist, odor, smoke, or vapor) in quantities and of characteristics and duration such as to be injurious to human, plant, or animal life or to property, or to interfere unreasonably with the comfortable enjoyment of life and property. Air quality as a resource incorporates several components that describe the levels of overall air pollution within a region, sources of air emissions, and regulations governing air emissions. The following paragraphs discuss the National Ambient Air Quality Standards (NAAQS), local ambient air quality, and State of Maryland air permitting requirements.

3.4.2 Existing Conditions

3.4.2.1 Existing Air Quality and Emissions

The USEPA and MDE regulate air quality in Maryland. The *Clean Air Act (CAA)* (42 U.S.C. 7401–7671q), as amended, gives the USEPA the responsibility to establish the primary and secondary NAAQS (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: particulate matter (PM) less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), sulfur dioxide (SO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), ozone (O₃), and lead (Pb). Short-term standards (i.e., 1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term standards (i.e., annual averages) have been established for pollutants contributing to chronic health effects. Each state has the authority to adopt standards stricter than those established under the federal program; however, the State of Maryland follows the federal standards for pollutants that would be emitted under this Proposed Action.

Air quality control regions (AQCRs) are interstate or intrastate areas designated by the USEPA for the attainment and maintenance of the NAAQS. Federal regulations designate AQCRs that have concentrations of one or more of the criteria pollutants that exceed the NAAQS as *nonattainment* areas. Federal regulations designate AQCRs with levels below the NAAQS as *attainment* areas. Anne Arundel County (and therefore Ft. Meade) is within the Baltimore Intrastate AQCR, or AQCR 115 (40 CFR 81.12). AQCR 115 is within the ozone

transport region (OTR) that includes 11 states and Washington, D.C. The USEPA has designated Anne Arundel County (and, therefore, the proposed new CCEI site) as the following (40 CFR 81.321):

- Serious nonattainment for the 8-hour O₃ NAAQS
- Nonattainment for the PM_{2.5} NAAQS
- Attainment for other criteria pollutants.

Local Ambient Air Quality: Existing ambient air quality conditions near NSA and Fort Meade can be estimated from measurements conducted at air quality monitoring stations close to the NSA campus (see **Table 3-4**).

Table 3-4. Local Ambient Air Quality Conditions for Anne Arundel County

Pollutant	Primary NAAQS	Secondary NAAQS	Monitored DATA
O₃			
8-Hour Maximum ^a (ppm)	0.075	0.075	0.075
PM_{2.5}			
Annual Arithmetic Mean ^b (µg/m ³)	15	15	9.5
24-Hour Maximum ^c (µg/m ³)	35	35	23

Sources: 40 CFR 50.1-50.12, USEPA 2015a

Notes:

- The 3-year average of the fourth highest daily maximum 8-hour average of O₃ concentrations per year must not exceed 0.075 ppm. The monitored value shown is the average of the fourth highest 8-hr measurements for 2012, 2013, and 2014.
- The 3-year average of the weighted annual mean PM_{2.5} concentrations at each monitor within an area must not exceed 15.0 µg/m³. The monitored value shown is the average of the weighted annual mean measurements for 2012, 2013, and 2014.
- The 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor must not exceed 65 µg/m³. The monitored value shown is the average of the 98th percentile 24-hr measurements for 2012, 2013, and 2014.

Key: ppm = parts per million; µg/m³ = micrograms per cubic meter

With the exception of the 8-hour O₃ NAAQS, most recent air quality measurements are below the NAAQS (USEPA 2015b). The reported measurement of 0.075 ppm O₃ for the 8-hour level achieves the NAAQS of 0.075 ppm and reflects a significant improvement from historical levels. However, USEPA announced on October 1, 2015, that it is revising the NAAQS for 8-hour ozone from 0.075 to 0.070 ppm. Hence, Anne Arundel County air quality must improve further in order to be re-designated as attainment for ozone.

Due to the lower monitored levels of PM_{2.5} in recent years, the region has been re-designated from moderate nonattainment to attainment (maintenance) for the PM_{2.5} NAAQS. Notably, O₃ and PM_{2.5} are the only criteria pollutants monitored in the County.

Clean Air Act Conformity: The General Conformity Rule specifies threshold emissions levels by pollutant to determine the applicability of conformity requirements for a project. For an area in moderate nonattainment for the 8-hour O₃ NAAQS within the OTR, the applicability criterion is 100 tons per year (tpy) for NO_x and 50 tpy for volatile organic compounds (VOCs) (40 CFR 93.153). For an area in nonattainment for the PM_{2.5} NAAQS, the applicability criterion is 100 tpy for PM_{2.5}, NO_x, and SO₂ (71 FR 40420).

Existing Emissions: Title V of the CAA requires states to establish an air operating permit program. The requirements of Title V are outlined in the Federal regulations in 40 CFR Part 70 and in the MDE's regulations at COMAR 26.11.03. The permits required by these regulations are often referred to as Title V or Part 70 permits. Based on its potential to emit (PTE), NSA is a major source of air emissions for NO_x. Stationary sources of air emissions at NSA include boilers and emergency generators. An NSA campus-wide Title V permit (No. 24-003-00317) was issued on February 1, 2015 (MDE 2015b).

Greenhouse Gas Emissions: Greenhouse gases (GHGs) are primarily produced by the burning of fossil fuels and through industrial and biological processes. EO 13693 required federal agencies to set goals for reducing GHG emissions. The DOD identified three scopes in order to establish GHG reduction targets:

Scope 1: direct greenhouse gas emissions from sources that are owned or controlled by the agency;

Scope 2: direct greenhouse gas emissions resulting from the generation of electricity, heat or steam purchased by an agency;

Scope 3: greenhouse gas emissions from sources not owned or directly controlled by an agency but related to agency activities such as vendor supply chains, delivery and transportation services, and employee travel and commuting;

The GHG reduction targets include reducing Scope 1 and Scope 2 GHG emissions by 34 percent by 2020, relative to Fiscal Year (FY) 2008 emissions, and reducing Scope 3 GHG emissions by 14 percent by 2020, relative to FY 2008 emissions (DOD 2014). The DOD is in the process of revising these standards in response to the emissions goals established in EO 13693. Additionally, the White House's CEQ recently revised draft guidance on when and how federal agencies should consider GHG emissions and climate change in NEPA analyses. The draft guidance includes a presumptive reference point of 27,563 tpy (25,000 metric tpy) of GHG, or CO₂ equivalent emissions, for discussion and disclosure of such emissions from a federal action (CEQ 2014).

3.4.2.2 Permitting Requirements

The MDE oversees programs for permitting the construction and operation of new or modified stationary source air emissions in Maryland. Maryland air permitting is required for many industries and facilities that emit regulated pollutants. Based on the size of the emissions

units and type of pollutants emitted [i.e., criteria pollutants or hazardous air pollutants (HAPs)], MDE sets permit rules and standards for emissions sources.

The air quality permitting process begins with the application for a construction permit. There are three types of construction permits available through the MDE for the construction and temporary operation of new emissions sources: Major New or Modified Source Construction Permits in Nonattainment Areas [Nonattainment New Source Review (NNSR)]; Prevention of Significant Deterioration (PSD) permits in Attainment Areas; and Minor New Source Construction Permits [Minor New Source Review (NSR)].

NNSR and PSD permits are both part of the MDE Major NSR program. Thresholds that determine the type of construction permit that might be required depend on both the quantity and type of emissions. Thresholds requiring either an NNSR or a PSD permit for a modification to an existing source in Anne Arundel County are outlined in **Table 3-5**. PSD review and permitting is required for sources emitting 100 tpy of any regulated pollutant for any of the 26 named PSD source categories. One of the named source categories is fossil-fuel boilers that singly or in combination total more than 250 million British thermal units per hour (MMBtu/hr) heat input at a single facility [COMAR 26.11.01.01B(37)]. For other sources not in the 26 named source categories, PSD review is required if the source emits 250 tpy or more of any regulated pollutant.

Table 3-5. Major Modification Thresholds of Criteria Pollutants within Anne Arundel County

Pollutant	New major source (tpy)		Major modification to an existing source ^a (tpy)	
	PSD ^b	NNSR	PSD	NNSR
CO	250 (100)	-	100	-
NO _x	-	25	-	25
SO ₂	-	100	-	40
PM	250 (100)	-	25	-
PM ₁₀	250 (100)	-	15	-
PM _{2.5}	-	100	-	10
VOCS	-	25	-	25

Sources: COMAR 26.11.17.01 and 40 CFR Part 52

Notes:

- Represents the project emissions increase considered “significant.”
- PSD review and permitting is required for sources emitting 100 tpy of any regulated pollutant for fossil-fuel boilers (or combination of them) totaling more than 250 MMBtu/hr heat input (COMAR 26.11.01.01B (37)).

3.4.3 Environmental Consequences

3.4.3.1 Evaluation Criteria

The environmental impacts on local and regional air quality conditions near a Proposed Action are determined based on increases in regulated pollutant emissions compared to existing conditions and ambient air quality. Impacts on air quality would be considered significant if a Proposed Action would have emissions that exceed the *de minimis* threshold levels established under the General Conformity Rule, or would lead to a violation of any Federal, state, or local air regulation.

3.4.3.2 No Action Alternative

The No Action Alternative would not result in changes in ambient air quality conditions. If the Proposed Action were not implemented, existing functions would continue to be performed at existing NSA and NCMF facilities. No construction activities associated with NCMF would be undertaken on Fort Meade, and no changes in NCMF operations on Fort Meade would take place. A general conformity analysis and the permitting of stationary sources would not be required. No impacts on air quality would be expected.

3.4.3.3 Proposed Action

Implementing the Proposed Action would have short and long-term impacts on air quality. Short-term impacts would occur from air emissions generated during the construction of the proposed facilities. However, increases in emissions would be below the General Conformity Rule applicability thresholds and would not contribute to a violation of any Federal, state, or local air regulations. Long-term impacts would occur from operational emissions at the proposed facility. However, because the proposed facility is a replacement of an already existing facility, the increase in long-term impacts compared to those that are preexisting, would be *de minimis*.

General Conformity: The new CCEI upgrade would require the demolition of the existing NCM and associated pavement, the removal of approximately 3.0 acres of forest, the construction of approximately 74,500 SF of replacement building, and the paving (or repaving) of the associated street and parking lot.

The following information (including **Table 3-6**) was completed for the VCP-1 EA, an Environmental Assessment previously completed on the Fort Meade campus, but is valid for the new CCEI as well due to its similarity to the VCP-1 scale of construction. To determine the applicability of the General Conformity Rule, air emissions from proposed construction and operational activities were estimated. Construction emission estimates were created based primarily on the building areas and the relative timeframe of the action. The total direct and indirect emissions of NO_x, VOCs, PM_{2.5}, and SO₂ would be less than the *de minimis* thresholds (see **Table 3-6**). Therefore, the general conformity requirements do not apply, and a formal

conformity determination is not required. Small changes to the facilities' siting, the ultimate design, and moderate changes in the quantity and types of equipment used would not have a substantial influence on emissions estimates, and would not change the determination under the General Conformity Rule or the level of effects under NEPA.

**Table 3-6. Total Annual Emissions for the Proposed Action
 Compared to the Applicability Thresholds**

Activity	Emissions (tpy)				De Minimis Threshold	Exceeded De Minimis Levels?
	NO _x	VOC	SO ₂	PM _{2.5}		
2016 Construction ^a	8.4	0.89	0.65	6.9	100(50) ^b	No
2019 Operations ^c	5.1	0.63	0.40	0.50		
Operations	Less than No Action Alternative					

Sources: 40 CFR Part 93.153

Notes:

- a. Assumes removal of trees, paving of entrance road and parking lots, and construction of the new CCEI is compressed into a single year.
- b. *De minimis* threshold for VOC in this ozone transport area is 50 tpy.
- c. Construction of new CCEI Building and demolition of existing NCM building.

Regulator Review: Permitting scenarios can vary based on the types and sizes of new stationary sources, timing of the projects, and the types of controls ultimately selected. These can differ in specific features from the ones described in this EA. However, during the final design stage and the permitting process, either (1) the actual equipment, controls, or operating limitations would be selected to reduce the PTE below the major source threshold; or (2) the NSR permitting process would require emissions offsets be obtained at a 1 to 1.3 ratio from other previously decommissioned sources within the region. This cap-and-trade-type system is inherent to Federal and state air regulations, and leads to a forced reduction in regional emissions. Therefore, regardless of the ultimate permitting scenario, these impacts would be considered minor under NEPA.

The new CCEI would require a 350-kW generator for emergency backup power, which would be small enough that it would not be added to NSA's Title V Permit

Best Management Practices (BMPs): BMPs would be required and implemented for both construction emissions and stationary point source emissions associated with the new facility. The construction would be accomplished in full compliance with current and pending Maryland regulatory requirements through the use of compliant practices or products. These requirements appear in COMAR Title 26, Subtitle 11, *Air Quality*. They include the following:

- Particulate Matter from Materials Handling and Construction (COMAR 26.11.06.03.D);
- Open Fires (COMAR 26.11.06);
- Control of Emissions of VOCs from Architectural Coatings (COMAR 26.11.33);

- Control of Emissions of VOCs from Consumer Products (COMAR 26.11.32); and
- Control of Emissions of VOCs from Adhesives and Sealants (COMAR 26.11.35).

Regardless of whether stationary sources are above or below the major source threshold, one or more air pollution control permits would be required for the facilities. BMPs associated with the newly permitted stationary sources of emissions would include the following:

- Best Available Control Technology review for each criteria pollutant;
- Maximum Achievable Control Technology review for regulated HAPs and designated categories;
- Air quality analysis (predictive air dispersion modeling), upon MDE's request;
- Establishing procedures for measuring and recording emissions or process rates; and
- Meeting the New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements.
- This listing is not all-inclusive; NCMF and any contractors would comply with applicable State of Maryland air pollution control regulations.

Greenhouse Gases: Greenhouse gases (GHGs) are components of the atmosphere that trap heat relatively near the surface of the earth, and therefore, contribute to the greenhouse effect. Most GHGs occur naturally in the Earth's atmosphere, but increases in their concentrations result from anthropogenic activities. GHGs are primarily produced by the burning of fossil fuels and through other industrial and biological processes.

Short-term GHG emissions will result from construction and construction-related activities. Operational sources of GHG emissions would be CO₂ emitted from the emergency generator and generation of electricity purchased from regional electricity companies. Additionally, there would be no significant emissions of nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorinated compounds (PFCs), or sulfur hexafluoride (SF₆). Although the exact type of equipment is yet unknown, the primary on-site sources would be fossil fuel-burning equipment such as generators. Emergency generators are generally used during emergencies, and therefore emissions produced by such generators would be considered *de minimus*. Additionally, operational GHG emissions are expected to be generally equivalent to the No Action Alternative, due to the fact that the existing facility utilizes electricity purchased from electricity companies.

3.5 Geological Resources

3.5.1 Definition of Resource

For the purposes of this EA, geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are

described in terms of topography and physiography, geology, soils, and, where applicable, geologic hazards.

Topography: Topography and physiography pertain to the general shape and arrangement of a land surface, including its elevation and the position of both natural and artificial features.

Geology: Geology provides information on the structure of surface and subsurface features of the Earth. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

Soils: Soils are the unconsolidated materials overlying bedrock or other parent materials. Soils are usually described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink swell potential, and erosion potential affect their abilities to support certain uses. For appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Prime Farmland: Prime farmland is protected under the *Farmland Protection Policy Act (FPPA) of 1981*. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The land could be cropland, pasture, rangeland, or other land, but not urban built-up land or water. The intent of the FPPA is to minimize the extent that federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses.

Geologic Hazards: Geologic hazards are defined as natural geologic events that can endanger human lives and property. Examples of geologic hazards in Maryland include earthquakes, sinkholes, and landslides.

3.5.2 Existing Conditions

Physiography and Topography: Anne Arundel County and the NSA Campus lie within the Atlantic Coastal Plain physiographic province of Maryland. The Atlantic Coastal Plain is characterized by unconsolidated sediments, including gravel, sand, silt, and clay. The sediments found in the Atlantic Coastal Plain range in age from the Triassic to Quaternary time periods. The Atlantic Coastal Plain is underlain by a southeastwardly thickening sequence of sediments composed of sand and gravel aquifers interlayered with silt and clay confining units. The topography of the Atlantic Coastal Plain is relatively flat with slopes generally less than 1 degree toward the east. Thus, land throughout the NSA Campus is relatively flat. The new CCEI project area is about 170 feet above mean sea level (USGS 2013).

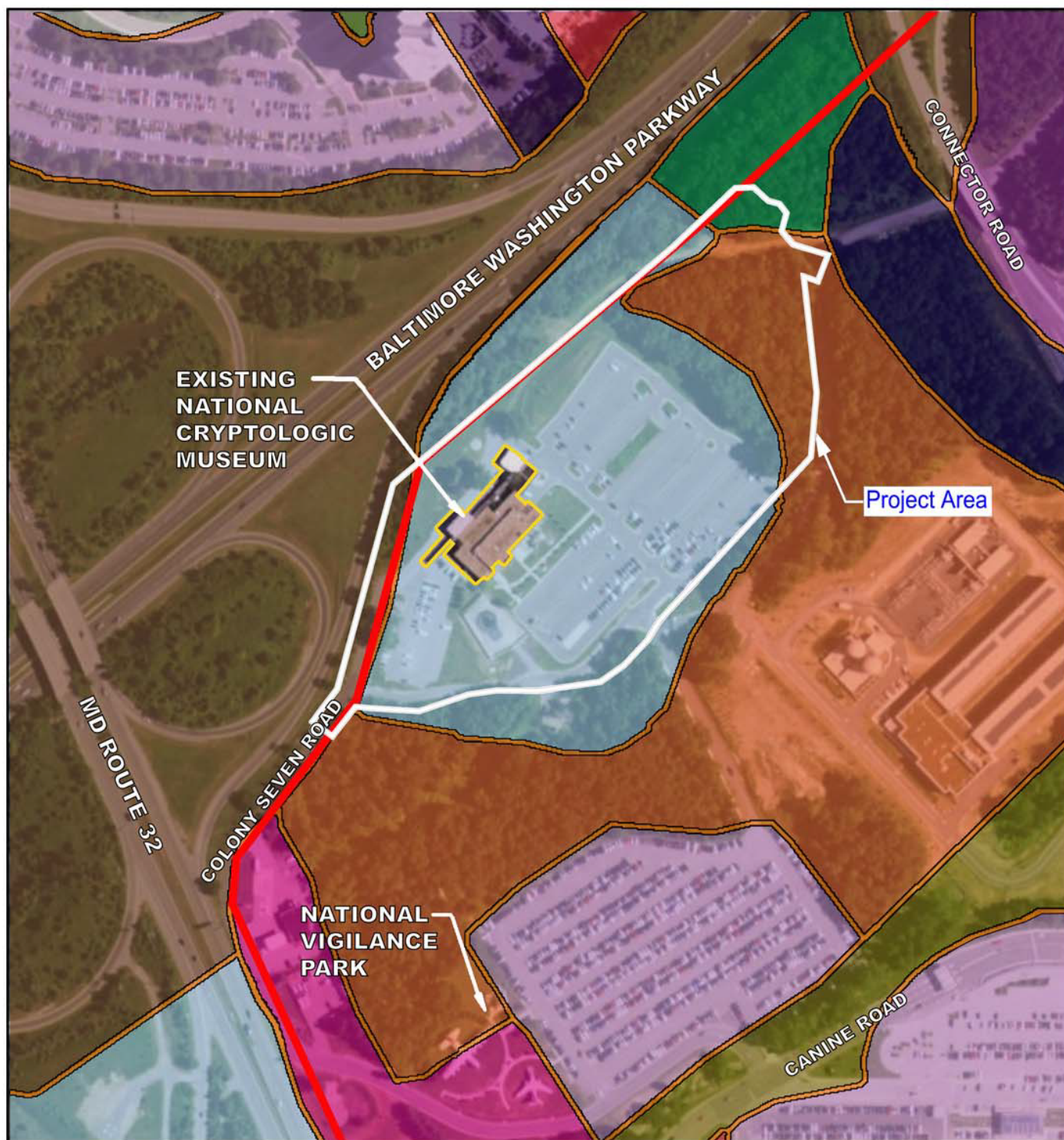
Geology: Sediments underlying the new CCEI project area, including the NSA Campus, consist of interbedded, poorly sorted sand and gravel deposits up to 90-feet thick from the Pleistocene Epoch (100,000 to 1.65 million years ago); and the Patuxent Formation (0 to 250

feet thick) of the Potomac Group, which were deposited during the Cretaceous period (138 to 63 million years BP) (USACE 2005, MGS 2008). Metamorphic Precambrian bedrock underlies the Patuxent Formation. The Arundel Clay acts as a confining layer between the Lower Patapsco Aquifer and the Patuxent Aquifer, in the Patapsco and Patuxent Formations, respectively. This clay is composed of red, gray, and brown grains with some ironstone nodules and plant fragments (Fort Meade 2005).

Soils: Four different soil units have been identified by the Natural Resources Conservation Service (NRCS) in the project area (see **Figure 3-2**). These soils include Chillum loam, 2 to 5 percent slopes; Downer-Hammonton complex, 2 to 5 percent slopes; and Udorthents, loamy, 0 to 5 and 5 to 15 percent slopes. Chillum loam, 2 to 5 percent slopes, and Udorthents, loamy, 0 to 5 percent slopes make up a majority of the soil in the CCEI Project Area, representing 17 percent and 80 percent, respectively. Chillum loam, 2 to 5 percent slopes is comprised of silty eolian material and has no frequency of ponding or flooding. This soil type is predominantly found in the northwestern portion of the Project Area. Udorthents 0 to 5 percent slopes comprises the soil under the existing building and existing paved parking areas within the project boundary. Udorthents 0 to 5 percent slopes is characterized by soils that have been used as fill material during previous development. Udorthents 5 to 15 percent slopes makes up the next greatest amount of the Project Area at 2 percent of the area, predominantly located along the western edge of the area (NRCS 2015).

Prime Farmland: Of the four soil types found within the new CCEI project area, only Chillum loam, 2 to 5 percent slopes, and Downer-Hammonton complex, 2 to 5 percent slopes are identified as prime farmland. Most of the NSA Campus and Fort Meade, including the new CCEI project area, are identified as an urbanized area on the 2010 Census Urbanized Area Reference Map: Baltimore, Maryland, and, therefore, would not be considered or used as future farmland (USCB 2012). Additionally, the NCM is located within Fort Meade, which is a military installation that is not currently used for agriculture and has no planned uses for agriculture. No impacts would be expected on prime farmland from the Proposed Action; therefore, it does not require further analysis.

Geologic Hazards: The U.S. Geological Survey has produced seismic hazard maps based on current information about the rate at which earthquakes occur in different areas and on how far strong shaking extends from the quake source. The hazard maps show the levels of horizontal shaking that have a 2 in 100 chance of being exceeded in a 50-year period. Shaking is expressed as a percentage of the force of gravity (percent g) and is proportional to the hazard faced by a particular type of building. In general, little or no damage is expected at values less than 10 percent g, moderate damage could occur at 10 to 20 percent g, and major damage could occur at values greater than 20 percent g. The 2014 Seismic Hazard Map for Maryland indicates that the region of Fort Meade and Anne Arundel County have a very low seismic hazard rating of approximately 6 percent g (NSA 2010a, USGS 2014). No other potential geologic hazards are identified for the new CCEI Project Area.



LEGEND

EXISTING MUSEUM

PROJECT AREA

FORT MEADE INSTALLATION BOUNDARY

SOILS

UDORTHENTS, LOAMY, 0 TO 5 PERCENT SLOPES

CHILLUM LOAM, 2 TO 5 PERCENT SLOPES

UDORTHENTS, LOAMY, 5 TO 15 PERCENT SLOPES

DOWNER-HAMMONTON COMPLEX, 2 TO 5 PERCENT SLOPES

CHILLUM-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES

URBAN LAND SLOPES

RUSSETT-CHRISTIANA-HAMBROOK COMPLEX, 5 TO 10 PERCENT SLOPES

FALLSINGTON SANDY LOAMS, 0 TO 2 PERCENT SLOPES, NORTHERN COASTAL PLAIN

RUSSETT-CHRISTIANA-HAMBROOK COMPLEX, 0 TO 5 PERCENT SLOPES

DOWNER-HAMMONTON-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES



Source: Esri, DigitalGlobe, GeoEye,
Earthstar Geographics, CNES/Airbus DS,
USDA, USGS, AEX, Getmapping,
Aerogrid, IGN, IGP, swisstopo, the GIS
User Community, NSA, and Web Soil
Survey.

Soils Map
Figure 3-2

3.5.3 Environmental Consequences

3.5.3.1 Evaluation Criteria

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating the potential impacts of a Proposed Action on geological resources. Generally, adverse impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

Impacts on geology and soils would be significant if they would substantially alter the geology that controls groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or substantially change the soil composition, structure, or function within the environment.

3.5.3.2 No Action Alternative

The No Action Alternative would not result in changes in geological resources if the Proposed Action were not implemented. Existing functions would continue to be performed at the existing NCMF facility. No construction activities associated with NCMF would be undertaken on Fort Meade, and no changes in NCMF operations within Fort Meade would take place. No impacts on geological resources would be expected.

3.5.3.3 Proposed Action

The construction of the new CCEI, museum space, associated offices, classrooms, library, gift shop, café, and auditorium under the Proposed Action are described in the National Cryptologic Museum Schematic Design provided by MRA. Short-term and long-term, negligible to minor, impacts on geology and soils would be expected from construction of the Proposed Action (NSA 2010b).

MDE formally updated new erosion and sediment control regulations (COMAR 26.17.01, *Erosion and Sediment Control*) on January 27, 2012. The *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control* handbook outlines these new requirements and replaces the former 1994 manual (MDE 2011). These regulations require the development of an erosion and sediment control plan (ESCP) for construction sites that disturb 5,000 SF of land or greater. The Standards and Specifications now describe how an ESCP must be designed in concert with a site's stormwater management plan as required by the *Stormwater Management Act of 2007*.

3.6 Water Resources

3.6.1 Definition of Resources

For the purposes of this EA, water resources are natural and man-made sources of water that are available for use by and for the benefit of humans and the environment. Hydrology encompasses the occurrence, distribution, movement, and properties of the Earth's waters through the processes of evapotranspiration, atmospheric transport, precipitation, surface runoff and flow, and subsurface flow. Hydrology is affected by climatic factors such as temperature, wind direction and speed, topography, and soil and geologic properties.

Groundwater: Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater quality and quantity are regulated under several statutes and regulations, including the *Safe Drinking Water Act* [42 U.S.C. Part 300(f) et seq., as amended].

Surface Water: Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Waters of the United States are defined under Section 404 of the *Clean Water Act (CWA)*, as amended, as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) non-navigable tributaries to traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries. Waters of the United States (WOUS) are regulated by USEPA and the U.S. Army Corps of Engineers (Corps). Section 303(d) of the CWA requires that Maryland establish a list to identify impaired waters and establish total maximum daily loads (TMDLs) for the sources causing the impairment. A TMDL is the maximum amount of a substance that can be assimilated by a water body without causing impairment. A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards, established by the CWA, occur.

The CWA (33 U.S.C. § 1251 et. seq., as amended) establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., stormwater) of water pollution. The Maryland NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more to obtain coverage under a NPDES permit for their stormwater discharges. Construction or demolition that necessitates a permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan (SWPPP) that is implemented during construction.

USEPA issued a Final Rule for the CWA concerning technology-based Effluent Limitations Guidelines and New Source Performance Standards for the Construction and Development point source category. All NPDES stormwater permits issued by USEPA or states must incorporate requirements established in the Final Rule. As of February 1, 2010, all new construction (or demolition) sites that disturb one acre of land or more are required to meet the non-numeric effluent limitations and effective erosion and sedimentation controls must be designed, installed, and maintained.

The purpose of EO 11990, *Protection of Wetlands*, is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." The EO requires federal agencies to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided.

To prevent adverse impacts from stormwater runoff, the State of Maryland has developed performance standards that must be met at development sites, which apply to any construction activity disturbing 5,000 SF or 100 CY or more of earth, including those on federal properties. An approved Erosion and Sediment Control Plan and Stormwater Management Plan, per MDE's erosion and sediment control regulations (COMAR 26.17.01, *Erosion and Sediment Control*) and stormwater management regulations (COMAR 26.17.02, *Stormwater Management*), would be required. Maryland's *Stormwater Management Act of 2007* requires establishing a comprehensive process for stormwater management approval and implementing Environmental Site Design (ESD) to the maximum extent practicable. ESD uses on-site stormwater management non-structural practices to conserve or restore natural site hydrology. The 2015 *Maryland Stormwater Management and Erosion & Sediment Control Guidelines for State and Federal Projects* serves as guidance for developing, reviewing, and approving erosion/sediment control and stormwater management plans for state and Federal projects (State of Maryland 2015). Minimum control requirements under these guidelines for new development and redevelopment would be implemented, as appropriate. In addition, Section 438 of the *Energy and Independence and Security Act* (42 U.S.C. § 17094) establishes stormwater design requirements for federal development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 SF must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

Floodplains: Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. The 100-year floodplain along the Little Patuxent River is not located within or near the new CCEI Project Area. There are no formally designated floodplains within the Project Area and no impacts on the floodplain would be expected. As a result, floodplains are not discussed further.

Wetlands: Wetlands are important natural systems and habitats that can support a diverse array of species. Wetlands perform a number of important biological functions, some of which include water quality improvement, groundwater recharge, nutrient cycling, wildlife habitat provision, and erosion protection. Wetlands are protected as a subset of "the waters of

the United States” under Section 404 of the CWA. The phrase “waters of the United States” has a broad meaning under the CWA and incorporates deep-water aquatic habitats and special aquatic habitats, including some wetlands. The Corps defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally included swamps, marshes, bogs, and similar areas” (33 CFR § 328). The Corps has jurisdiction over wetlands that are determined to be jurisdictional under Section 404 of the CWA. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the WOUS, including jurisdictional wetlands. In addition, Section 404 of the CWA also grants states with sufficient resources the right to assume these responsibilities. The Corps also makes jurisdictional determinations under Section 10 of the *Rivers and Harbors Act of 1899*.

Section 401 of the CWA gives states and regional boards the authority to regulate through water quality certification any proposed federally permitted activity that could result in a discharge to water bodies, including wetlands. The State may issue certification with or without conditions, or deny certification for activities that might result in discharges to water bodies.

EO 11990, *Protection of Wetlands*, requires federal agencies to provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and preserve and enhance the natural and beneficial values of wetlands. Federal agencies should avoid new construction in wetlands unless the agency finds there is no practicable alternative to construction in the wetland and the proposed construction incorporates all possible measures to limit harm to the wetland.

MDE is the state agency largely responsible for administering Maryland’s environmental laws, regulations, and environmental permits related to wetlands, water withdrawal, discharges, stormwater, and water and sewage treatment. The mission of MDE is to protect the state’s air, land, and water from pollution and to provide for the health and safety of its citizens through a cleaner environment.

Freshwater wetlands in Maryland are protected by the Nontidal Wetlands Protection Program, which sets a state goal of no overall net-loss of nontidal wetlands acreage and functions. Activities in nontidal wetlands require a nontidal wetland permit or a letter of exemption, unless the activity is exempt by regulation. Any activity that involves excavating, filling, changing drainage patterns, disturbing the water level or water table, or grading and removing vegetation in a nontidal wetland or within a 25-foot buffer requires a permit from the MDE’s Water Management Administration (MDE 2015b).

Coastal Zone Management: The *Coastal Zone Management Act* (CZMA), 16 U.S.C. § 1451 et seq., as amended, and 15 CFR §§ 921-930, provides assistance to states, in cooperation with federal and local agencies, for developing land and water-use programs in coastal zones.

When a state coastal management plan is federally approved, federal agencies proposing actions with the potential to affect the state's coastal uses or resources are subject to review under the federal consistency determination requirement in CZMA Section 307. Section 307 mandates that "federal actions within a state's coastal zone (or outside the coastal zone, if the action affects land or water uses or natural resources within the coastal zone) be consistent to the maximum extent practicable with the enforceable policies of the state coastal management plan" [16 U.S.C. § 1456(c)(1)(A)]. An enforceable policy is a state policy that is legally binding under state law (e.g., through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions), and by which a state exerts control over private and public coastal uses and resources, and which are incorporated in a state's federally approved Coastal Zone Management Program (CZMP) [CZMA Section 304(6a) and 15 CFR 930.11(h)].

Generally, federal consistency requires that federal actions, within and outside the coastal zone, which have reasonably foreseeable effects on any coastal use (land or water) or natural resource of the coastal zone, be consistent with the enforceable policies of a state's federally approved coastal management program. Federal actions include federal agency activities, federal license or permit activities, and federal financial assistance activities. At the heart of federal consistency is the "effects test." A federal agency activity is subject to CZMA federal consistency requirements if the action could affect a coastal use or resource, in accordance with National Oceanic and Atmospheric Administration (NOAA) regulations (NOAA 2009).

On May 8, 2013, DOD and the State of Maryland signed a Memorandum of Understanding (MOU) concerning the federal consistency requirements of the CZMA and the application and implementation of certain enforceable policies of Maryland's CZMP. The MOU outlines how DOD facilities and projects will meet the federal law requirements of the CZMA to ensure that their actions affecting these resources are consistent with state policies. The MOU also called for the development of a list of *de minimis* and environmentally beneficial activities, which, absent no unusual circumstances, would not require an individual consistency determination (State of Maryland 2013).

3.6.2 Existing Conditions

Groundwater: Three distinct aquifers underlie the new CCEI Project Area: the Lower Patapsco, the Upper Patapsco, and the Patuxent. Flow from the three aquifers is generally toward the southeast. The aquifers are composed of unconsolidated silt, sand, and gravel. The Upper Patapsco Aquifer is unconfined and considered to be the water table aquifer. The Middle Patapsco Clay unit is the confining layer between the Upper and Lower Patapsco aquifers. The Arundel Clay unit is the confining layer between the Lower Patapsco Aquifer and the Patuxent Aquifer. The Patuxent Aquifer is confined above by Arundel Clay, and below by crystalline bedrock of the Baltimore Mafic Complex (U.S. Army 2007). The Upper Patapsco Aquifer ranges in thickness from 125 to 390 feet, with an average thickness of 250 feet (MGS 2015). The aquifer is under confined conditions and is one of the best water bearing

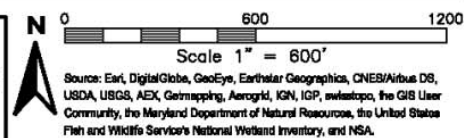
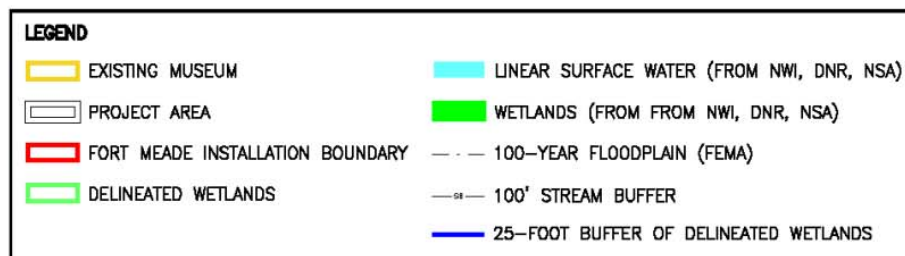
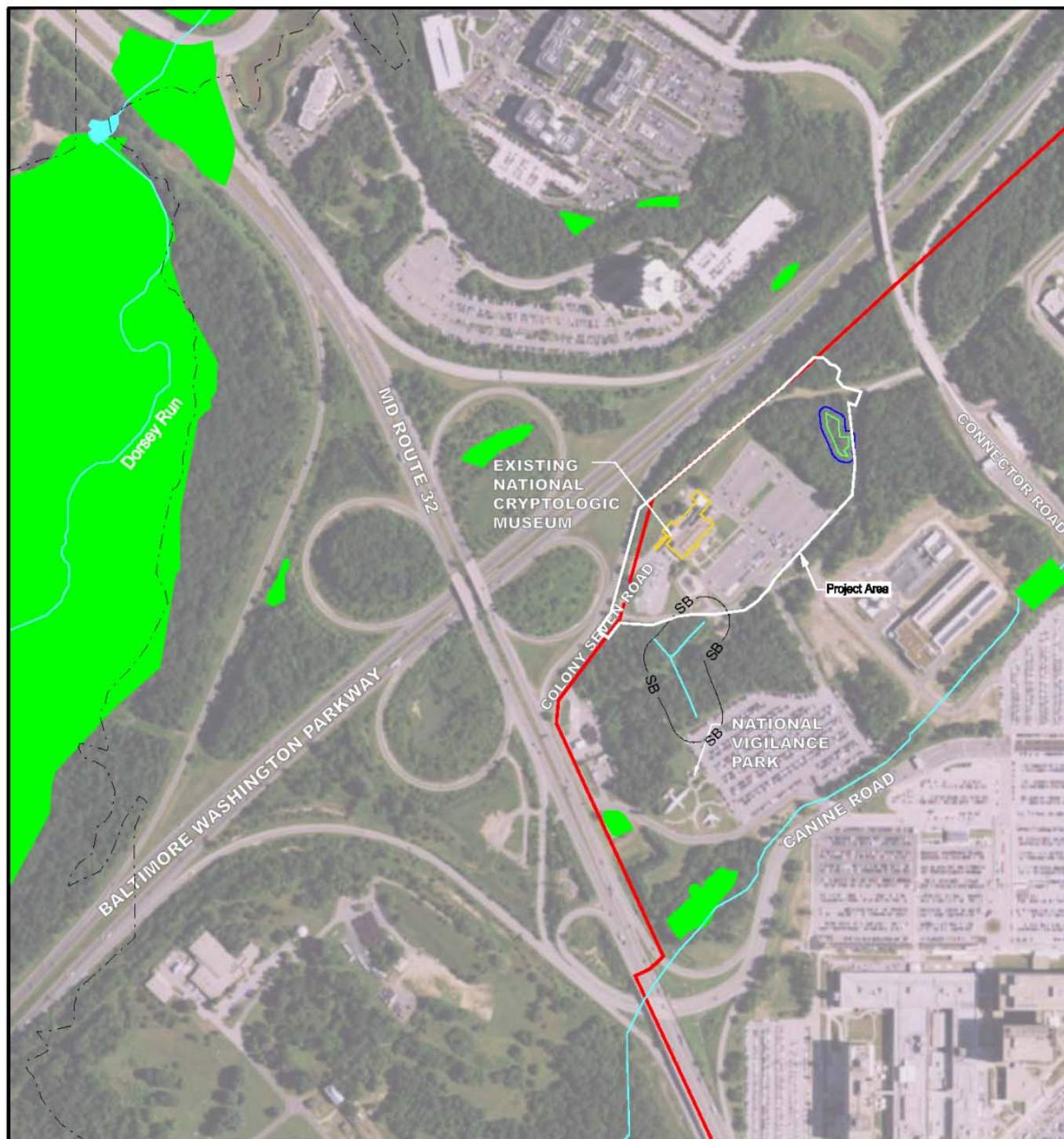
formations in Anne Arundel County. The Lower Patapsco Aquifer is capable of yielding 0.5 to 2 million gallons per day (mgd) of water from individual wells in most localities and is a source of water for several large wells within the region. The Patuxent Aquifer is at or near the surface near the fall line (i.e., the boundary between the Coastal Plain and Piedmont Physiographic Provinces), and dips below the surface as it moves eastward. The aquifer thickness ranges from 125 to 525 feet and is between 200 and 400 feet thick in the new CCEI Project Area. The three aquifers are important water sources for Anne Arundel County (MGS 2015).

According to the National Cryptologic Museum Schematic Design provided by MRA, drinking water for the installation will be served by private water provided by American Water.

Surface Water: The surface waters near the new CCEI Project Area contribute to the Little Patuxent River, a major tributary of the Patuxent River, which eventually empties into the Chesapeake Bay. According to the new CCEI Wetland Delineation Report, prepared by GTA, and dated May 2016 (see **Appendix C**), a wetland delineation of the new CCEI Project Area was performed by GTA in June 2014. The delineation identified the origins of two first order tributaries to the Little Patuxent River, located immediately south of the project area. In GTA's report, one stream was identified as ephemeral (conveying only stormwater) and one stream was identified as intermittent (conveying groundwater). Both tributaries originate at storm drain outfalls. **Figure 3-3** shows surface water in the vicinity of the new CCEI Project Area. Wetlands within and adjacent to the new CCEI Project Area are discussed in **Section 3.7.2**.

The Little Patuxent River and its tributaries are classified as "Use Class I-P," which includes water contact recreation, protection of aquatic life, and public water supply (MDE 2015a). The Chesapeake Bay TMDL passed by USEPA in December 2010 establishes a portion of the nitrogen, phosphorus, and sediment load for each state along the bay to meet the goal (USEPA 2010). Specifically, the TMDL sets Chesapeake Bay watershed limits of a 25 percent reduction in nitrogen, 24 percent reduction in phosphorus, and a 20 percent reduction in sediment. The goal of the TMDL is to ensure all pollution control measures required to meet the need to fully restore the bay and its tidal rivers are in place by 2025, with 60 percent of the actions completed by 2017. MDE has required all counties, including Anne Arundel County, to establish 2-year milestones detailing their progress against the TMDL targets. The State of Maryland prepared a Phase I Watershed Implementation Plan that established a framework for achieving the TMDL reduction. Anne Arundel County prepared a Phase II Watershed Implementation Plan that provides strategies for achieving the 60 percent reduction of TMDLs by 2017 (Fort Meade 2013).

Stormwater runoff from the existing museum is conveyed through a network of drainpipes and drainage structures, supplemented by swales, ditches, and a bio-retention facility which outlets into on-site streams. These streams convey the runoff through a portion of the Fort Meade campus and then offsite where they eventually discharge into the Little Patuxent River.



Water Resources in Vicinity
of New Museum

Figure 3-3

Floodplains: According to the Federal Emergency Management Agency (FEMA) flood map service center, the Project Area does not fall within the 100-year or 500-year floodplain associated with the Little Patuxent River (see **Figure 3-3**).

Wetlands: According to the new CCEI Wetland Delineation Report, prepared by GTA and dated May 2016, a wetland delineation of the Project Area was performed by GTA in June 2014 (see **Appendix C**) to determine the presence and extent of jurisdictional wetlands and other WOUS in the Project Area (USACE 2015). The delineation identified one isolated forested wetland within the Project Area. The Corps declined federal jurisdiction over the wetland in an email dated December 30, 2014, because it appeared to have no connection to WOUS. On September 24, 2014, GTA held a wetland permit pre-application meeting with representatives of MDE at the project site. The meeting events were documented in a Memorandum of Wetland Permit Pre-Application Meeting, prepared by GTA, issued December 2, 2014. At the pre-application meeting the limits of the wetland and its isolated status were confirmed by MDE and flagged by GTA.

Coastal Zone Management: According to the Maryland Department of Natural Resources (MDNR), Fort Meade and surrounding areas of Anne Arundel County are located within Maryland's CZMP area. MDE regulates activities proposed within Maryland's Coastal Management Zone through Federal consistency requirements. For activities impacting coastal and marine resources, such as wetlands, a Coastal Zone Consistency Determination is issued as part of Maryland's environmental permitting process. Since tributaries running through Fort Meade eventually empty into the Chesapeake Bay, they are applicable for protection under the CZMP.

3.6.3 Environmental Consequences

3.6.3.1 Evaluation Criteria

Evaluation of impacts on water resources is based on water availability, quality, and use; existence of floodplains; and associated regulations. A Proposed Action would be considered significantly adverse if it were to affect water quality substantially; reduce water availability or supply to existing users substantially; threaten or damage hydrologic characteristics; or violate established Federal, state, or local laws and regulations.

3.6.3.2 No Action Alternative

The No Action Alternative would not result in changes in water resources if the Proposed Action were not implemented. Existing functions would continue to be performed at the existing NCMF facility. No construction activities associated with NCMF would be undertaken on Fort Meade, and no changes in NCMF operations on Fort Meade would take place. No impacts on water resources would be expected.

3.6.3.3 Proposed Action

Groundwater: With only one existing bio-retention facility in place, an increase in impervious areas under the Proposed Action would reduce the land that is available for groundwater recharge; however, as required by the *Stormwater Management Act of 2007*, COMAR 26.17.02, and *Energy Independence and Security Act (EISA)* Section 438, ESD practices and BMPs would be implemented to address recharge volume for the site. This would be accomplished by infiltrating runoff from impervious surfaces back into the groundwater through the use of nonstructural (e.g., filter strips, buffers, micro bio-retention, bio-swales, and disconnection of rooftops) and structural (e.g., bio-retention) methods if necessary. Therefore, no major, adverse effects on groundwater recharge would be expected from the Proposed Action. Long-term, negligible impacts on groundwater could occur from changes in groundwater recharge patterns. Although the post-development average annual groundwater recharge volume must be equal to the predevelopment recharge volume, the distribution of groundwater recharge across the Project Area would change (e.g., recharge would be concentrated in infiltration areas).

In the event of a spill or leak of fuel or other construction-related products, there could be long-term, minor, adverse impacts on groundwater quality. Construction equipment would be maintained according to the manufacturer's specifications and fuels and other potentially hazardous materials would be contained and stored appropriately. See **Section 3.10** for a discussion on hazardous materials and wastes.

Surface Water: Short-term, minor, adverse impacts on surface water would occur under the Proposed Action. Assuming proper use of BMPs to provide erosion and sediment control measures and stormwater management on the active construction sites, no major, adverse effects on surface water would be expected. Under the Proposed Action, the construction contractor would obtain all necessary construction permits and comply with the requirements and guidelines set forth in those permits to minimize the potential for adverse impacts on surface water resources. The Maryland NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under an NPDES permit for their stormwater discharges. The Proposed Action would likely require application for coverage under MDE's General Discharge Permit for Stormwater Associated with Construction Activity (NPDES permit MDR10). Construction or demolition that necessitates a permit also requires preparation of a notice of intent (NOI) to discharge stormwater and a SWPPP that is implemented during construction. Construction activities under the Proposed Action would also be required to meet the Effluent Limitations Guidelines (ELGs) and New Performance Standards under USEPA's Construction and Development (C&D) Rule and the requirements under EISA Section 438 (see the Water Resources section in the 2016 VCP-1 EA).

The Proposed Action would require the development of an ESCP and stormwater management plan per MDE's erosion and sediment control regulations (COMAR 26.17.01, *Erosion and Sediment Control*) and stormwater management regulations (COMAR 26.17.02,

Stormwater Management). The 2011 *Maryland Standards and Specifications for Soil Erosion and Sediment Control* (MDE 2011) serves as the official guide for erosion and sediment control principles, methods, and practices. The ESCP would describe the measures implemented to prevent soil erosion during construction by stormwater runoff and to prevent sedimentation of storm sewer or receiving streams. Stormwater management, including ESD, would be designed according to MDE's *Maryland Stormwater Design Manual* and Supplement No. 1 of the Manual (MDE 2009), and MDE's *Environmental Site Design Process and Computations* (MDE 2010). The Proposed Action includes removing the existing bio-retention facility on site that currently collects and treats storm runoff from a portion of the N11 parking lot. The Proposed Action mitigates for this removal by providing ESD facilities that exceed the treatment provided by the existing bio-retention facility.

Despite construction BMPs, a minor amount of sediment or construction-related pollutants (e.g., fuels, oils, paints, solvents) could be transported during large storm events to nearby unnamed tributaries of the Little Patuxent River. In the event of a spill or leak of fuel or other construction-related products, there could be adverse impacts on surface water quality. To minimize this potential impact to surface waters, construction equipment would be maintained according to the manufacturer's specifications and fuels and other potentially hazardous materials would be contained and stored appropriately. In the event of a spill, procedures outlined in the soil prevention control and countermeasures (SPCC) Plan would be followed to contain and clean up a spill quickly. See **Section 3.10** for a discussion on hazardous materials and wastes. Implementation of the various applicable federal and state stormwater management requirements and adherence to the SWPPP would minimize the potential for pollutants to reach surface waters.

The Proposed Action would result in an increase in impervious surfaces, as the existing condition of the new CCEI Project Area contains wooded land within the northwestern portion of the Project Area and islands of permeable vegetated surfaces throughout. However, the amount of realized impervious surfaces could be greatly reduced through ESD. Per the *Maryland Stormwater Management Act of 2007*, ESD would be required to be implemented in the on-site stormwater management system to the maximum extent practicable through the use of better site design and nonstructural BMPs, and by using appropriate structural BMPs only when absolutely necessary. ESD would be used to maintain the predevelopment runoff characteristics after development has occurred and to reduce stream channel erosion, pollution, siltation and sedimentation, and local flooding to the maximum extent practicable. The criteria for sizing ESD practices are based on capturing and retaining enough rainfall so that the runoff leaving a site is reduced to a level equivalent to a wooded site in good condition as determined using U.S. Department of Agriculture (USDA), NRCS methods (e.g., Technical Release 55, *Urban Hydrology for Small Watersheds*) (NRCS 1986). Per the *Maryland Stormwater Design Manual*, the post development 10-year storm event peak discharge from the new CCEI must not exceed the predevelopment peak discharge (MDE 2009).

In the event of a spill or leak of fuel or other construction-related products, there could be long-term, minor, adverse impacts on surface water quality. Construction equipment would

be maintained according to the manufacturer's specifications and fuels and other potentially hazardous materials would be contained and stored appropriately. See **Section 3.10** for a discussion on hazardous materials and wastes.

Floodplains: Construction of the facilities in the Proposed Action would not occur within the 100-year floodplain. Applicable design criteria from the *Maryland Stormwater Design Manual* would be implemented to provide overbank flood protection and adhere to extreme flood criteria. Therefore, no long-term, adverse impacts on floodplains would be expected as a result of the Proposed Action.

Wetlands: Long-term, minor, direct, adverse impacts on the isolated wetlands along the eastern boundary of the new CCEI could occur as a result of the Proposed Action. Impacts associated with an increase in impervious surfaces and stormwater runoff could include a reduction in wetland habitat diversity, changes in wetlands species composition, nutrient loading, sedimentation, and modification to hydrologic regimes. Implementation and proper maintenance of erosion and sediment control and stormwater management practices along with strict adherence to federal and state permit requirements, site-specific ESCPs, Fort Meade Integrated Natural Resources Management Plans (INRMP) Wetland Management, and Fort Meade's Nutrient Management Plan would minimize potential for these impacts to occur.

Coastal Zone Management: No adverse impacts would be expected. New construction and operation under the Proposed Action is compliant with the goals and objectives of the Maryland Coastal Zone Management Program. In addition, Fort Meade would adhere to all federal and state permit requirements to protect coastal and marine resources and wetland areas (U.S. Army 2007).

The Proposed Action represents minimal foreseeable effects over coastal uses or resources in the State of Maryland. Construction activities represent minor impacts on wetlands. Impervious surfaces would increase in the immediate area of the development, but efforts would be made to minimize the amount of impervious surfaces by adhering to guidelines outlined in the Fort Meade INRMP.

3.7 Biological Resources

3.7.1 Definition of Resource

For the purposes of this EA, biological resources include native or naturalized plants and animals and the habitats (e.g., wetlands, forests, and grasslands) in which they exist. Protected and sensitive biological resources include federally listed (endangered or threatened), proposed, and candidate species; designated or proposed critical habitat; species of concern managed under Conservation Agreements or Management Plans; and state-listed species.

Forest Conservation: The Maryland *Forest Conservation Act (FCA)* (Natural Resources Article Section 5-1601 through 5-1613) is in effect for Fort Meade and the NSA campus. The FCA is not applicable to Fort Meade property as Federal land; however, Fort Meade and NSA, as a tenant, have agreed to participate voluntarily, as long as not prohibited by critical national security mission obligations. The main purpose of the FCA is to minimize the loss of Maryland's forest resources during land development by making the identification and protection of forests and other sensitive areas an integral part of the site planning process. Of primary interest are areas adjacent to streams or wetlands, those on steep or erodible soils, or those within or adjacent to large contiguous blocks of forest or wildlife corridors. Any activity requiring an application for a subdivision, grading permit, or sediment-control permit on areas that are 40,000 SF or greater is subject to the FCA and requires a Forest Conservation Plan (FCP) and a Forest Stand Delineation (FSD) prepared by a licensed forester, licensed landscape architect, or other qualified professional (MDNR 2015).

Endangered Species: Under the *Endangered Species Act (ESA)* (16 U.S.C § 1536), an "endangered species" is defined as any species in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. Although, candidate species receive no statutory protection under the ESA, the U.S. Fish and Wildlife Service (USFWS) advises government agencies, industry, and the public that these species are at risk and might warrant protection under the ESA in the future (NSA 2010a). The ESA requires federal agencies to provide documentation that ensures that agency actions will not adversely affect the existence of any federally threatened or endangered species. The ESA also requires all federal agencies to avoid "taking" threatened or endangered species (which includes jeopardizing threatened or endangered species habitat). Section 7 of the ESA establishes a consultation process with USFWS (and National Marine Fisheries Service) that ends with concurrence on a determination of the risk of jeopardy from a Federal agency project (NSA 2010a).

Migratory Birds: The *Migratory Bird Treaty Act (MBTA)* of 1918 is the primary legislation in the United States established to conserve migratory birds. The MBTA prohibits the intentional and unintentional taking, killing, or possessing of migratory birds unless permitted by regulation. EO 13186, *Responsibilities of Federal Agencies to Protect Birds*, provides a specific framework for the federal government's compliance with its MBTA obligations and aids in incorporating national planning for bird conservation into agency programs. An MOU exists between DOD and USFWS to promote the conservation of migratory birds in compliance with EO 13186.

3.7.2 Existing Conditions

Vegetation: A FSD was conducted by GTA for the NCMF in December 2015 (see **Appendix D**). The FSD was prepared utilizing different proposed assumptions than what is currently proposed for the new CCEI. The Project Area that was used for the limits of the FSD was 17 acres. The current project area is limited to 14 acres all of which are located within the previous 17 acre Project Area. The FSD identified two forest stands located within the wooded

areas on the property. In total, the stands comprised approximately 6.4 acres. Of the studied 6.4 acres of existing forest stands, 3.2 acres are located within the current Project Area. Stand A encompasses approximately 6.2 acres and consists of a mid-stage, deciduous, upland forest, which grows on the north and northeastern portion of the project. The majority of the dominant trees in the stand exhibit average diameters at breast height (DBH) in the 6- 11.9-inch range, with some larger trees in the northern portion of the stand. The understory and herbaceous layers in Stand A are thicker on the central portion of the stand where some blowdowns have encouraged growth and much sparser towards the northern portion of the stand. Portions of the understory and herbaceous layer in Stand A are relatively dense and are dominated by invasive species. Stand B encompasses approximately 0.2 acres and consists of a forest area that is mostly outside of the project area. Stand B is an early to mid-successional stage forest dominated by trees that exhibit average DBHs in the 6- to 11.9-inch range. The understory and herbaceous layer in Stand B are relatively dense and are dominated by invasive species.

Wildlife: Wildlife species found in the project vicinity are representative of those found in urban-suburban environments due to heavy development of the installation. Common mammals in the area include white-tailed deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), eastern gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), and red fox (*Vulpes vulpes*) (NSA 2010a).

Threatened and Endangered Species: Inquiries regarding threatened and endangered species were sent to MDNR and USFWS. According to MDNR, the Wildlife and Heritage Service determined that there are no State or Federal records for rare, threatened, or endangered species within the boundaries of the project site as delineated. As a result, they had no specific comments or requirements pertaining to protection measures at this time.

During the EA scoping period of the project, a letter was sent to the USFWS, which requested information regarding the presence of federally listed threatened and endangered species within the project area. At the time the letter was sent, the northern long-eared bat (*Myotis septentrionalis*) was federally listed as a threatened species and was identified by the USFWS as potentially located within the project area. The primary cause of the decline of the species is white nose syndrome. On January 15, 2015, the USFWS published the Interim 4(d) rule regarding the northern long-eared bat to open a 90-day public comment period and to gather additional information to finalize the 4(d) rule. The Final 4(d) rule went into effect on February 16, 2016. As a result, the USFWS recommended that projects within the state of Maryland, in which the northern long-eared bat was identified, should be reevaluated. Following the Final 4(d) rule, a second letter was sent to the USFWS requesting the reevaluation of the project area for the presence of federally listed species. In response to the second letter, the USFWS did not list the northern long-eared bat within the project area and the USFWS had no *Fish and Wildlife Coordination Act* concerns regarding the proposed project. Responses from these agencies are further summarized in **Appendix A**.

Migratory Birds: Fort Meade supports Partners in Flight, an initiative to protect and conserve neotropical migratory birds and their habitats. Fort Meade records and tracks species of concern present on the installation (U.S. Army 2007). Designation as a species of concern is based on a prioritization scheme that identifies bird species most in need of conservation action (Hunter et al. 1993).

Of the species of concern documented on Fort Meade and potentially occurring in the new CCEI Project Area, the wood thrush (*Hylocichla mustelina*) and the Kentucky warbler (*Geothlypis formosus*) were identified by the USFWS IPAC System as migratory birds of concern within the new CCEI Project Area and are considered forest interior dwelling species by Maryland Department of Natural Resources (MDNR) (Hunter et al. 1993, U.S. Army 2007). Forest interior dwelling birds require large forest areas to breed successfully and maintain viable populations. Other species of migratory birds, protected by the MBTA, may occur within the new CCEI Project Area.

State Listed Species: A request was sent by GTA to MDNR requesting information on state-protected species that are present within the Project Area. According to MDNR, the Wildlife and Heritage Service determined that there are no State records of rare, threatened, or endangered species within the boundaries of the Project Area. The response GTA received from MDNR is presented in **Appendix C**.

3.7.3 Environmental Consequences

3.7.3.1 Evaluation Criteria

Potential impacts on biological resources are evaluated based on the importance (e.g., legal, commercial, recreational, ecological, scientific) of the resource, the proportion of the resource that would be affected relative to its occurrence in the region, the sensitivity of the resource to proposed activities, and the duration of ecological impacts. A habitat perspective is used to provide a framework for analysis of general classes of impacts (e.g., removal of critical habitat, noise, human disturbance). Effects would be considered significant if the impacts identified below were to be deemed substantial.

Ground disturbance and noise associated with construction activities might directly or indirectly cause potential adverse effects on biological resources. Effects from ground disturbance were evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Mortality of individuals, habitat removal, and damage or degradation of habitats might be effects associated with ground-disturbing activities.

To evaluate the effects of noise, considerations were given to the number of individuals or critical species involved, amount of habitat affected, relationship of the Proposed Action area to total available habitat within the region, type of stressors involved, and magnitude of the effects.

Under the ESA, Federal agencies are required to provide documentation that ensures that agency actions will not adversely affect the existence of any federally threatened or endangered species. The ESA requires that all Federal agencies avoid “taking” threatened or endangered species (which includes jeopardizing threatened or endangered species habitat). Section 7 of the ESA establishes a consultation process with USFWS (and National Marine Fisheries Service) that ends with concurrence on a determination of the risk of jeopardy from a Federal agency project.

3.7.3.2 No Action Alternative

The No Action Alternative would not result in changes in biological resources if the Proposed Action were not implemented. Existing functions would continue to be performed at existing the NCMF facility. No construction activities associated with NCMF would be undertaken on Fort Meade, and no changes in NCMF operations on Fort Meade would take place. No impacts on biological resources would be expected.

3.7.3.3 Proposed Action

Vegetation: Long-term, minor, direct, adverse impacts on the forested areas of Fort Meade would be expected as the result of the Proposed Action. The new CCEI includes approximately 5 acres of open and wooded land uses. Clearing and grading, establishing new roads and parking areas, and installing erosion-control and stormwater management measures are among the first activities to prepare for full development of the new CCEI. Approximately 3.2 acres of forest lie within the new CCEI Project Area of which approximately 3.0 acres of forest will be cleared during these activities.

The Proposed Action would result in long-term beneficial impacts from the planting of native shrub and tree species as part of an approved Landscape Plan. The Landscape Plan would include a range of landscape improvements such as on-site street trees, site landscape plantings, and open space plantings in conjunction with vegetated stormwater management facilities. In keeping with Fort Meade’s and NSA’s voluntary participation in FCA standards, the installation would provide 20 percent of the Project Area as forested. Forestry BMPs and practices to control erosion and sedimentation during clearing and construction activities would be implemented to minimize potential impacts on adjacent forested habitats and water quality. Native shrub and tree species would be planted where possible and vegetation would be selectively cleared to provide a higher-quality, lower-quantity habitat.

Wildlife: Short-term, direct, minor adverse impacts would occur to wildlife as a result of temporary noise disturbances associated with construction activities. Wildlife disturbed by the clearing of forest could migrate into adjacent forest areas left undisturbed. Some wildlife species occurring in the vicinity of the proposed project area would be expected to have adapted to the variety of noise levels associated with the campus and could move back into the area following site development.

Long-term, direct, minor, adverse impacts could occur from the mortality of small, less-mobile terrestrial species (e.g., reptiles and small mammals) as a result of collision with construction equipment. Collision with wildlife would be avoided and less-mobile species would be allowed to avoid, or would be assisted in avoiding, impacts with construction equipment to the extent practicable. Wildlife in the project area would be expected to have adapted to an urban lifestyle and would generally avoid high traffic areas; however, an increase in traffic volumes would have the potential to cause an increase in traffic-related mortality of wildlife in the area.

Long-term, direct, minor, adverse impacts would occur from habitat loss. The construction of the Proposed Action would reduce areas associated with the forested region that provides habitat for species that are currently occupying the northernmost portion of the subject property. The majority of the potential habitat had been altered during the construction of the existing National Cryptologic Museum and other development associated with the NSA campus and is not ideal habitat for most of the species found on or around the installation.

Threatened and Endangered Species: No impacts to threatened and endangered species would be expected as a result of implementing the Proposed Action. There are no federal or state-listed threatened or endangered species documented or known to occur on or adjacent to the Project Area.

3.8 Cultural Resources

3.8.1 Definition of Resource

For the purposes of this EA, cultural resources are an umbrella term for many heritage-related resources including prehistoric and historic sites, buildings, structures, districts, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. Depending on the condition and historic use, such resources might provide insight into the cultural practices of previous civilizations or they might retain cultural and religious significance to modern groups.

Several Federal laws and regulations govern protection of cultural resources, including the *National Historic Preservation Act (NHPA) (1966)*, the *Archeological and Historic Preservation Act (1974)*, the *American Indian Religious Freedom Act (1978)*, the *Archaeological Resources Protection Act (1979)*, and the *Native American Graves Protection and Repatriation Act (NAGPRA) (1990)*.

Typically, cultural resources are subdivided into archaeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing), architectural resources (buildings or other structures or groups of structures,

or designed landscapes that are of historic or aesthetic significance), or Traditional Cultural Properties (TCPs) (resources of traditional, religious, or cultural significance to Native American tribes).

The EA process requires assessment of the potential impact of a federal action on cultural resources. Under Section 110 of the NHPA, federal agencies are also required to establish programs to inventory and nominate cultural resources under their purview to the National Register of Historic Places (NRHP). In addition, under Section 106 of the NHPA, Federal agencies must take into account the effect of their undertakings on historic properties and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. This process is outlined in 36 CFR Part 800.

3.8.2 Existing Conditions

A detailed description of Cultural Resources on and around Fort Meade is provided in the Cultural Resources section of the 2016 VCP-1 EA. Resources relevant to the Proposed Action addressed in this EA are provided below.

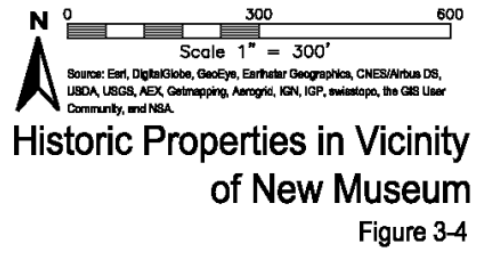
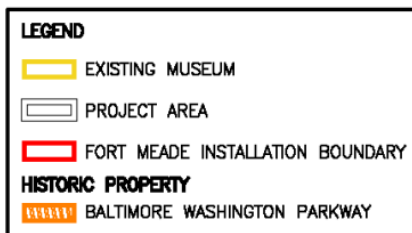
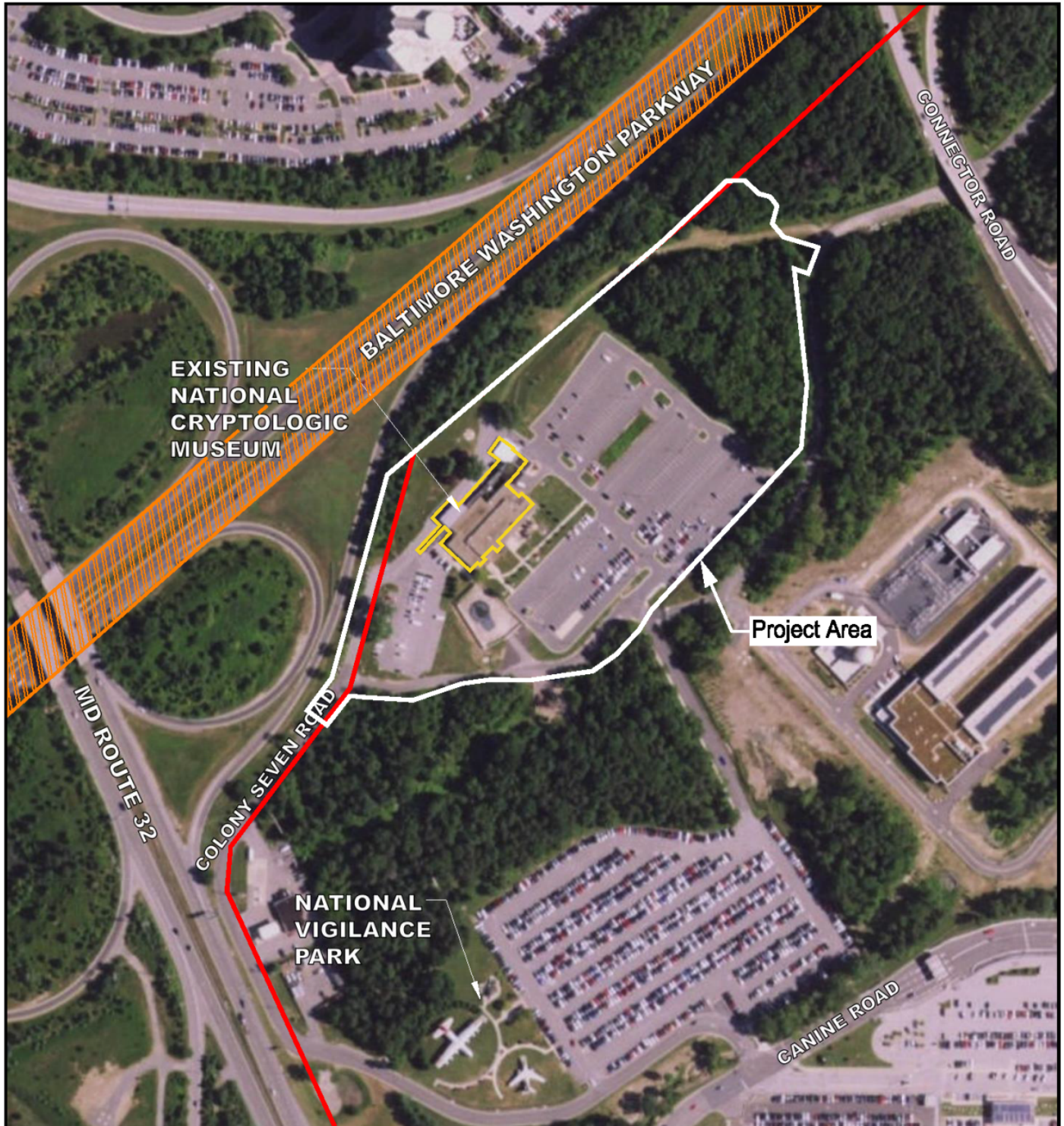
Archaeological and Architectural Resources: The Proposed Action would occur on approximately 14 acres on the existing NCM site, see **Figure 3-4**. The area was formerly a hotel which was converted into the National Cryptologic Museum in the 1990s. This Area of Potential Effect (APE) includes both the land that would be directly disturbed and the setting that would be changed or impacted by construction. The Baltimore-Washington Parkway, historical property AA-5, is located adjacent to the Project Area.

Resources of Traditional, Religious, or Cultural Significance to Native American Tribes: At present, no known TCPs or American Indian sacred sites are known to occur within or near the site of the Proposed Action or at Fort Meade. While there are no federally recognized Indian tribes present in Maryland, seven federally recognized tribes elsewhere in the United States are believed to have a historical affiliation. Accordingly, the Cultural Affairs Manager for Fort Meade has initiated consultation to ascertain their interest in Fort Meade (USACE 2011a).

3.8.3 Environmental Consequences

3.8.3.1 Evaluation Criteria

Significant adverse impacts on cultural resources can include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that substantially contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or that alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance. A Proposed Action might have no effect, no adverse effect, or an adverse effect on historic



properties resulting in determinations of No Historic Properties Affected, No Adverse Effect, or Adverse Effect to historic properties under Section 106 of the NHPA.

For assessing the impacts of the Proposed Action on archaeological resources, the APE should account for the footprint of the facilities to be renovated or constructed and all related project elements such as utilities, grading for roads, parking areas, and borrow areas. The APE for architectural resources should consider the buildings and structures that would be affected by vibrations during nearby construction). The APE for analysis of impacts on resources of traditional, religious, or cultural significance to Native American tribes should include those areas that would be impacted directly by ground disturbance and the view shed and general setting of those resources. An APE encompassing all impacts, such as short-term, long-term, and visual, for archaeological and architectural resources was established for the Proposed Action and alternatives is described in **Section 3.8.2**.

3.8.3.2 No Action Alternative

The No Action Alternative would not result in changes in cultural resources if the Proposed Action were not implemented. Existing functions would continue to be performed at the existing NCMF facility. No construction activities associated with NCMF would be undertaken on Fort Meade, and no changes in NCMF operations on Fort Meade would take place.

3.8.3.3 Proposed Action

The facilities proposed for demolition and relocation are not historic; the existing NCM was constructed in the 1950s. According to the Maryland Historic Trust (MHT), the Proposed Action would have no effect on historic properties and no impacts on cultural resources.

With the exception of the Baltimore-Washington Parkway, historical property AA-5, which will remain obscured from view based on additional screening of trees proposed at the northwest edge of the Project Area, there are no NRHP listed or eligible architectural resources within one-half mile of the Proposed Action, therefore no impacts on NRHP listed or eligible architectural resources would be expected as a result of the implementation of the Proposed Action.

3.9 Infrastructure and Sustainability

3.9.1 Definition of Resources

Infrastructure consists of the systems, physical structures, and utilities that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “urban” or developed. The availability of infrastructure and its capacity to

support growth are generally regarded as essential to the economic growth of an area. The infrastructure components discussed in this section include water supply, sanitary sewer and wastewater system, stormwater drainage, power supply, natural gas supply, telecommunications, solid waste management (i.e., nonhazardous waste), liquid fuel supply, and heating and cooling system.

Sustainability consists of the technologies, systems, physical structures, management strategies, and cultural practices that, when incorporated into design and use of infrastructure and utilities, enable resource-use-efficiency that supports operational readiness while maintaining balance with the environment. EO 13693, Planning for Federal Sustainability in the Next Decade, incrementally expands sustainability goals specifically for all new construction of federal buildings, amongst other sustainability elements. For the purposes of this section, sustainability will be discussed within each infrastructure subsection below where appropriate.

This section has been prepared to protect sensitive information pertaining to infrastructure systems and only discusses those points considered directly relevant to the Proposed Action.

3.9.2 Existing Conditions

Potable Water Supply. The NSA Campus is connected to the Fort Meade water supply, treatment, distribution, and storage system. Fort Meade's water supply system was constructed in the 1910s and has been privatized through a contract with American Water. American Water maintains a State Water Appropriation and Use Permit (Permit No. AA1969G021 [07]) for the supply, treatment, storage, and distribution of potable water (MDE 2012). The permit allows an average withdrawal of approximately 3.3 mgd on an annual basis and peak withdrawals of 4.3 mgd during the month of maximum use from groundwater wells. Water is pumped from the ground water wells to the water treatment plant, which is owned and operated by American Water. The current capacity of the water treatment plant is 5.0 mgd, while the peak-day demand is 3.88 mgd (NSAW 2013).

The NSA Campus is connected to the Fort Meade water supply system through High Lift Pump Station #2, which pumps water to two storage tanks near the Campus. There is an additional storage capacity for use by the NSA Campus during an emergency at the water treatment plant. Four interconnected transmission mains and the associated distribution piping system provide water throughout the NSA Campus. NCM uses potable water to provide personal consumption and sanitary water for personnel, and to heat and cool the existing building. Typically, the NSA Campus uses an average of 1.2 mgd of water, of which approximately 50 percent is needed for cooling tower makeup (NSAW 2013). The existing NCM and the new CCEI will continue to tie in to the NSA Campus water system.

Sanitary Sewer and Wastewater Treatment System. Fort Meade has privatized their wastewater services and system with American Water, which owns and operates the Fort Meade Wastewater Treatment Plant (WWTP). The WWTP is designed to process a daily inflow

of 4.5 mgd, although the current average influent flow of the WWTP is approximately 1.6 mgd (NSAW 2013, American Water 2015). If the average flow to the WWTP were to exceed 3.0 mgd, American Water would be required to notify the MDE and modify their existing NPDES permit (MD0021717) and State Discharge Permit (07-DP-25333) for the WWTP (MDE 2014). The wastewater collection system consists of gravity and force main sewers. There is existing sewer infrastructure on the Fort Meade Campus, and existing sewer service extended to the existing NCM building. The existing connection from the Fort Meade Campus will continue to be utilized. A portion of the sewer system on the NCM site will be replaced.

Stormwater. The existing NCM stormwater drainage system consists of localized storm drain pipes and other drainage structures supplemented by swales, ditches, and a bio-retention facility. The majority of the NCM site discharges to the southwest into two waters of the U.S. that converge and then flow into the Little Patuxent River. Stormwater is managed through a general NPDES permit for small municipal separate storm sewer systems, and a Maryland general permit for stormwater discharges associated with industrial activities. NSA adheres to state stormwater regulations (COMAR 26.17.02), the 2009 Maryland Stormwater Design Manual and Supplement No. 1, and 2015 Maryland Stormwater Management and Erosion & Sediment Control Guidelines for State and Federal Projects. The new CCEI will be implementing a stormwater management plan that meets current State requirements. See **Section 3.6.2** for more information on stormwater management.

Electrical Supply. Electrical power to Fort Meade and the NSA Campus is provided by Baltimore Gas and Electric (BGE) via four distribution substations; three of which serve the NSA Campus (NSA 2009). Currently, BGE uses several energy sources to generate electricity and offers a mix of power purchase options to commercial users. Currently a BGE feeder easement passes through the Project Area, adjacent to the N10 parking lot. An overhead power line also exists along the southern boundary of the Project Area paralleling MD Rte. 295, which comes into the southwest corner of the Project Area. Overhead electric service is provided to the existing NCM building. A 480Y/277V electrical service will be supplied by BGE to a 2000A main switchboard in the building. The service calculations will continue to be refined as the design progresses. An exterior pad-mounted switch and transformer are anticipated.

Natural Gas System. BGE supplies natural gas to Fort Meade and the NSA Campus. The current natural gas capacity is 445,000 cubic feet per hour, which is supplied by seven BGE gas meters. Current demand is approximately 139,060 cubic feet per hour or one-third of the system capacity. The distribution system is well-dispersed and has the capacity to exceed current demand (i.e., 139,060 cubic feet per hour) by 300 percent (NSAW 2013). Existing gas mains are located on the east and north side of the Project Area. There is an existing gas service line to the existing NCM that will be relocated to serve the new CCEI.

Solid Waste. The NSA operates its own solid waste and recycling programs independent of Fort Meade. The NSA generated 3,689 tons of municipal solid waste in 2009 (NSA 2010). Waste is disposed of at an off-site location in accordance with existing Federal, state and local regulations. In 2011, the NSA recycled 15 million pounds of materials (e.g., cardboard, white paper, aluminum cans, and scrap metal) for a waste diversion rate of 65 percent, including an

estimated 99 percent of paper waste (NSAW 2013). The Anne Arundel County, Maryland Ten Year Solid Waste Management Plan 2013-2023 ensures that adequate solid waste disposal capacity exists for the County through 2023. The majority of commercial waste generated in Anne Arundel County is managed through transfer stations or directly hauled for disposal at non-county facilities. Industrial waste generated in the county is managed by private entities (AAC 2013). Solid waste from the existing NCM is managed by NSA.

Liquid Fuel Supply. The current museum facility does not utilize liquid fuel.

3.9.3 Environmental Consequences

3.9.3.1 Evaluation Criteria

The analysis to determine potential impacts on infrastructure, infrastructure systems, and sustainability considers primarily whether a proposed action would exceed capacity or place unreasonable demand on a specific utility. Impacts might arise from energy needs created by either direct or indirect installation activities. Pursuant to EO 13693, impacts from energy usage and alternative energy sources are also evaluated. Impacts would be considered major if implementation of the Proposed Action resulted in exceeded capacity of a utility, long-term interruption of the utility, violation of a permit condition, or violation of an approved plan for a utility. It is assumed that construction contractors would be well-informed of utility locations prior to any ground-disturbing activities that could result in major unintended utility disruptions or human safety hazards, and all ground-disturbance required for utility line installation and facility construction would be accomplished in accordance with federal and state safety guidelines. In addition, any permits required for excavation and trenching would be obtained prior to the commencement of construction activities.

3.9.3.2 No Action Alternative

The No Action Alternative would not result in changes in infrastructure if the Proposed Action were not implemented. The NCM functions would continue to be performed at the existing facility. No construction would be undertaken and no changes in NCM operations on the NSA Campus would take place. Therefore, no impacts on infrastructure would be expected.

3.9.3.3 Proposed Action

Water Supply. Short-term, minor, adverse effects on the water supply would be expected due to the construction of the NCM facility and parking facilities. An estimated 500 gallons per acre per day could be used for dust suppression during construction activities. The Proposed Action would involve about 14 acres of construction, resulting in the use of a maximum of 7,000 gallons of water per day during dry periods. This is negligible (about 0.2 percent) compared to the approximately 3.3 mgd that the Ft. Meade WTP produces. Additional short-term, negligible, adverse effects on the water supply would be expected due to the temporary shutoff, relocation, extension, upgrade, and connection of water lines during

construction. Any existing water lines within the Proposed Action area would be relocated and upgraded as necessary. Upon completion of the Proposed Action, there would be a long-term, moderate increase in potable water demand due to an increase in personnel and museum visitors. The expected increase in water demand associated with the Proposed Action would result in long-term, minor, adverse effects on water supply. The average day demand for the proposed 74,500 SF museum is 8,000 gallons per day (0.008 mgd). The Maximum Day Demand is 11,600 gallons per day (0.012 mgd). This does not include fire demand.

The new CCEI would be designed to achieve LEED Silver certification; therefore, state-of-the-art sustainable design and water efficiency features would be incorporated into the project. The incorporation of sustainable design techniques and development characteristics associated with the LEED certification process would lessen water demands at the proposed CCEI facility and minimize adverse effects.

Sanitary Sewer System and Wastewater Treatment. It is assumed that the construction workers would use portable toilets at the work site during construction so no impact to the existing sewer system would occur at that time.

Long-term, minor, adverse impacts on the sanitary sewer system would be expected due to the increase in personnel and museum visitors and the corresponding increase in demand for wastewater collection and treatment. The projected average sewage flow for the proposed 74,500 SF building is 8,000 gallons per day (0.008 mgd) with a peak flow of 32,000 gallons per day (0.032 mgd). Existing sanitary sewer pipes within the Proposed Action site would be relocated and upgraded as necessary. The existing NCM sewer pumping station will be evaluated to determine whether it can be reused for the new CCEI. If inadequate, a new sewer pumping station will be constructed that will accommodate the new CCEI. The increase in flows into the sanitary sewer system would not result in any necessary WWTP upgrades and would be in compliance with the current NPDES permit (Permit No. 07- DP-2533). Currently, the WWTP is receiving approximately 2.5 mgd (AAC 2010). If the average flow to the WWTP were to exceed 3.0 mgd, Fort Meade would be required to notify the MDE and modify their existing NPDES permit. MDE would be notified again if flows were to exceed 4.5 mgd. Increased demands would likely result in greater discharge of total nitrogen and other materials into the Patuxent River. The state-of-the-art water efficiency features of the LEED silver-certified facility would reduce the adverse effects on the sanitary sewer system by minimizing the amount of additional flow into the system.

Stormwater. Short-term, minor, adverse impacts on stormwater drainage systems would be expected due to the construction of the Proposed Action. Ground disturbances resulting from the Proposed Action would temporarily disturb approximately 14 acres, cause soil compaction, and disrupt existing man-made drainage systems and natural drainage patterns, which decreases stormwater permeation and increases the potential for soil erosion and sediment transport during sheet flow runoff. Therefore, appropriate storm water management features would have to be incorporated as part of the Proposed Action.

Long-term, minor, adverse impacts on stormwater drainage systems would be expected. With no BMPs or Low-Impact Development (LID) in place, the Proposed Action footprint would place considerable stormwater runoff increases to the receiving non-tidal stream and considerably increase the nitrogen load of the receiving streams. Construction of the proposed facility would create approximately 0.9 acres of new impervious surfaces, in addition to the existing 6.7 acres of impervious surface, for a total of 7.6 acres of impervious surface, which would decrease storm water permeation into the ground and thereby permanently increase sheet flow runoff into the stormwater drainage system. The Patuxent River and the Little Patuxent River are listed for high levels of nutrients and suspended sediment. Although both rivers are listed as low priority for TMDL development, the Little Patuxent sub-watershed is ranked by Anne Arundel County in the highest tier for needing restoration. However, LID strategies and BMPs would be implemented to the Maximum Extent Possible (MEP) which would minimize the negative effects on the Patuxent River and the Little Patuxent River. The new CCEI would comply with the most recent MDE regulations regarding sediment and erosion control, in addition to incorporation of the Final Rule for the CWA (effective February 1, 2010) into site construction requirements. Because this project is a Federal facility, the Proposed Action would involve the use of ESD strategies to comply with EISA Section 438. The proposed facility could include the use of micro bio-retention facilities within the development to increase stormwater permeation and retention. Implementation of BMPs and sustainable design techniques would limit adverse impacts on the stormwater drainage system.

Electrical Supply. Short-term, negligible, adverse effects on the existing electrical system would be expected due to the rerouting and extension of electrical lines to the Proposed Action area. Additional short-term, negligible, adverse effects would be expected due to potential power disruptions when a temporary connection is provided to the existing museum and when the new CCEI is connected to the power grid. It is assumed that the construction contractors would primarily use diesel, propane, or battery-powered equipment. Any construction equipment that is powered via electricity would likely receive power from a portable generator or a temporary electrical panel. There will be long-term, minor, adverse impacts to the supply system once the new CCEI is operational. The new CCEI will be cooled with a chilled water scheme whose design currently includes two high efficiency, variable frequency, water-cooled centrifugal chillers (225 tons each); two induced draft cooling towers (225 tons each); three primary chilled water pumps (one standby), two secondary chilled water pumps (one standby), and three condenser water pumps (one standby) which will be powered electrically.

Natural Gas System. Short-term, negligible effects on the natural gas system would be expected during the construction associated with the Proposed Action. Short-term interruptions could be experienced when the new CCEI is connected to the natural gas system.

Long-term, minor effects on the natural gas system would be expected due to an increase in natural gas demand associated with operation of the proposed facility. Based on an average annual natural gas usage of 37.3 cubic feet per square foot, the proposed 74,500 SF facility would use approximately 2.8 million cubic feet of natural gas each year, which is well within the capacity of the existing system (EIA 2012).

Preliminary load estimates of the design day heating requirements yield a peak hourly load of approximately 2.5 million btu/hr (2,500 MBH). Two 1,650 MBH (output) sealed (direct ducted) combustion, high efficiency, high mass hot water boilers, which could be gas-fired, are proposed to serve as the primary heating source. Three base-mounted, bronze fitted, end-suction hot water pumps (one stand-by) are proposed. Standby pumps will be automatically alternated.

Solid Waste. Short-term, negligible, adverse effects on solid waste management would be expected due to construction debris and demolition debris. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris that is not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Demolition debris is generated from existing features that are removed prior to construction of the project. Demolition debris includes the existing building foundation and structure, existing paved surfaces (asphalt and concrete) and subgrade, existing utility pipes, and existing vegetation. Some of these items, such as asphalt and concrete, can be recycled or reused on site. All other items would be landfilled. Contractors would be responsible for the removal and disposal of their construction wastes generated on site as well as any demolition debris that cannot be reused on site or recycled. The estimated amounts of debris generated from the proposed construction and demolition activities are provided in **Table 3-7**.

Table 3-7. Estimated Construction and Demolition Debris Generated from the Proposed Action

Project	Total Square Footage	Multiplier (pounds/ft²)	Debris Generated (pounds)	Debris Generated (tons)
Demo Ex. NCM Facility	19,200	158	3,033,600	1,517
NCM Facility	74,500	4.34	323,330	162
Parking Facilities	200,845	1	200,845	100
Total				1,779

Source: USEPA 2009

The debris generated from the proposed demolition and construction activities would total an estimated 1,779 tons over a period of 1-2 years. Construction and demolition materials would be recycled or reused to the greatest extent possible. Fort Meade has a landfill diversion rate of 67 percent; therefore, it is assumed that the demolition and construction activities associated with the Proposed Action would result in approximately 1,192 tons being recycled and 587 tons being landfilled. Debris that could not be recycled or reused would be taken off installation by the general contractor to an approved landfill within the vicinity of the installation. As of 2000, the King George Landfill had a remaining capacity of 28 million tons;

hence, the construction debris generated from the Proposed Action would not exceed landfill capacity.

The facility will be designed to meet LEED silver requirements so the use of recycled and reused materials and sustainable construction management techniques could be implemented wherever feasible.

Long-term, negligible effects on solid waste would be expected due to the increase in personnel and museum visitors that would result from the Proposed Action. All of the solid waste generated in the administrative facilities on the NSA campus, goes to a declassification facility on campus where it is recycled. Therefore, impacts on landfills are less than for a typical administrative complex. All solid waste would be recycled to the maximum extent feasible and in accordance with current Fort Meade waste contracts. The recipient landfill is assumed to be the King George Landfill. This landfill's remaining available capacity was approximately 88 percent in 2000. Therefore, the increase in solid waste associated with the increase in personnel and museum visitors would not be expected to exceed current capacity.

Implementation of BMPs and sustainable design techniques would reduce the amount of solid waste taken off site and would limit adverse impacts on solid waste management.

Communications. Short-term, negligible effects on the communications system would occur as the new CCEI is connected to the existing telephone line system, telecommunications duct banks, and cabling infrastructure. A plan for the extension of these systems will be included in the site and building design of the new CCEI. Long-term, negligible, beneficial effects on communications would be expected from the use of the latest technology during design and implementation of the system.

Liquid Fuel Supply. The proposed NCM facility would require 350 kW for emergency backup power. Diesel fuel would be needed to test the life-safety generator periodically. The fuel will be #2 diesel. It is anticipated that a generator with a subbase fuel tank, which would be above ground and would sit beneath the enclosure, will be utilized. UFC 3-540-01 requires seven days of fuel storage either in a dedicated on-site main fuel tank or from a confirmed delivery service. When the seven day requirement is accomplished by a delivery source, the generator is to be provided with a local tank with capacity for 24 hours of run time at the full load consumption rate of the generator. It is anticipated that new CCEI will have arrangements for a confirmed delivery source rather than keeping seven days of storage on site. For the basis-of-design 350kW generator, 24 hours of fuel supply at full load equates to a 774 gallon tank.

Short-term, negligible, adverse effects on the liquid fuel supply would be expected due to the minimal amounts of petroleum that would be required for construction equipment during the proposed construction activities. The required petroleum would be brought on site by contractors and removed when construction activities are complete. Long-term, negligible, adverse effects would be expected, as the amount of liquid fuel stored on site would increase.

The increase in demand on the liquid fuel system would not exceed existing capacity. The liquid fuel would be transported and stored in accordance with applicable federal, state, and local requirements.

3.10 Hazardous Materials and Wastes

3.10.1 Definition of Resources

For the purposes of this EA, hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation within 49 CFR Parts 105–180. A full definition of the resource is provided in the Hazardous Materials and Wastes section of the 2016 VCP-1 EA and is hereby incorporated by reference.

3.10.2 Existing Conditions

Hazardous Materials and Petroleum Products: Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, identifies the requirements for managing hazardous materials on U.S. Army facilities including guidance for the proper use, generation, transportation, storage, and handling of hazardous materials and petroleum products.

Fort Meade (which is located east of NSA) uses, handles, and stores hazardous materials and petroleum products, which includes pesticides, oils, lubricants, cleaners, hydraulic fluids, and fuels (gasoline and diesel). However, there are no hazardous materials or petroleum products stored within the footprint of the Proposed Action.

Hazardous and Petroleum Wastes: NSA maintains a Hazardous Waste Generator’s Guide. This plan describes the roles and responsibilities with respect to the waste stream inventory, waste analysis planning, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes the procedures to comply with applicable federal, state, and local standards for hazardous and petroleum waste management.

Both Fort Meade and NSA are *Resource Conservation and Recovery Act (RCRA)* Large-Quantity Generators and each operate a 90-day storage facility. Large-quantity generators generate more than 1,000 kilograms (kg) of hazardous waste, or more than 1 kg of acutely hazardous waste, per month. Various activities and operations at Fort Meade generate hazardous and petroleum wastes, which include oils, lubricants, antifreeze, brake fluids, hydraulic fluids, paint and paint thinners, cleaners, degreasers, solvents, and batteries. There

are currently no hazardous or petroleum wastes generated or stored within the footprint of the Proposed Action.

Storage Tanks: According to the National Cryptologic Museum Schematic Design provided by MRA, there are no aboveground storage tanks (ASTs) or underground storage tanks (USTs) within the footprint of the Proposed Action. Former structures on the subject property may have utilized underground storage tanks (USTs) for the storage of heating oil, farm fuel, or other products. GTA recommends that if buried wastes, USTs, or contaminated media are encountered during future site activities, such materials should be removed and an environmental evaluation of the area performed.

Asbestos-Containing Materials (ACM): Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals that were extensively mined (especially from the late 1890s) for manufacture of building products due to their many marketable characteristics, including strength, insolubility, fire resistance, natural insulation, non-conductivity, chemical resistance, and ability to be woven. Examples of such building products include transite siding, built-up roofing, ceiling and wall plaster, fireproofing, plumbing pipeline insulation, flooring, construction mastics, and waterproof sealants.

The USEPA identified asbestos as a regulated air pollutant in 1971, and began limiting the use of asbestos in some building products in 1972 as epidemiological studies increasingly identified respiratory and digestive diseases related to airborne asbestos fiber exposure, including asbestosis, mesothelioma, pleural plaques, and lung cancer. Today, some asbestos-containing building products (e.g., floor tile, pipeline wrap, transite shingles, and built-up roofing) have not been banned by the USEPA (or their bans have been repealed) and can still be manufactured and used in the United States.

Asbestos is regulated by the USEPA under the CAA; *Toxic Substances Control Act (TSCA)*; and the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*. The USEPA has established that any material containing more than 1 percent asbestos by weight is considered an ACM. ACMs at Fort Meade are managed according to their Asbestos Management Program. The purpose of the program is to implement a management program for the identification and risk assessment of asbestos and asbestos hazards (DOD 2006). There is one building within the footprint of the Proposed Action that was constructed prior to 1960. Based on the age of the building and the assumed age of the building materials used, ACMs may be present within the building.

Radon: The USEPA-designated radon potential in Anne Arundel County, Maryland, is Radon Zone 2, which has an average indoor radon level between 2 and 4 pCi/L (USEPA 2012a). The USEPA has established a guidance radon level of 4 pCi/L in indoor air for residences; however, there have been no standards established for commercial structures. Radon gas accumulations greater than 4 pCi/L are considered to represent a health risk to occupants. The U.S. Army conducted radon monitoring at Fort Meade in 1990 however, this study did not include the new CCEI project area. All indoor radon concentrations were below 4.0 pCi/L

(USACE 2004a). Additional information about radon is provided in the Hazardous Materials and Wastes section of the 2016 VCP-1 EA and is hereby incorporated by reference.

Lead-Based Paint (LBP): In 1978, the United States Consumer Products Safety Commission banned the use of LBP for residential use. Under the *LBP Poisoning Prevention Act* (42 U.S.C. 4822), as amended, LBP hazards equal to or greater than 1 microgram per cubic centimeter must be abated. AR 420-70 provides policies and guidance for use when performing real property maintenance, repair, and demolition of buildings and structures. LBP at Fort Meade is managed according to their Lead Hazard Management Plan. The purpose of the plan is to implement a management program for the identification and risk assessment of lead and LBP hazards (DOD 2006). There is one building within the footprint of the Proposed Action that was constructed prior to 1960. Based on the age of the building and the assumed age of the building materials used, LBP may be present within the building.

Pesticides: AR 200-5, *Pest Management*, promulgates policies, responsibilities, and procedures to implement the Army Pest Management Program. Fort Meade's pest management practices are covered in its Integrated Pest Management Plan, which notes pesticide application procedures, storage management, and safety concerns (DOD 2005). There is no storage or mixing of pesticides within the footprint of the Proposed Action.

Polychlorinated Biphenyls (PCBs): There is no PCB-containing equipment within the footprint of the Proposed Action. Two electrical transformers were previously observed during a site visit at the new CCEI; however, the transformers were apparently installed in recent years and are not suspected to contain PCBs.

Environmental Restoration Program: No impacts would be expected from hazardous materials and wastes in conjunction with the Proposed Action. Construction procedures would include a plan for the occurrence of unusual odor, soil, or groundwater coloring. During construction, if excavated soils exhibit hazardous characteristics, work would be suspended until a remedial investigation of the soils are conducted by trained specialists.

Ordnance: No impacts from ordnance would be expected during construction activities on the project area. The Military Munitions Response Program (MMRP) sites at Fort Meade are not located within the project area. Should ordnance be encountered during the work activities, the contractor would be required to immediately stop work, report the discovery to the installation, and implement appropriate safety measures. Ordnance would be collected and disposed of in accordance with federal and U.S. Army Reserve (USAR) by trained and certified personnel. Commencement of field activities would not continue in that area until the issue was resolved.

3.10.3 Environmental Consequences

3.10.3.1 Evaluation Criteria

Effects on hazardous materials or wastes would be considered significant if a Proposed Action resulted in noncompliance with applicable federal or state regulations, or increased the amounts generated or procured beyond current waste management procedures and capacities. Effects would also be considered significant if a Proposed Action resulted in the disturbance or creation of contaminated sites that cause negative effects on human health or the environment. Adverse effects include actions that make it more difficult or costly to remediate hazardous substance clean-up sites.

3.10.3.2 No Action Alternative

The No Action Alternative would not result in changes in hazardous materials and wastes if the Proposed Action were not implemented. Existing functions would continue to be performed at the existing NCMF facility. No construction activities associated with NCMF would be undertaken on Fort Meade, and no changes in NCMF operations on Fort Meade would take place. No impacts from hazardous materials and wastes would be expected.

3.10.3.3 Proposed Action

Hazardous Materials and Petroleum Products: Short-term, negligible, adverse impacts would be expected during the implementation of the Proposed Action. Construction would require the use of certain hazardous materials such as sealants, paints, welding gases, solvents, and preservatives. Petroleum products (diesel, gasoline, and hydraulic fluids) would be used in construction vehicles and other heavy equipment. Many of these materials are currently used at the NSA Campus. The quantities of hazardous materials and petroleum products needed during the construction would be minimal, and their use would be short in duration. NCM would manage the storage, use, and disposal of construction materials in accordance with current practices and management schemes. Hazardous materials and petroleum products would be stored in containers that meet federal, state, and local requirements. Secondary containment systems would be employed as necessary to prevent or limit accidental spills. Hazardous materials or petroleum products are not currently stored within the project area; therefore, hazardous materials and petroleum products would not need to be removed. No hazardous material or petroleum product releases or contamination have been documented within the project area. Construction equipment would be maintained according to the manufacturer's specifications, and fuels and other potentially hazardous materials would be contained and stored appropriately. In the event of a spill, the contractor would be responsible for quickly containing and cleaning up a spill in accordance with federal and state regulations. No adverse impacts related to the management of hazardous materials and petroleum products are anticipated.

Hazardous and Petroleum Wastes: Short-term, negligible, adverse impacts would be expected during the implementation of the Proposed Action. NSA is already classified as a large quantity generator, and is responsible for stringent management and reporting requirements. Construction activities would generate minor quantities of hazardous and petroleum wastes. However, these quantities would not exceed the capacities of existing hazardous and petroleum waste disposal streams at Fort Meade. The construction contractor would be required to comply with BMPs to reduce the potential for spills, and to ensure quick clean up. Procedures for the usage, and disposal of construction material waste streams would be similar to those already produced at the installation. In the event of a spill, the contractor would follow the appropriate measures outlined in federal and state regulations. The construction contractor would be responsible for disposing hazardous and petroleum wastes in accordance with federal and state laws. Waste generation levels would be managed within the current procedures and plans. Hazardous or petroleum wastes are not currently stored within the project area. Therefore, hazardous or petroleum wastes would not need to be removed. No hazardous or petroleum waste disposal areas have been documented within the project area. However, if any soil containing hazardous or petroleum wastes is discovered during construction activities, the contractor would be required to immediately stop work, report the discovery to the installation, and implement appropriate safety measures. Commencement of field activities would not continue in this area until the issue was investigated and resolved. No adverse impacts related to the management of hazardous and petroleum wastes are anticipated.

Storage Tanks and Oil / Water Separators: Short-term, negligible, adverse impacts would be expected during the implementation of the Proposed Action. Temporary ASTs that would store equipment fuel and non-potable water would be installed to support construction activities of the proposed action. These ASTs would be removed following construction completion and all construction contractors would use proper hazardous materials management practices including secondary containment and follow the NSA's Hazardous Materials Management Program to prevent and limit releases from the ASTs. In the event of a spill, the construction contractor would follow the appropriate measures outlined in NSA's SCP, SPCC Plan, and the FRP. No known ASTs or USTs currently exist within the project area; therefore, none would need to be removed. No long term impacts are anticipated.

Asbestos-Containing Materials: Impacts may be expected. There is one building within the footprint of the Proposed Action that was constructed prior to 1960. Based on the age of the building, LBP may be present. In order to determine the presence of ACMs, prior to demolition, an Asbestos Survey should be performed by an accredited asbestos inspector. Short-term, minor impacts during construction may be possible, if ACMs are discovered during demolition of the existing museum.

It is recommended that the ACMs be removed prior to demolition. If the ACMs are not removed prior to demolition, demolition and waste management activities should be performed in accordance with applicable federal and State regulations and guidelines. Local agencies (e.g., Building and Health Departments) may also have regulatory guidance applicable

to ACM. All asbestos abatement and removal activities should be performed by a licensed asbestos abatement contractor, and wastes should be properly transported and disposed, in accordance with applicable regulations.

Radon: No short-term, adverse impacts would be expected. The U.S. Army conducted radon monitoring at Fort Meade in 1990 and all indoor radon concentrations were below 4.0 pCi/L (USACE 2004a). Although this study did not include the new CCEI project area, due to the new CCEI project area's proximity to Fort Meade, indoor radon concentrations would likely be comparable to those observed during the 1990 Fort Meade monitoring events.

Long-term, negligible, adverse impacts would be expected in the event that indoor radon testing is conducted and indicates that elevated radon concentrations are located inside any of the buildings associated with the Proposed Action. Appropriate mitigation measures, such as installing radon pumps to vent vapors outside or installing passive radon systems to lower radon levels, would be required if indoor radon testing indicates that elevated radon concentrations are located inside any of the buildings associated with the Proposed Action.

Lead-Based Paint: Impacts may be expected. There is one building within the footprint of the Proposed Action that was constructed prior to 1960. Based on the age of the building and the assumed age of the building materials used, LBP may be present. In order to determine the presence of LBP, prior to demolition, a LBP Survey should be performed by a licensed LBP inspector. Materials containing LBP encountered during building demolition should be managed in general accordance with Fort Meade's Lead Hazard Management Program.

Pesticides: No impacts are expected since there is no storage or mixing of pesticides within the footprint of the Proposed Action. In addition, since the new CCEI will be a LEED silver project, no pesticides will be used for maintenance of the proposed landscaping in the Project Area.

Polychlorinated Biphenyls: No impacts would be expected. The Proposed Action does not include the use of any PCBs. If the existing onsite transformers are planned to be removed during demolition, a survey should be performed to determine their PCB content. If PCBs are encountered during demolition, they should be removed and disposed of in accordance with applicable local, state, and federal regulations and guidelines.

Environmental Contamination: No impacts would be expected. Construction procedures would include a plan for the occurrence of unusual odor, soil, or groundwater coloring. If during construction excavated soils exhibit hazardous characteristics, work would be suspended until a remedial investigation of the soils are conducted by trained specialists.

Ordnance: No impacts would be expected. None of the MMRP sites at Fort Meade are located within the project area. Should any ordnance be encountered during the work activities, the contractor would be required to immediately stop work, report the discovery to the installation, and implement appropriate safety measures. All ordnance would be collected

and disposed of in accordance with federal and U.S. ARs by trained and certified personnel. Commencement of field activities would not continue in that area until the issue was resolved.

3.11 Socioeconomics and Environmental Justice

3.11.1 Definition of Resource

Socioeconomics. Socioeconomics encompasses economies and social elements such as population levels and economic activity. Factors that describe the socioeconomic environment represent a composite of several interrelated and nonrelated attributes. Several factors can be used as indicators of economic conditions for a geographic area, such as demographics, median household income, unemployment rates, percentage of families living below the poverty level, and employment. Data on employment identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on personal income in a region are used to compare the before and after effects of any jobs created or lost as a result of a proposed action. Data on industrial, commercial, and other sectors of the economy provide baseline information about the economic health of a region.

Environmental Justice. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, pertains to environmental justice issues and relates to various socioeconomic groups and the disproportionate effects that could be imposed on them. This EO requires that federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was enacted to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with the respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action.

3.11.2 Existing Conditions

Fort Meade's workforce currently consists of approximately 40,000 employees composed of military, civilian, and contractor personnel; of which, more than 15,000 work for NSA, and approximately 13 work for NCM. The installation's close proximity to both the Baltimore, Maryland, and Washington, D.C., metropolitan areas allows workers to commute from a large number of communities with varied socioeconomic, racial, and ethnic characteristics. This EA will use the following spatial levels to assess impacts to socioeconomics and environmental justice:

- Anne Arundel County Census District 4 (includes Fort Meade, the NSA Campus, and the Jessup, Severn, and Odenton communities that are adjacent to the installation)
- Region of Influence (ROI), which includes Anne Arundel and Howard counties
- State of Maryland.

Anne Arundel and Howard counties are considered the ROI due to their immediate geographic location relative to Fort Meade and the NSA Campus. Residency distribution and commuting distances were considered, but determined not to be a factor in socioeconomic effects because there would be minimal personnel changes under the Proposed Action. The State of Maryland is included as a measure of comparison.

Demographics. **Table 3-8** details populations for Anne Arundel County Census District 4, the ROI, and the State of Maryland. Howard County, located immediately west of Fort Meade and the NSA Campus, has seen the greatest percentage of change between 2010 and 2014. Anne Arundel County Census District 4 has seen the lowest percentage of change with 2.1 percent.

Table 3-8. Population Summary for 2010 and 2014

Location	2010 Population	2014 Population Estimate	Percent Change (2010 to 2014)
Anne Arundel County Census District 4	84,594	86,400*	2.1%
ROI	824,741	869,417	5.4%
Anne Arundel County	537,656	560,133	4.2%
Howard County	287,085	309,284	7.7%
State of Maryland	5,773,552	5,976,407	3.5%

Source: USCB 2013, USCB 2015a, USCB 2015b,

Note: * 2014 population estimate data were not available for Anne Arundel County Census District 4; therefore, data presented in **Table 3-8** for Census District 4 are 2013 population estimate data.

Employment. Employment characteristics for all spatial levels are detailed in **Table 3-9**. The percentage of employed persons in the Armed Forces is highest in Anne Arundel County District 4 with 5.1 percent and is lowest in Howard County at 0.5 percent. The percentage of people employed in the construction industry is similar across spatial levels, ranging from 5.1 percent in Howard County to 7.2 percent in Anne Arundel County. The primary employment sector in the area is the education, health, and social services sector. Public administration comprises the largest employment sector in Anne Arundel County District 4.

Environmental Justice. Minority and low-income populations were characterized across all spatial levels in **Table 3-10**. The area immediately surrounding Fort Meade (Anne Arundel County Census District 4) was evaluated for minority and low-income populations and compared to the ROI and the State of Maryland. Anne Arundel County Census District 4 has a racial minority of 40.7 percent of the population, similar to the State of Maryland. Both Anne

Arundel County Census District 4 and the ROI have a lower percentage of Hispanic and Latino populations than the State of Maryland. Additionally, Anne Arundel County Census District 4 has a lower percentage of families below the poverty line than Anne Arundel County as a whole and the State of Maryland.

Table 3-9. American Community Survey 5-Year Estimates for Employment Sectors by Industry Across Spatial Levels (2009–2013)

Employment Sectors	Anne Arundel County District 4	ROI		Maryland
		Anne Arundel County	Howard County	
Percentage of employed persons in Armed Forces	5.1	2.5	0.5	0.6
Agriculture, forestry, fishing and hunting, and mining	0.4	0.3	0.3	0.5
Construction	5.5	7.2	5.1	6.8
Manufacturing	4.4	5.5	5.5	5.0
Wholesale trade	1.5	2.6	2.5	2.0
Retail trade	8.7	10.2	8.4	9.6
Transportation and warehousing, and utilities	2.8	4.2	3.2	4.3
Information	3.1	2.3	2.7	2.3
Finance, insurance, real estate, and rental and leasing	6.5	6.4	7.0	6.3
Professional, scientific, management, administrative, and waste management services	15.7	15.3	19.6	15.1
Educational, health and social service	19.7	19.9	23.1	23.3
Arts, entertainment, recreation, accommodation, and food services	5.3	7.2	6.0	7.9
Other services (except public administration)	4.7	5.2	4.7	5.4
Public administration	21.7	13.6	12.0	11.3

Source: USCB 2015c

Table 3-10. Race, Ethnicity, and Poverty Characteristics 2013

Race and Ethnicity	Anne Arundel County Census District 4	Maryland	RDI	
			Anne Arundel County	Howard County
Total Population	86,400	5,834,299	544,426	293,821
Percentage of White	59.3	58.4	75.1	70.5
Percentage of Black or African American	28.7	29.4	15.5	18.8
Percentage of American Indian and Alaska Native	0.4	0.3	0.2	0.2
Percentage of Asian	5.3	5.7	3.5	5.8
Percentage of Native Hawaiian and Other Pacific Islander	0.1	0.0	0.1	0.1
Percentage of Other Race	1.6	3.4	2.3	1.3
Percentage of Two or More Races	4.8	2.8	3.3	3.4
Percentage of Hispanic or Latino	6.9	8.5	3.3	6.0
Percentage of families below poverty	3.4	6.8	4.3	3.1
Median Household income	\$91,851	\$73,538	\$87,430	109,865

Source: USCB 2015c, USCB 2015d

Note: 2013 data are used for employment analysis as 2013 is the most recent available dataset.

3.11.3 Environmental Consequences

3.11.3.1 Evaluation Criteria

Significance of impacts for socioeconomics varies depending on the context of a proposed action (40 CFR 1508.27[a]). The significance of socioeconomic impacts is assessed in terms of direct impacts on the local economy and related impacts on other socioeconomic resources (e.g., income, housing, employment). Socioeconomic impacts would be considered significant if the Proposed Action would result in any of the following:

- Cause a substantial change in revenue for local businesses, government agencies, or Native American tribes
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere
- Cause substantial changes in the local employment or labor force

- Substantially and adversely affect the capacity and response times of hospital and medical services.

The magnitude of potential impacts can also vary greatly, depending on the location of a proposed action. For example, implementation of an action that creates 10 employment positions might go unnoticed in an urban area, but could have considerable impacts in a rural region. If potential socioeconomic changes were to result in substantial shifts in population trends or a decrease in regional spending or earning patterns, they would be considered adverse.

This section also evaluates environmental justice concerns including disproportionate impacts on low income and minority populations. The Proposed Action would have an adverse impact with respect to environmental justice if it would result in any of the following:

- Change the local business volume, employment, personal income, or population that exceeds the ROI's historical annual change
- Disproportionately affect minority populations or low-income populations.

3.11.3.2 No Action Alternative

The No Action Alternative would not result in changes to socioeconomics or environmental justice if the Proposed Action were not implemented. Existing NCM functions would continue to be performed at the existing facility. No construction activities or no changes in the National Cryptologic Museum operations on Fort Meade would take place. No impacts on socioeconomics or environmental justice would be expected.

3.11.3.3 Proposed Action

Socioeconomics. In general, both short- and long-term, beneficial impacts on the local economy would be expected from the Proposed Action. Impacts from site clearing, demolition, and construction activities under the Proposed Action would be expected to stimulate the local economy through increases in payroll taxes, sales receipts, and the indirect purchase of goods and services. Construction workers could come from Anne Arundel and Howard Counties because none of the construction-related work would require specialized workers, and as of 2013, approximately 39,000 people in Anne Arundel County and approximately 15,000 people in Howard County are in the construction industry.

The proposed NCM building is 74,500 SF, which is 56,300 additional SF than the existing building. The proposed NCM building program includes additional classrooms, auditorium, library, exhibit space, and café. This growth in building program could potentially have long-term impacts on the employment by stimulating the local economy through additional service and hospitality jobs. It is anticipated that the CCEI will employ a total of 21 people which is 8 more employees than the existing NCM.

Environmental Justice. No impacts on environmental justice would be expected from the implementation of the Proposed Action. The Proposed Action would occur entirely on the existing NCM property in an already developed area. The nearest off-installation housing is approximately 4,500 feet to the west, no impacts on minority or low-income populations would be expected.

4. Cumulative and Other Impacts

Federal regulations implementing NEPA (40 CFR §§ 1500–1508) require that the cumulative effects of a Proposed Action be assessed. CEQ regulations implementing the procedural provisions of NEPA define cumulative effects as follows (40 CFR § 1508.7):

“The impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.”

A cumulative effect could be additive (i.e., the net adverse cumulative effects are strengthened by the sum of individual effects), countervailing (i.e., the net adverse cumulative effect is lessened as a result of the interaction between beneficial and adverse individual effects), or synergistic (i.e., the net adverse cumulative effect is greater than the sum of the individual effects). Cumulative effects could result from individually minor, but collectively significant actions that take place over time. Accordingly, a cumulative effects analysis identifies and defines the scope of other actions and their interrelationship with the alternatives if there is an overlap in space and time. Cumulative effects are most likely to occur when there is an overlapping geographic location and a coincidental or sequential timing of events. Therefore, this section presents projects that are considered temporally or geographically related to the Proposed Action, and as such, have the potential to result in cumulative impact.

4.1 Projects Considered for Potential Cumulative Impacts

On-installation Projects

VCP-1: The project would alter the alignment of the Canine Road entrance, reconfigure the N10 parking lot into multiple, smaller lots, and provide a larger vehicle control point (VCP).

Rockenbach Road and O’Brien Road Intersection: The project would improve the intersection of Rockenbach Road and O’Brien Road to allow for increased traffic flow efficiency.

ECB3A Complex: This project involves replacement by construction of a Publishing and Archives facilities and construction of a new multi-level parking facility on O’Brien Road. At full build-out, the replaced buildings would occupy up to 500,000 SF. Development of the proposed parking facility would replace displaced parking caused by the project and would provide additional parking spaces to reduce the existing parking deficit on the NSA Campus.

East Campus Integration Program: The NSA East Campus Integration Program consists of construction and operation of approximately 2.9 million SF of new facilities and operations and headquarters space on the NSA’s East Campus and the 9800 Troop Support Area on the

installation. Additionally, 1.9 million SF of demolition on the NSA Campus would be required under this project. This action would consolidate mission elements on the NSA Campus based on function which would then support a more collaborative environment. All supporting infrastructure would be included under this project, which includes an electrical substation, emergency generator, lifesaving generators, building heating systems, and utilities.

Off-Installation Projects

Annapolis Junction Town Center: The Annapolis Junction Town Center would create an 18.9-acre transit oriented development to include 100,000 SF of office space, 416 apartment homes, a 150-room hotel, 17,450 SF of retail space, and a new 704-space Maryland Area Regional Commuter (MARC) Station parking garage. According to site plans, phased openings would begin with apartment homes to be completed in 2016. This project would be located in Howard County near the Savage MARC Station.

MD 198 Road Capacity Improvements: The Maryland State Highway Administration, in conjunction with the Federal Highway Administration, Anne Arundel County, Fort Meade, and the Corps, conducted a planning study addressing current and future capacity needs, bicycle lanes, and pedestrian access along MD Rte. 198 from the Baltimore-Washington Parkway to MD Rte. 32 (3.5-mile study area). The purpose of the MD Rte. 198 Project Planning Study is to identify ways to improve existing capacity and traffic operations, enhance access to Fort Meade, and increase the safety of drivers, bicyclists, and pedestrians along MD Rte. 198, while supporting existing and planned development in the area. Further planning for this project is underway (FHWA and MD SHA 2011, MD SHA, and AAC 2014).

Arundel Gateway: Arundel Gateway is a 300-acre mixed-used development, consisting of the Liberty Valley and Arundel Gateway sections, located in western Anne Arundel County, southwest of Fort Meade. Development plans for the area include mixed-use retail buildings, commercial buildings, offices, and housing (Lemke 2014, Ribera Development 2014). Arundel Gateway would be comprised of 8 commercial buildings and retail shops, a community center, and 103 acres for various housing developments (e.g., 500 townhouses, 350 multi-family units, 360-unit apartments, and 200-unit condominiums) (AAC 2012). The proposed development is southwest of Fort Meade on MD Rte. 198, just east of the Baltimore-Washington Parkway/MD Rte. 198 interchange. This project is in the advanced planning stages.

4.2 Cumulative Impacts on Resources

The parameters utilized for this assessment, such as building size and number of parking spaces, may be reduced during the design development phase of the project due to a necessity to reduce construction costs. If reductions are made in the future to the development program the cumulative impacts as summarized in this assessment will be reduced overall.

4.2.1 Land Use and Visual Resources

The Proposed Action would be consistent with present and foreseeable land uses on the NCM site. Additionally, the Proposed Action would not be expected to impact nearby sensitive land uses.

The Proposed Action would be expected to have long-term, beneficial impacts on land uses surrounding Fort Meade and the NSA Campus. Short-term impacts would include disturbance due to construction activity, although these impacts will not affect the long-term viability or continuation of adjacent land uses. The Proposed Action consists of the construction of the new CCEI in place of the existing museum, which would be a continuation of the existing land use and be compatible with the surrounding land uses. Minor adverse impacts would include loss of minimal open space and forested areas as the new CCEI is constructed. Beneficial impacts would also be expected by providing a state of the art museum facility that will fulfill the needs of the community and the NSA. Other beneficial impacts would be an increase in stormwater management, islands and plantings within the parking lots, and security.

There will be negligible impacts to Visual Resources expected because the project area is already developed. The new CCEI will be designed to enhance the existing visual resources by moving the location of the museum away from the MD Rte. 295 historic corridor, increasing landscape buffers along the perimeter of the project area, and by placing the new CCEI building in a location that will screen the existing NSA power station from external views into the NSA campus, which will provide long term beneficial impacts.

4.2.2 Transportation

The baseline for assessing transportation impacts was formed using existing and projected future (i.e. future museum construction with additional uses and parking needs) traffic conditions in Section 3.2. Currently the signalized intersection of Canine Road/Colony Seven Road and its turning movements operate at acceptable levels of service. The turning movements of the Colony Seven Road/NSA Lot intersection also operate at acceptable levels of service.

With the redevelopment of the new CCEI site, both the Canine Road/Colony Seven Road intersection and the Colony Seven Road/NSA Lot intersection would continue to operate at acceptable levels of service during AM peak hours. However the proposed redevelopment, without any road improvements, would cause both of these intersections to operate near or beyond capacity during the PM peak hours if multiple uses, such as the auditorium, operate concurrently with either the museum or the classrooms. The recommendations described in Section 3.2.4.1 can be implemented to reduce adverse impacts to the transportation system. Long term impacts to the road system should be minor.

4.2.3 Noise

Implementation of the Proposed Action and other concurrent actions would result in short-term, minor, adverse, impacts on the ambient noise environment during demolition and construction activities, particularly from development of the new CCEI and associated parking facility. The combined potential construction noise from the Proposed Action and other identified projects, potentially occurring on a simultaneous or overlapping timeframe on the installation, would likely result in increased ambient noise levels in the immediate area and could have minor, adverse impacts on sensitive noise receptors (military family housing) near the Proposed Action. The increased noise related to construction, would be temporary in nature and would not have any long-term impacts. Short-term, negligible, adverse noise impacts on off-installation sensitive noise receptors (e.g., Patuxent Research Refuge) could be expected from construction activities associated with the new CCEI. Long term minor impacts would occur on a limited basis due to operation of the proposed generator.

The past, current, and reasonably foreseeable noise environment in and around the new CCEI Project Area is dominated by traffic noise from the adjacent roadways, which would continue into the future.

4.2.4 Air Quality

The Proposed Action, other NSA and Fort Meade actions, and other development activities within the immediate region would have some level of construction- and operation-related emissions. The State of Maryland takes into account the impacts of all past, present, and reasonably foreseeable future projects in the region and associated emissions during the development of their system improvement programs (SIP). Estimated emissions generated by the Proposed Action would be below *de minimis* levels and not regionally significant. Therefore, these construction-related impacts would contribute negligibly to cumulative short-term impacts on air quality.

4.2.5 Geological Resources

Negligible to minor cumulative impacts on geological resources would be expected from construction activities. Impacts on topography, geology, and soils from construction would be localized to the site that is being developed. Long-term cumulative impacts from the Proposed Action and other actions could occur as a result of the conversion of undeveloped land, which is irreversible and irretrievable conversion of natural soils to urban land, and would be partially offset by ESD and other sustainable measures.

4.2.6 Water Resources

Short-term, minor, cumulative, adverse impacts on water resources could occur from all construction activities. Removal of forest and other vegetation can increase stormwater flows during rain events, introduce contaminants (e.g., oils, fertilizers, pesticides) into surface water bodies, and possibly worsen downstream flooding if water channels are transporting more water in a shorter period of time. Implementation of soil erosion and sedimentation control measures and stormwater management facilities would minimize the potential for adverse impacts from individual construction sites and, therefore, reduce potential cumulative impacts on water resources. Long-term, minor, adverse cumulative impacts on water resources would be expected from the addition of impervious surfaces and the isolated wetland fill. The cumulative increase in impervious surfaces would be considered a minor contribution in the context of the whole watershed but could be noticeable on a more localized level. Adherence to the *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control* would be expected to minimize or avoid potentially long-term, cumulative, adverse impacts on water resources. There would be no adverse impacts to flood plain or the coastal zone.

4.2.7 Biological Resources

Short and long term, direct, adverse impacts would be expected to vegetation and wildlife as a result of the development of currently undeveloped forest. The Proposed Action would likely result in the increased effects of segmentation of existing wildlife habitat, increased potential for wildlife mortality associated with collision during construction activities, a reduction in the quality of wildlife habitat available, and the permanent removal of forest and other suitable habitat located in the project area. Long term beneficial impacts would occur through the provision of reforestation and additional plantings within the project area. No impacts to endangered species are expected.

4.2.8 Cultural Resources

Cumulative impacts on archaeological sites and architectural resources have likely occurred from past construction on and off the NSA and Fort Meade as areas were disturbed for construction activities. No cumulative impacts on any previously identified archaeological or architectural resources have been identified in association with construction of the Proposed Action. There are no NRHP-eligible buildings proposed for demolition within the project area. No impacts are expected to affect the Rte. 295 corridor.

4.2.9 Infrastructure and Sustainability

The Proposed Action and other cumulative projects would generally be expected to have short and long term, negligible to minor, adverse impacts resulting from increased demand on utility systems. Long term, negligible to minor, adverse impacts would be expected from the concurrent construction and operation of new infrastructure associated the Proposed Action and other cumulative projects. However, the demands on utilities associated with these

actions would not be expected to exceed the systems and services that are already being provided.

No cumulative adverse impacts would be expected as a result of incorporating sustainable design, development, and operation of projects. Cumulative long term, minor to moderate, beneficial impacts from reduced energy and water usage, reduced waste generation, increased use of recycled and repurposed materials, use of cost effective sustainable technologies, and incorporation of sustainable site design would be expected from implementation of the Proposed Action.

4.2.10 Hazardous Materials and Wastes

No cumulative adverse impacts would be expected as a result of the use of hazardous materials and petroleum products and generation of hazardous wastes. The Proposed Action and other cumulative projects on the NSA Campus and Fort Meade would be expected to use an increased amount of hazardous materials and generate hazardous wastes during construction activities, but all uses would be in accordance with existing laws, regulations, and management plans. Cumulative, negligible, beneficial impacts could occur from the demolition of aged buildings because they may contain ACMs, LBP, and PCBs. Hazardous materials and wastes and petroleum products would be contained and disposed of according to procedures already in place at NSA and Fort Meade.

4.2.11 Socioeconomics and Environmental Justice

Short-term and long term, beneficial effects on socioeconomics would be expected from implementing the Proposed Action. Beneficial impacts on the local economy are expected for the duration of the project from increased construction labor force employment and expenditures for construction workers' wages and taxes, construction materials, and purchase of other goods and services. The Proposed Action and other cumulative actions are not expected to disproportionately affect minority or low-income populations at this time.

4.3 Irreversible and Irretrievable Commitment of Resources

NEPA requires that EAs include identification of any irreversible and irretrievable commitment of resources that would be involved in the implementation of the Proposed Action. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable timeframe. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the Proposed Action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site).

Environmental consequences as a result of this project are considered short term and temporary. Construction activities would require consumption of limited amounts of materials typically associated with interior and exterior construction (e.g., concrete, wiring, piping, insulation, and windows). NCMF does not expect the amount of these materials used to significantly decrease the availability of the resources. Small amounts of nonrenewable resources would be used; however, NCMF does not consider these amounts to be appreciable and does not expect them to affect the availability of these resources.

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APPENDIX A – INTERAGENCY COORDINATION AND PUBLIC INVOLVEMENT

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Agency Coordination List

The following agencies and individuals were sent agency coordination letters as part of the EA process:

State and Federal Agencies

Ms. Lori Byrne
Maryland Dept. of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, MD 21401

Ms. Linda C. Janey
Maryland State Clearinghouse
Maryland Office of Planning, Suite 1101
301 West Preston Street
Baltimore, MD 21201-2365

Office of the Secretary
Maryland Department of Environment
1800 Washington Blvd.
Baltimore, MD 21230

Mr. Chris Guy
U.S. Dept. of the Interior Fish & Wildlife Services
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

Ms. Barbra Rudnick
USEPA Region III
1650 Arch Street
Mail Code 3EA30
Philadelphia, PA 19103
215-814-2700

Maryland Historical Trust
Division of Historical and Cultural Programs
ATTN: Elizabeth J. Cole
100 Community Place
Crownsville, MD 21032-2023

State of Maryland Dept. of Agriculture
ATTN: Ms. Julie Oberg
Public Information Officer
50 Harry S. Truman Parkway
Annapolis, Maryland 21401

National Park Service
National Capital Parks—East
Kate Birmingham
Cultural Resources Program Manager
1900 Anacostia Drive, SE
Washington, DC 20020

Maryland Department of Planning
ATTN: Mr. Bob Rosenbush, Planner
301 West Preston Street, Suite 1101
Baltimore, MD 21201

Maryland Dept. of Transportation
State Highway Administration
ATTN: Lee Johnston
707 North Calvert Street
Mail Stop C303
Baltimore, Maryland 21202

Regional and Local Offices

Ms. Ginger Ellis
Anne Arundel County Maryland
Office of Environmental & Cultural
Resources
2664 Riva Rd.
Annapolis, MD 21401

Regional and Local Offices (cont'd)

Mr. Joseph A. Haamid
Resource Conservationist
Anne Arundel Soil Conservation District
Heritage Office Complex
2662 Riva Road, Suite.150, MS #7001
Annapolis, MD 21401-7377

Mr. Larry Tom
Director
Anne Arundel County
Office of Planning and Zoning
Heritage Office Complex
2664 Riva Rd., 3rd Floor
Annapolis, MD 21401

Mr. Jean Friedberg
Fort Meade RGMC
6751 Columbia Gateway Drive
Suite 500
Columbia, MD 21046

Agency Responses

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201505396

RECEIVED
DEC 09 2015

BY:



November 30, 2015

Maryland Historical Trust
Div. of Historical & Cultural Programs
100 Community Place
Crownsville, MD 21032-2023

Attn: Elizabeth Cole

Re: Cyber Center for Education and Innovation – New Museum Project
Environmental Assessment

AN

Dear Ms. Cole,

On behalf of the National Cryptologic Museum Foundation (NCFM), Morris & Ritchie Associates, Inc. (MRA) and Geo-Technology Associates, Inc. (GTA) are preparing an Environmental Assessment (EA) to evaluate potential environmental, cultural, transportation, and socioeconomic effects associated with the proposed Cyber Center for Education and Innovation and New Museum Project (i.e., the CCEI) to be located at 8290 Colony Seven Road, Annapolis Junction, Maryland. The objectives of the NCFM are to: educate the public on the role cryptology has played in our national security; commemorate those in the cryptologic community that have made significant contributions; and to stimulate visitors, especially the young, to consider careers in STEM fields critical to our nation's economic and national security.

The NCFM is working in partnership with the National Security Agency (NSA), to construct the new CCEI. The 85,000 +/- SF facility, which will be two stories in height (approximately 40 feet), will include space for, but is not limited to: Museum Exhibits, two Libraries, Classrooms, a 500-seat Auditorium, Café, Kitchen, Gift Shop, Storage, Office Space, and Ancillary spaces. The new CCEI will replace an existing small museum facility located on the perimeter of the NSA campus. The existing museum was established by converting a 1950's era abandoned hotel lobby/restaurant. The existing museum structure is aging and cannot be easily updated and expanded to provide a state-of-the-art, secure facility. It is the intent of the NCFM to construct the new CCEI within the existing museum site, but further from Rte. 295, while continuing to operate the existing museum until the transition to the new CCEI can be made. Parking spaces for 600 to 680 vehicles will be provided to serve the facility. Three existing aircraft are currently located at Vigilance Park on the perimeter of the NSA campus near Rte. 32. All three aircraft will be relocated and incorporated into the new CCEI complex and footprint by placing the aircraft close to the building to create both visual and historic interest. The largest of the aircraft is an existing C130 Hercules, which is 97 feet 9 inches (29.3 meters) long with a wingspan of 132 feet 7 inches (39.7 meters) and a tail height of 38 feet 3 inches (11.4 meters). The new CCEI facility will be integrated into NSA's north campus plan for logistical proximity, and NSA's facility and infrastructure management portfolio allowing NSA to assume responsibility for the CCEI's security, operations, and maintenance. For these reasons placing the new CCEI next to the existing museum is the most viable option.

The Maryland Historical Trust has determined that there are no historic properties affected by this undertaking.

Dixie Henry Date 1/19/16

Several adjacent areas surveyed - 1a

prior review - 201501549


Maryland Historical Trust
CCEI – New Museum Project
Environmental Assessment
November 30, 2015
Page 2

Based on the above explanation the two alternatives to be evaluated in the EA will be the construction of the new CCEI within the existing museum site and the “no action alternative”. A project area of approximately 25 acres will be assessed for documentation of the new CCEI as shown on the enclosed copies of a Site Location Map, a USGS Topographic Map, and an Aerial Photograph.

As you may be aware the Maryland Historical Trust has previously reviewed our project and concluded that it “will have no effect on historic properties, including historic structures and archeological sites.” A copy of the Trust’s approval letter is attached.

To assist us in identifying issues that may affect the implementation of this project, please provide written comments within 30 days of receipt of this letter to our MRA representative, Ms. Marilee Tortorelli (mtortorelli@mrakta.com). Please do not hesitate to contact me with questions regarding this request. Thank you for your attention to this matter and I look forward to receiving your response.

Sincerely,



Lawrence Castro
Chief Operating Officer
CCEI – New Museum Project
National Cryptologic Museum Foundation
tlcastro1@comcast.net
443-270-5391

Attachments:

- Site Location Map
- Topographic Map
- Aerial Photograph
- Maryland Historical Trust Approval letter, June 16, 2015



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Joanne Throwe, Deputy Secretary

December 18, 2015

Mr. Lawrence Castro
National Cryptologic Museum Foundation
Tlcastro1@comcast.net

**RE: Environmental Review for Cyber Center for Education and Innovation, New Museum
Project, 8290 Colony Seven Road, Annapolis Junction, Anne Arundel County, Maryland.**

Dear Mr. Castro:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted. It is also important to note that the utilization of state funds, or the need to obtain a state authorized permit may warrant additional evaluations that could lead to protection or survey recommendations by the Wildlife and Heritage Service. If this project falls into one of these categories, please contact us for further coordination.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2015.1769.aa



United States Department of Agriculture

DATE: December 16, 2015

TO: Ms. Marilee Tortorelli
Morris & Richie Associates, Inc.
14280 Park Center Drive
Suite A
Laurel, MD 20707

RECEIVED DEC 21 2015

SUBJECT: National Environmental Policy Act
Environmental Assessment for
Cyber Center for Education and Innovation
And New Museum Project (CCEI)

Dear Ms. Tortorelli:

The responsibilities of our agency for your environmental assessment of the proposed Cyber Center for Education and Innovation and New Museum Project (CCEI) is to provide technical assistance by evaluating the project's possible affects with respect to any environmental impacts. You stated that the project area is approximately 25 acres. However, the SITE LOCATION MAP that you provided for the approximate location of subject property is approximately 13 acres, according to NRCS Web Soil Survey. This report addresses only the 13 acres that are delineated on your SITE LOCATION MAP.

The proposed project's purpose is to build a Cyber Center for Education and Innovation at the existing museum site. You have asked for comments on the environmental impact on this site and the surrounding area as a result of building this project.

Because this site is designated as Urban Area by the U.S. Census Bureau, many environmental impacts associated with soils and their suitabilities, prime farmland/statewide important farmland conversion, and conservation management practices will not pertain to the Environmental Impact Statement (EIS) of the project. There is no current crop production occurring within the proposed project area. Impacts due to water discharges from the project areas need to be considered. Chillum loam, 2 to 5 percent slopes, is one of the soils mapped at the project site and is highly erosive. Therefore erosion and other impacts to water quality, streamflow, floodplains and wetlands will need to be addressed due to the close proximity of the adjacent stream that runs southwest and connects with the Little Patuxent River. Also any potential impacts to the ecosystems (major plant communities, terrestrial and aquatic life, and threatened or endangered plants) associated with this waterway will also need to be addressed. Since the stream adjacent to the project area empties into the Little Patuxent River, any causes associated to flooding problems and water related structures (bridges, culverts, etc.) should be considered.

If you require any additional information, please let us know.

Sincerely,



William Dean Cowherd
Assistant State Soil Scientist
339 Busch's Frontage Road, Suite 301
Annapolis, Maryland 21409
Natural Resources Conservation Service
United States Department of Agriculture
<http://www.md.nrcs.usda.gov>
443-482-2931

cc: Phillip King Dover, DE
Patricia Engler Annapolis, MD
Joseph Hammid, Annapolis, MD
James Brewer, Easton, MD

Galiber, Courtney

From: Rudnick, Barbara <Rudnick.Barbara@epa.gov>
Sent: Friday, February 26, 2016 2:08 PM
To: Malloy, Rosa
Subject: RE: Environmental Assessment Scoping Letter

Dear Ms. Malloy,

Thank you for providing information on the proposed expansion of the Cyber Center/New Museum project in Anne Arundel County, Maryland and the Environmental Assessment (EA) being prepared to comply with the National Environmental Policy Act. We understand that you are soliciting information for the scoping phase of the EA study. EPA will not be able to provide information related to the scope of the EA.

If you would like to share the study, once a draft EA is developed, please feel free to send an electronic copy to my attention.

Thank you.

Barbara Rudnick, P.G.
NEPA Team Leader
EPA Region III
1650 Arch Street (3EA30)
Philadelphia, PA 19103
215-814-3322

From: Malloy, Rosa [<mailto:rmalloy@gtaeng.com>]
Sent: Friday, February 26, 2016 1:32 PM
To: Rudnick, Barbara <Rudnick.Barbara@epa.gov>
Subject: Environmental Assessment Scoping Letter

Good afternoon Ms. Rudnick,

As I explained over the phone a few minutes ago, I'm following up on a scoping letter than Morris & Ritchie Associates, in conjunction with Geo-Technology Associates, and the National Cryptologic Museum Foundation sent on November 30, 2015.

The scoping letter is associated with an environmental assessment for a proposed Cyber Center for Education and Innovation – New Museum Project located in Anne Arundel County and requested that your agency assist us in identifying issues that may affect the implementation of the project by providing written comments.

It is to my understanding that your agency is unable to comment on the scoping letter, at which you are in receipt of, at this time. Can you please provide us with written verification on this matter?

Thank you!

Rosa Malloy
Field Scientist



Cell: (202) 604-1879
Work: (410) 792-9446
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Please consider the environment before printing this e-mail or its attachments.



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor

David R. Craig, Secretary
Wendi W. Peters, Deputy Secretary

February 22, 2016

Ms. Marilee Tortorelli
MRA Representative
Morris & Ritchie Associates, Inc.
14280 Park Center Drive, Suite A
Laurel, MD 20707

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20151210-1071

Applicant: Morris & Ritchie Associates, Inc.

Project Description: Scoping prior to Environmental Assessment: Cyber Center for Education and Innovation - New Museum Project: consider one Alternative to Construct a New Center and No Action Alternative: construct the new center within the existing museum site

Project Address: 8290 Colony Seven Road, Annapolis Junction, MD 20701

Project Location: Anne Arundel County

Approving Authority: U.S. Department of Defense (DOD/NSA)

Recommendation: Consistent with Qualifying Comments

Dear Ms. Tortorelli:

In accordance with Presidential Executive Order 12372 and (Code of Maryland Regulations) 34.02.01.04-.06, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Departments of Agriculture, General Services, Natural Resources, Transportation, the Environment, the Maryland Military Department, Anne Arundel County, and the Maryland Department of Planning, including the Maryland Historical Trust. The Maryland Department of Agriculture, and the Maryland Military Department and Anne Arundel County had no comment. Anne Arundel County added that it had no jurisdiction over Fort Meade, or the National Security Agency.

The Maryland Department of the Environment submitted these qualifying comments.

Ms. Marilee Tortorelli

February 22, 2016

Page 2

State Application Identifier: **MD20151210-1071**

1. Any above-ground or underground petroleum storage tanks, which may be utilized, must be installed and maintained in accordance with applicable State and Federal laws and regulations. Underground storage tanks must be registered and the installation must be conducted and performed by a contractor certified to install underground storage tanks by the Land Management Administration in accordance with (COMAR) 26.10.01- .16 Contact the Oil Control Program at (410) 537-3442 for additional information.
2. If the proposed project involves demolition, any above-ground or underground petroleum storage tanks that may be on site must have contents and tanks along with any contamination removed. Please contact the Oil Control Program at (410) 537-3442 for additional information.
3. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3315 for additional information regarding solid waste activities and contact the Waste Diversion and Utilization Program at (410) 537-3314 for additional information regarding recycling activities.
4. The Waste Diversion and Utilization Program should be contacted directly at (410) 537-3314 by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable State and Federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.
5. Any contract specifying "lead paint abatement" must comply with Code of Maryland Regulations (COMAR) 26.16.01 - Accreditation and Training for Lead Paint Abatement Services. If a property was built before 1950 and will be used as rental housing, then compliance with (COMAR) 26.16.02 - Reduction of Lead Risk in Housing; and Environment Article Title 6, Subtitle 8, is required. Additional guidance regarding projects where lead paint may be encountered can be obtained by contacting the Environmental Lead Division at (410) 537-3825.
6. The proposed project may involve rehabilitation, redevelopment, revitalization, or property acquisition of commercial, industrial property. Accordingly, MDE's Brownfields Site Assessment and Voluntary Cleanup Programs (VCP) may provide valuable assistance to you in this project. These programs involve environmental site assessment in accordance with accepted industry and financial institution standards for property transfer. For specific information about these programs and eligibility, please contact the Land Restoration Program at (410) 537-3437

The Maryland Departments of General Services, Natural Resources, and Transportation; and the Maryland Department of Planning; including the Maryland Historical Trust found this project to be consistent with their plans, programs, and objectives.

The Maryland Historical Trust determined that the project had no effect on historic properties.

Ms. Marilee Tortorelli
February 22, 2016
Page 3
State Application Identifier: **MD20151210-1071**

Any statement of consideration given to the comments should be submitted to the approving authority, with a copy to the State Clearinghouse. The State Application Identifier Number must be placed on any correspondence pertaining to this project. The State Clearinghouse must be kept informed if the approving authority cannot accommodate the recommendation. Please remember, you must comply with all applicable State and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at bob.rosenbush@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,


Linda C. Janey, J.D., Assistant Secretary

LCJ:BR

cc: Debra Falconer - ANAR
Lawrence Castro - NCMF
Rosa Malloy- GTAE
Greg Golden - DNR
Amanda Degen - MDE

Tina Quinichette - MDOT
Wendy Scott-Napier - DGS

Sandi Fleischer - MDA
Daniel Pyle - MILT

Peter Conrad - MDPL
Beth Cole - MHT

15-1071_CRR.CLS.doc



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor

David R. Craig, Secretary
Wendi W. Peters, Deputy Secretary

December 14, 2015

Ms. Marilee Tortorelli
MRA Representative
Morris & Ritchie Associates, Inc.
14280 Park Center Drive, Suite A
Laurel, MD 20707

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20151210-1071

Reply Due Date: 01/09/2016

Project Description: Scoping prior to Environmental Assessment: Cyber Center for Education and Innovation and New Museum Project: consider one Alternative to Construct a New Center and the "No Action" Alternative: construct the new center within the existing museum site

Project Address: 8290 Colony Seven Road, Annapolis Junction, MD 20701

Project Location: County of Anne Arundel

Clearinghouse Contact: Bob Rosenbush

Dear Ms. Tortorelli:

Thank you for submitting your project for intergovernmental review. Your participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps to ensure that your project will be consistent with the plans, programs, and objectives of State agencies and local governments.

We have forwarded your project to the following agencies and/or jurisdictions for their review and comments: the Maryland Departments of Natural Resources, the Environment, Transportation, General Services, Agriculture; the Maryland Military Department; the County of Anne Arundel; and the Maryland Department of Planning; including the Maryland Historical Trust. A composite review and recommendation letter will be sent to you by the reply due date. Your project has been assigned a unique State Application Identifier that you should use on all documents and correspondence.

Please be assured that we will expeditiously process your project. The issues resolved through the MIRC process enhance the opportunities for project funding and minimize delays during project implementation.

If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at bob.rosenbush@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,

A handwritten signature in black ink that reads "Linda C. Janey". The signature is fluid and cursive, with the first name "Linda" being the most prominent.

Linda C. Janey, J.D., Assistant Secretary

LCJ:BR

cc: Lawrence Castro - NCMF

15-1071_NRR.NEW.doc

Galiber, Courtney

From: Chris M <cmaex@aascd.org>
Sent: Monday, March 28, 2016 7:54 AM
To: Malloy, Rosa
Subject: Re: Environmental Assessment Scoping Letter

This information was forwarded to me as a courtesy on 3/21/2016. Typically, this office does not review environmental assessments. We review projects for sediment and erosion control at grading permit which are submitted to the County. NSA projects do not go through this process. I do not know of any known impacts for the redevelopment of this site for the new CCEI.

On Thu, Mar 24, 2016 at 4:15 PM, Malloy, Rosa <rmalloy@gtaeng.com> wrote:

Good morning Ms. Maex-Murphy,

I was recently referred to you by Haydsha Rodriguez and was wondering if you could be of assistance. On November 30th, 2015, a scoping letter was sent to the Soil Conservation District from Morris & Richie Associates, in conjunction with Geo-Technology Associates, and the National Cryptologic Museum Foundation.

The scoping letter is associated with an environmental assessment for a proposed Cyber Center for Education and Innovation – New Museum Project located in Anne Arundel County and requested that your agency assist us in identifying issues that may affect the implementation of the project by providing written comments.

We are currently following up on requests that weren't received within the 30 day period and would appreciate a response at your earliest convenience. I've attached an unsigned version of the scoping letter that was originally sent to Mr. Joseph Haamid to this e-mail.

Thank you!

Rosa Malloy
Field Scientist



Cell: [\(202\) 604-1879](tel:(202)604-1879)

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Chris Maex
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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>



February 23, 2016

Mr. Maxwell D. Potember
Environmental Scientist
GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive, Suite A
Laurel, MD 20707

RE: Cyber Center for Education and Innovation – New Museum Project in Anne Arundel County, MD (Environmental Assessment)

Dear Mr. Potember:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter with attachments dated November 30, 2015 and your project information from the Service's Information for Planning and Conservation (IPaC) online system dated February 17, 2016. The comments provided below are in accordance with section 7(c) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 et seq.).

The purpose of this proposed project is to construct the proposed Cyber Center for Education and Innovation and New Museum Project. This project site currently consists of developed and forested lands.

The Service has no Fish and Wildlife Coordination Act concerns regarding this proposed project. In addition, there are no listed species identified in the vicinity of this project.

If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

Genevieve LaRouche
Supervisor



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<p align="center">Comment Response Matrix</p> <p align="center"><i>Public Draft EA for the Construction and Operation of the Cyber Center for Education and Innovation – Home of the National Cryptologic Museum at Fort George G. Meade, Maryland</i></p> <p align="center"><i>April 2016</i></p>			
#	Comment	Commenter	Response
0	<i>Example Content</i>	<i>BH</i>	
1	In our opinion, the proposed project will have no effect on historic properties, including historic structures and archeological sites. As provided by the Bond Bill, the Trust has examined the proposed project to determine whether, prior to the issuance of the bonds, the grantee or owner of the property must convey a perpetual preservation easement to the Trust. After review of the documentation provided, the Trust has determined that the property is not historic. Therefore, the Trust does not require the conveyance of a perpetual preservation easement on this property. We are notifying the Board of Public Works (BPW) that the project’s historic preservation review and consultation have been completed.	Maryland Historical Trust	Comment noted.
2	The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in face present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted. It is also important to note	MD Dept. of Natural Resources	Comment noted.

	that the utilization of state funds, or the need to obtain a state authorized permit may warrant additional evaluations that could lead to protection or survey recommendations by the wildlife and Heritage Service. If this project falls into one of these categories, please contact us for farther coordination.		
3	Because this site is designated as Urban Area by the U.S. Census Bureau, many environmental impacts associated with soils and their suitabilities, prime farmland/statewide important farmland conversion, and conservation management practices will not pertain to the Environmental Impact statement (EIS) of the project. There is no current crop production occurring within the proposed project area. Impacts due to water discharges from the project areas need to be considered. Chillum loam, 2 to 5 percent slopes, is one of the soils mapped at the project site and is highly erosive. Therefore erosion and other impacts to water quality, streamflow, floodplains, and wetlands will need to be addressed due to the close proximity of the adjacent stream that runs southwest and connects with the Little Patuxent River. Also any potential impacts to the ecosystems associated with this waterway will also need to be addressed. Since the steam adjacent to the project area empties into the Little Patuxent River, any causes associated to flooding problems and water related structures should be considered.	USDA	Comment noted.
4	We understand that you are soliciting information for the scoping phase of the EA study. EPA will not be able to provide information related to the scope of the EA.	EPA Region III	Comment noted.
5	Agency did not respond with comments	Fort Meade	Comment noted.

	specific to this EA. They provided the RGMC Master Plan for informational purposes.	RGMC	
6	<p>The Maryland Department of the Environment submitted these qualifying comments.</p> <ol style="list-style-type: none"> 1. Any above-ground or underground petroleum storage tanks, which may be utilized, must be installed and maintained in accordance with applicable State and Federal laws and regulations. Underground storage tanks must be registered and the installation must be conducted and performed by a contractor certified to install underground storage tanks by the Land Management Administration in accordance with (COMAR) 26.10.01-.16. Contact the Oil Control Program at (410) 537-3442 for additional information. 2. If the proposed project involves demolition, any above-ground or underground petroleum storage tanks that may be on site must have contents and tanks along with any contamination removed. Please contact the Oil Control Program at (410)537-3442 for additional information. 3. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3314 for additional 	State Clearinghouse	Comment noted.

	<p>information regarding recycling activities.</p> <p>4. The Waste Diversion and Utilization Program should be contacted directly at (410) 537-3314 by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable State and Federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.</p> <p>5. Any contract specifying “lead paint abatement” must comply with Code of Maryland Regulations (COMAR) 26.16.01 – Accreditation and Training for Lead Paint Abatement Services. If a property was built before 1950 and will be used as rental housing, then compliance with (COMAR) 26.16.02 – Reduction of Lead Risk in Housing; and Environment Article Title 6, Subtitle 8, is required. Additional guidance regarding projects where lead paint may be encountered can be obtained by contacting the Environmental Lead Division at (410) 537-3437.</p> <p>6. The proposed project may involve rehabilitation, redevelopment, revitalization, or property acquisition of commercial, industrial property. Accordingly,</p>		
--	--	--	--

	MDE's Brownfields Site Assessment and Voluntary Cleanup Programs (VCP) may provide valuable assistance to you in this project. These programs involve environmental site assessment in accordance with accepted industry and financial institution standards for property transfer. For specific information about these programs and eligibility, please contact the Land Restoration Program at (410) 537-3437.		
7	The Maryland Departments of General Services, Natural Resources, and Transportation; and the Maryland Department of Planning; including the Maryland Historical Trust found this project to be consistent with their plans, programs, and objectives.	State Clearinghouse	Comment noted.
8	The Maryland Historical Trust determined that the project had no effect on historic properties.	State Clearinghouse	
9	The Maryland Department of Agriculture, and the Maryland Military Department and Anne Arundel County had no comment. Anne Arundel County added that it had no jurisdiction over Fort Meade, or the National Security Agency.	State Clearinghouse	Comment noted.
10	Typically, this office does not review environmental assessments. We review projects for sediment and erosion control at grading permit which are submitted to the County. NSA projects do not go through this process. I do not know of any known impacts for the redevelopment of this site for the new CCEI.	Anne Arundel County Soil Conservation District	Comment noted.
11	The Service has no Fish and Wildlife Coordination Act concerns regarding this proposed project. In addition, there are no listed species identified in the vicinity of this project.	U.S. Dept. of the Interior Fish & Wildlife Services	Comment noted.

APPENDIX B – TRAFFIC IMPACT ANALYSIS

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**THE CYBER CENTER FOR EDUCATION AND
INNOVATION—HOME OF THE NATIONAL
CRYPTOLOGIC MUSEUM (THE CCEI)
TRAFFIC IMPACT ANALYSIS
ANNE ARUNDEL COUNTY, MARYLAND**

**Prepared for:
The National Cryptologic Museum Foundation**

**Prepared by:
Wells + Associates, Inc.**

October 26, 2015

Transportation Consultants
INNOVATION + SOLUTIONS

The Cyber Center for Education and Innovation **Home of the National Cryptologic Museum (The CCEI)**

EXECUTIVE SUMMARY

A Transportation Impact Analysis (TIA) for the National Cryptologic Museum Foundation's Cyber Center for Education and Innovation (CCEI) and National Cryptologic Museum (NCM) redevelopment project was prepared to determine the traffic impact of a new facility on Colony Seven Road and Canine Road.

The subject site is located at 8290 Colony Seven Road, northeast of the Maryland Route 295 (Baltimore-Washington Parkway)/Maryland Route 32 (Patuxent Freeway) interchange and north of the National Security Agency (NSA) headquarters. The existing NCM (i.e. CCEI) building, a police building, museum parking, and a NSA parking lot currently occupy the site.

The National Cryptologic Museum Foundation (NCMF) is proposing to redevelop the site with 70,000 square feet (SF) of enclosed building space integrated into a park-like setting. The building will consist of approximately 25,000 SF of core museum exhibit space; a state-of-the-art research library; five (5) reconfigurable classrooms with the capacity of 30 to 150 students; a 500-seat auditorium/conference center; a cafeteria and kitchen; a gift shop; storage and ancillary rooms; and office space for the museum and NCMF staff. As part of this redevelopment, aircraft at Vigilance Park will be integrated into a park-like setting in the new CCEI footprint. Approximately 640 parking spaces are proposed to serve the CCEI and overflow NSA parking. Further, NSA parking, N10 would be expanded into the area currently occupied by Vigilance Park. Access to CCEI is proposed to remain as exists via Colony Seven Road as well as the internal connection to NSA parking lot, N10.

Construction of the new facility is expected to begin in 2017, and complete build-out and occupation is expected in mid-2019.

The analysis focused on the number of vehicle trips currently generated by NSA and the NCM, and on the future anticipated number of trips that would be generated by a new museum, classrooms, and conference center that would travel through the Canine Road/Colony Seven Road intersection during morning and afternoon peak hours. Intersection capacity and vehicle queuing were evaluated. Following are the main conclusions of the analysis and recommendations. The TIA report includes a detailed discussion of the analysis as well as the conclusions and recommendations.

Key findings of the study include the following:

1. The signalized study intersection of Canine Road/Colony Seven Road and its turning movements currently operate at acceptable levels of service. The turning movements of the Colony Seven Road/NSA Lot intersection currently operate at acceptable levels of service.
2. The museum currently generates 12 trips during the NSA AM peak hour, 54 trips during the museum AM peak hour, 31 trips during the museum PM peak hour, and 45 trips during the NSA PM peak hour.
3. The NSA generates 1,720 trips during the NSA AM peak hour, 1,024 trips during the museum AM peak hour, 1,053 trips during the museum PM peak hour, and 1,260 during the NSA PM peak hour. During the afternoon, NSA traffic exits the parking lot over a period starting at 2:00 PM until approximately 6:00 PM.
4. During the museum peak hours, the concurrent uses of the 25,000 SF museum, 500-seat conference center, and 150-student capacity reconfigurable classrooms would add 792 AM peak hour and 659 PM peak hour trips to the roadway network, and they would add 479 AM peak hour and 590 PM peak hour trips to the roadway network during the peak hours of NSA.
5. During the museum AM peak hour, 1,078 trips were counted at the Colony Seven Road/Canine Road intersection, and 1,084 trips were counted during the museum PM peak hour. With the 25,000 SF museum exhibit space, the conference center, and the classrooms, the total intersection volume would increase to 1,673 trips and 1,630 trips (or by 55% and 50%) during the museum AM and PM peak hours, respectively.
6. During the NSA AM peak hour, 1,732 trips were counted at the Colony Seven Road/Canine Road intersection, and 1,305 trips were counted during the NSA PM peak hour. With the 25,000 SF museum exhibit space, the conference center, and the classrooms, the total intersection volume would increase to 1,870 trips and 1,743 trips (or by 73% and 61%) during the museum AM and PM peak hours, respectively.
7. With the redevelopment of CCEI, at the Canine Road/Colony Seven Road intersection, the signalized study intersection of Canine Road/Colony Seven Road and its turning movements would operate at acceptable levels of service during the AM peak hours under all scenarios. The turning movements of the Colony Seven Road/NSA Lot intersection would also operate at acceptable levels of service during the AM peak hours.
8. The eastbound right turn of Colony Seven Road at Canine Road would operate near or beyond capacity during the PM peak hours under scenarios with the

conference center operating concurrently with either the museum or the classrooms. The southbound approach of the NSA lot at Colony Seven Road would operate near or beyond capacity during the PM peak hours.

9. With the conference center operating concurrently with the museum or the classrooms, queuing on the eastbound approach of Colony Seven Road would extend beyond the NSA lot driveway on Colony Seven Road during the PM peak hours. Queuing on the southbound approach of the NSA lot driveway on Colony Seven Road would be generally longer under the scenarios with the conference center compared with the classrooms, particularly during the PM peak hours. Further, queuing on the northbound approach of Canine Road at Colony Seven Road would extend to the interchange ramp with Maryland Route 32 during the AM peak hours under scenarios with the conference center.
10. With the museum operating concurrently with the classrooms (without the conference center), the turning movements would operate at acceptable levels of service and queuing would be accommodated for the turning movements at the Canine Road/Colony Seven intersection.
11. The future 25,000 SF core exhibit museum space would be able to operate with normal visitor activity, such as during a heavy day, and utilize the 150-student capacity classrooms without causing significant disturbance to NSA traffic.
12. The Canine Road/Colony Seven Road intersection would operate with acceptable levels of service and reasonable queuing during the AM peak hours for NSA and the museum, with the uses proposed with the proposed CCEI project.

Recommendations for improvements based on this TIA are as follows:

1. Retiming the Canine Road/Colony Seven Road intersection to allocate more green time to Colony Seven Road would improve the levels of service at this intersection.
2. If at all possible, when a conference is hosted at the museum, all-day conferences should be scheduled to begin at 9:30 AM or later and end at 6:00 PM or later to create separation between the NSA peak hour and the outflow from the conference. The separation of peaks would minimize the potential for undesirable levels of service and queuing along Colony Seven Road. Conferences with shorter durations are recommended to operate between 9:30 AM and 2:00 PM to avoid additional strain on mid- to late-afternoon traffic.
3. If conferences cannot begin after 9:30 AM and end during a window outside of 2:00 PM and 6:00 PM, it is recommended that a shuttle bus service be provided to encourage an alternative to single-occupancy vehicle travel. The shuttle bus

would transport conference attendees to and from hotels or off-site parking facilities.

4. With the anticipated redesign of the Colony Seven Road/Canine Road intersection, special consideration should be given to the northbound approach of Canine Road and the eastbound right turn lane of Colony Seven Road, which would have critical queuing issues during the AM and PM peak hours, respectively. The eastbound Colony Seven Road approach at Canine Road could be reconfigured to provide dual right turn lanes to improve the operation during peak hours with the expanded museum, classrooms and conference center all in use. In addition, dual left turns could be provided to the northbound approach of Canine Road to diffuse queuing and provide additional capacity, particularly during the AM peak hours. Further evaluation would be necessary.
5. A second means of access to the NSA parking lot, N10 should be evaluated. Options such as an exit lane onto Canine Road, north of Colony Seven Road, or a connection to the Connector Road could be explored. The second access would provide drivers options when leaving the lot when a queue or delay would be anticipated at the current access and would provide an opportunity some of the 640 parking spaces to be used for NSA overflow parking when conferences are not scheduled.
6. To the extent possible and practical, scheduling for activities at the CCEI should attempt to avoid conflicting, multiple large events on the same day. Synchronizing the scheduling of conferences, school groups and other large visitors, and multiple class activities would reduce the strain on ingress and egress during NSA and CCEI peak AM and PM periods.
7. To the extent possible and practical, when the scheduling of concurrent multiple large events is unavoidable, off-site parking options should be explored/used with busing of event attendees to the CCEI facility from off-site locations to reduce the strain on ingress and egress during NSA and CCEI peak AM and PM periods.
8. To the extent possible and practical, when scheduling conferences for either NSA employees or local/regional attendees, attendees should be encouraged to carpool or take a shuttle bus to the CCEI parking lots, thereby reducing the strain on ingress and egress during NSA and CCEI peak AM and PM peak periods.
9. Longer-term options to improve ingress and egress to the CCEI site location could include adding an exit ramp from the CCEI site to the northbound Baltimore-Washington Parkway (Maryland Route 295). There may be other highway-related ingress and egress changes that could be explored. Further investigation of these changes would be required, and it is acknowledged that these changes would be both expensive and lengthy to execute.

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APPENDIX C – WETLAND REPORT

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GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing GBA Member Firm



May 16, 2016

The National Cryptologic Museum Foundation
Cyber Center for Education and Innovation – New Museum Project
PO Box 1563
Millersville, Maryland 21108

Attn: Mr. Larry Castro

Re: Wetland Delineation Letter Report
Cyber Center for Education and Innovation – New Museum Project
Anne Arundel County, Maryland

Dear Mr. Castro:

Pursuant to your request, Geo-Technology Associates, Inc. (GTA) has performed a wetland delineation within a review area at the above referenced site. The purpose of GTA's review was to evaluate the presence and extent of wetlands and waterways with respect to Federal and State Jurisdictional Authority. This Letter and the accompanying *Wetland Delineation Plan* summarize GTA's findings.

The review area encompasses approximately 19.11 acres and is located at 8201 Colony Seven Road, in the Annapolis Junction area of Anne Arundel County, Maryland. A *Site Location Map* is attached to this Letter as *Figure 1*.

At the time of GTA's site visit, the review area comprised of the existing National Cryptologic Museum, parking lots, and open and wooded land. The review area is bounded by the Baltimore Washington Parkway (US Route 295) to the north, wooded land, followed by Connector Road and Fort George G. Meade to the east, the Patuxent Freeway (Maryland Route 32) to the west; and the National Security Agency (NSA) to the south.

The purpose of GTA's review was to evaluate the presence and extent of wetlands and waterways with respect to Federal and State jurisdictional authority. GTA based its evaluation on the United States Army Corps of Engineers' (Corps) definition of "waters of the U.S." and "navigable waters of the U.S.," which are defined in Title 33 Code of Federal Regulations (CFR), Parts 328 and 329. GTA employed the three-parameter approach set forth in the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-01*, dated 1987 (*1987 Manual*) and the *Corps Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*, dated November 2010 (*Supplement*) as a reference for delineating wetlands. The methodology of wetland delineation included identifying

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◆ Abingdon, MD ◆ Baltimore, MD ◆ Laurel, MD ◆ Frederick, MD ◆ Waldorf, MD ◆ Sterling, VA ◆ Fredericksburg, VA ◆ Malvern, OH
◆ Somerset, NJ ◆ NYC Metro ◆ New Castle, DE ◆ Georgetown, DE ◆ York, PA ◆ Quakertown, PA ◆ Towanda, PA ◆ Charlotte, NC ◆ Raleigh, NC

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The National Cryptologic Museum Foundation
Re: *Cyber Center for Education and Innovation – New Museum Project*
Wetland Delineation Letter Report
May 16, 2016
Page 2

hydric soil, wetland hydrology, and dominant hydrophytic vegetation. GTA also considered other regulated waters of the United States, such as ponds, lakes, streams, and rivers. If these waters were observed within the review area, GTA incorporated them into the non-tidal wetland delineation and labeled them accordingly.

Prior to the field review, GTA's wetland scientist reviewed a U.S. Geological Survey (USGS) Quadrangle Map for Laurel (*Figure 2*) as a reference to identify possible waterways within the review area. The USGS Map did not depict waterways within the boundaries of the review area. Dorsey Run is depicted approximately 2,000 feet northwest of the review area. A tributary to Dorsey Run is depicted approximately 800 feet north of the review area. An unnamed tributary of the Little Patuxent River is depicted approximately 900 feet southeast of the review area. GTA's wetland scientists also reviewed the United States Department of Agriculture, Natural Resources Conservation Service's (NRCS) Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov>; *Figure 3*) on January 18, 2016, to identify the presence of identifiable drainage features or hydric soils within the review area. The Web Soil Survey does not identify drainage features within the review area. According to the NRCS Hydric Soils List by State (Hydric Soils List), available at ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/Lists/hydric_soils.xlsx, accessed on January 18, 2016, one soil unit listed on the Hydric Soils List was identified within the boundaries of the review area. The soils is identified as Russett-Christiana-Hambrook complex (RhC), 5 to 10 percent slopes.

GTA also consulted the *1973 Soil Survey, Prince George's, Maryland* (*Figure 4*) to identify the presence of possible wetlands, waterways, or hydric soils. The *1973 Soil Survey* does not identify waterways within the boundaries of the review area, however, it does depict a wet spot located approximately 250 feet south of the review area. A tributary to Dorsey Run is depicted approximately 800 feet north of the review area. Additionally, an unnamed tributary of the Little Patuxent River is depicted approximately 900 feet southeast of the review area.

GTA's wetland scientists consulted Maryland's Environmental Resources and Land Information Network (MERLIN) website (www.mdmerlin.net) and the United States Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) website (<http://wetlandsfws.er.usgs.gov>). The Maryland Department of Natural Resources (DNR) wetlands map (downloaded from the MERLIN website, *Figure 5*) and the NWI wetlands map (*Figure 6*) do not depict wetlands as occurring within the review area.

Additionally, GTA reviewed aerial imagery dated 1988, 1965 (*Figure 7*), 1977, 1980, 1984-94, 1998, 2007-08, 2010-11, and 2014 (*Figure 8*), maintained by MERLIN and Google for indicators of water or water signatures. The 1988, 2007-08, and 2010-11 aerial photographs depict a water signature on the northeastern portion of the review area. On the 1988 and 2014 aerial photographs, the unnamed tributary to Dorsey Run and the unnamed tributary to the Little Patuxent River are visible north and southeast of the review area, respectively.

On June 18, 2014, GTA's wetland scientists conducted an on-site review to evaluate whether jurisdictional wetlands and/or waterways were present within the boundaries of the

The National Cryptologic Museum Foundation

Re: *Cyber Center for Education and Innovation – New Museum Project*

Wetland Delineation Letter Report

May 16, 2016

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review area. GTA's field delineation of jurisdictional "waters of the U.S." consisted of identifying the limits of the wetlands and waterways with pink and black striped flags, numbered sequentially. On September 24, 2014, GTA revisited the review area with the Maryland Department of the Environment (MDE) and the Corps as part of a Pre-Application Meeting to review GTA's findings. GTA revisited the review area on May 6, 2016 to collect additional data for this *Letter Report*.

During GTA's June 2014 field review, GTA's wetland scientist observed one isolated depression on the northeastern portion of the review area. GTA's wetland scientist observed predominantly hydrophytic vegetation and wetland hydrology in the form of saturated soils and water stained leaves within the depression. GTA's wetland scientist hand augered soil borings within the depression and observed soils with chromas greater than 3. The bright chromas prevented the soils from qualifying for most hydric soils indicators. GTA then reviewed the user notes for hydric soil indicator F8 (Redox Depressions), which stated that the indicator applied to closed depressions. Because this depression seemed to drain out to one side, GTA concluded the F8 indicator did not apply. Because all three requisite parameters were not present, GTA did not flag the depression as a wetland.

During the September 24, 2014 field review, Ms. Lisa Dosman of MDE reviewed the wetland and agreed with GTA's observations on vegetation, hydrology, and soils. Ms. Dosman also observed a clay aquitard approximately 1.5 feet beneath the soil surface and agreed that the depression was isolated from ground water and from waters of the U.S. However, because wetland hydrology and predominantly hydrophytic vegetation were present, she believed the depression qualified as a seasonally ponded wetland with problematic hydric soils, and claimed state jurisdiction over the depression. The wetland boundaries were limited by the extent of wetland hydrology.

Data Collection Points (DCPs) were established on-site at locations to evaluate the presence of jurisdictional wetlands and waterways or uplands. The DCP locations have been labeled on the *Wetland Delineation Plan* as DCP-1 and DCP-2. Data Forms with reference photographs are included to support the determination depicted on the accompanying *Wetland Delineation Plan*.

During GTA's June 2014 field review, GTA's wetland scientist observed a drainage channel originating from a 24-inch concrete culvert located south of the review area, which extends south, away from the review area. GTA's wetland scientist observed a bed and banks and an ordinary high water mark within the channel bed. However, GTA did not observe hydric soils within the channel. The channel extended through the woods and entered a storm drain, which ultimately outfallen to waters of the U.S. Because the channel connected to waters of the U.S., but lacked hydric soils in the bed, GTA considered the channel to be ephemeral.

GTA's wetland scientist also observed an intermittent stream located east of the ephemeral channel. The northernmost portion of the intermittent stream originated on the southern portion of the review area. From the origin, the stream extended south beyond the

The National Cryptologic Museum Foundation
Re: *Cyber Center for Education and Innovation – New Museum Project*
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review area for approximately 175 feet before converging with the ephemeral channel. GTA observed hydric soil indicator F3 (Depleted Matrix) within soil sampled from the stream bed.

As a result of GTA's field reviews, it is GTA's professional opinion that one isolated, state-jurisdictional, wetland is located on the northern portion of the review area. No wetlands jurisdictional to the Corps were observed within the boundaries of the review area. Additionally, one ephemeral channel originates immediately south of the review area and one intermittent stream originates within the review area and continues off-site.

Our conclusions regarding this site have been based on observations of existing conditions, professional experience in the area with similar projects, and generally accepted professional environmental practice under similar circumstances. Seasonal fluctuations in precipitation or weather conditions can result in differences in the perception of hydrologic conditions, which can alter GTA's evaluation of wetlands/waterways. It is important to note that this delineation is GTA's professional opinion only. Decisions regarding the official jurisdictional status of wetlands/waterways are made by federal, state, and/or local regulatory agencies.

This Letter Report was prepared by GTA for the sole and exclusive use of The National Cryptologic Museum Foundation. Any reproduction of this Letter by any other person without the expressed written permission of GTA and The National Cryptologic Museum Foundation is unauthorized, and such use is at the sole risk of the user.

The National Cryptologic Museum Foundation
Re: *Cyber Center for Education and Innovation – New Museum Project*
Wetland Delineation Letter Report
May 16, 2016
Page 5

We appreciate the opportunity to have been of service to you. If you have any questions regarding this information, or should you require additional information, please contact our office at (410) 792-9446.

Sincerely,
GEO-TECHNOLOGY ASSOCIATES, INC.



Rosa L. Malloy
Staff Scientist



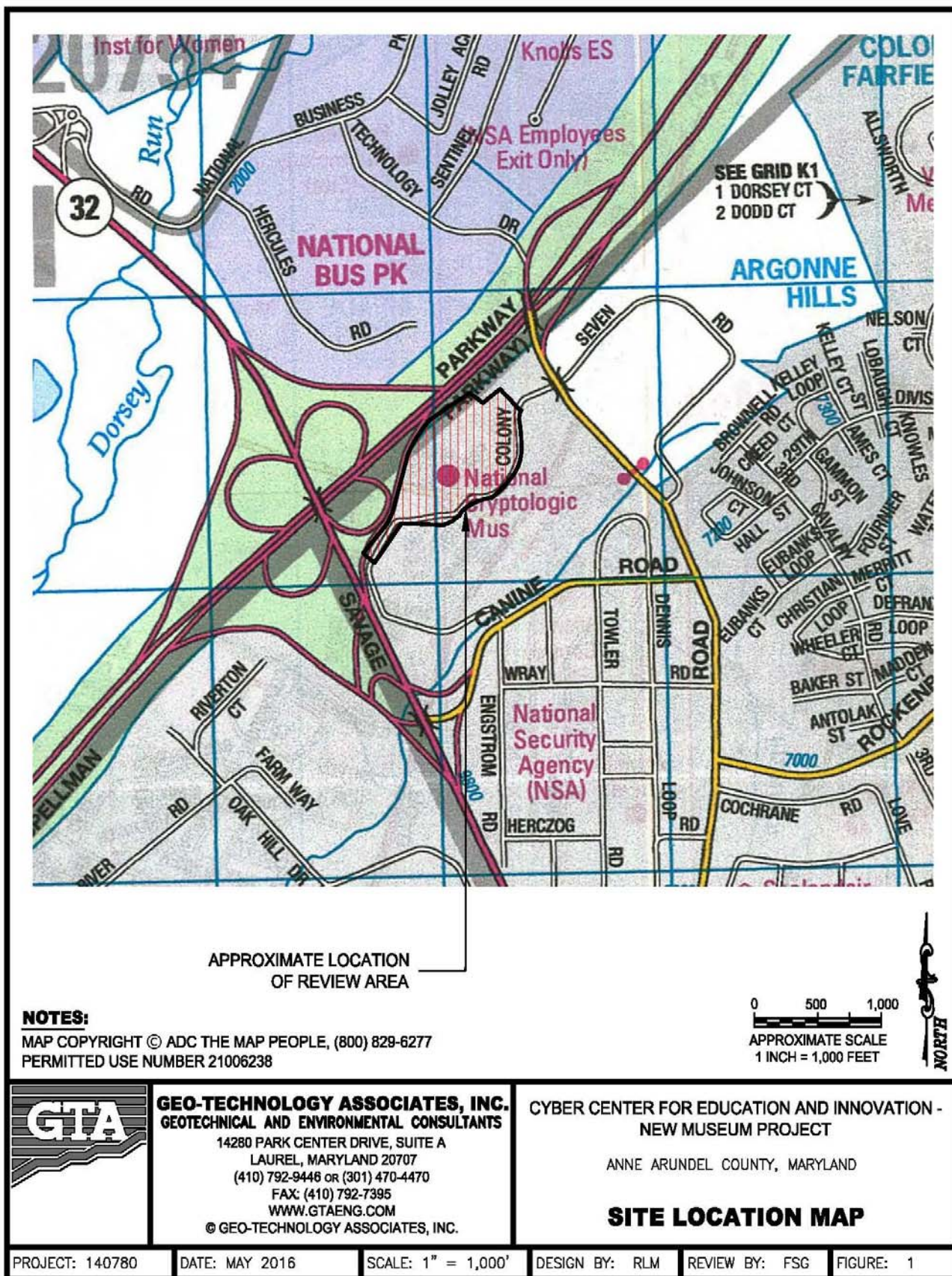
Daniel Synoracki
Senior Wetland Scientist

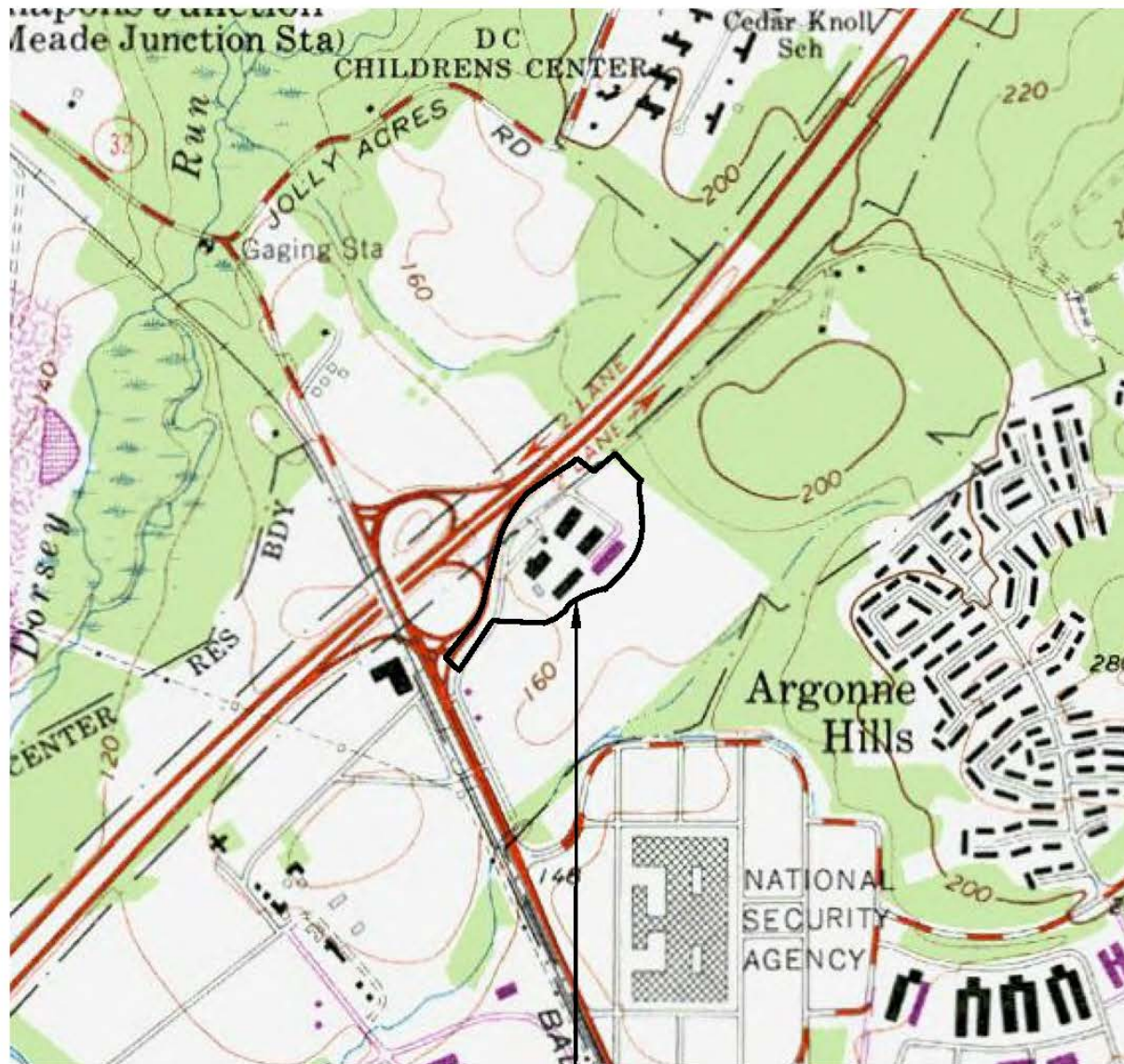
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140780

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Attachments:

- Site Location Map (*Figure 1, color*)
- Topographic Map (*Figure 2, color*)
- Web Soil Survey Map (*Figure 3, color*)
- 1973 Soil Survey Map (*Figure 4, color*)
- DNR Wetlands Map (*Figure 5, color*)
- NWI Wetlands Map (*Figure 6, color*)
- 1988 Aerial Photograph (*Figure 7, color*)
- 2014 Aerial Photograph (*Figure 8, color*)
- Data Forms
- Photographs
- Wetland Delineation Plan (*24" x 36"*)





APPROXIMATE LOCATION
OF REVIEW AREA

NOTES:

1. BASED ON THE USGS LAUREL, MD 7.5 MINUTE QUADRANGLE MAP.
2. COPYRIGHT 2013 MY TOPO, INC.

0 500 1,000
APPROXIMATE SCALE
1 INCH = 1,000 FEET



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CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT

ANNE ARUNDEL COUNTY, MARYLAND

TOPOGRAPHIC MAP

PROJECT: 140780

DATE: MAY 2016

SCALE: 1" = 1,000'

DESIGN BY: RLM

REVIEW BY: FSG

FIGURE: 2



APPROXIMATE LOCATION
OF REVIEW AREA

NOTES:

IMAGE OBTAINED FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL
RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY, AVAILABLE AT
<[HTTP://WEBSOILSURVEY.NRCS.USDA.GOV](http://websoilsurvey.nrcs.usda.gov)>.

0 200 400
APPROXIMATE SCALE
1 INCH = 400 FEET



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CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT

ANNE ARUNDEL COUNTY, MARYLAND

WEB SOIL SURVEY

PROJECT: 140780

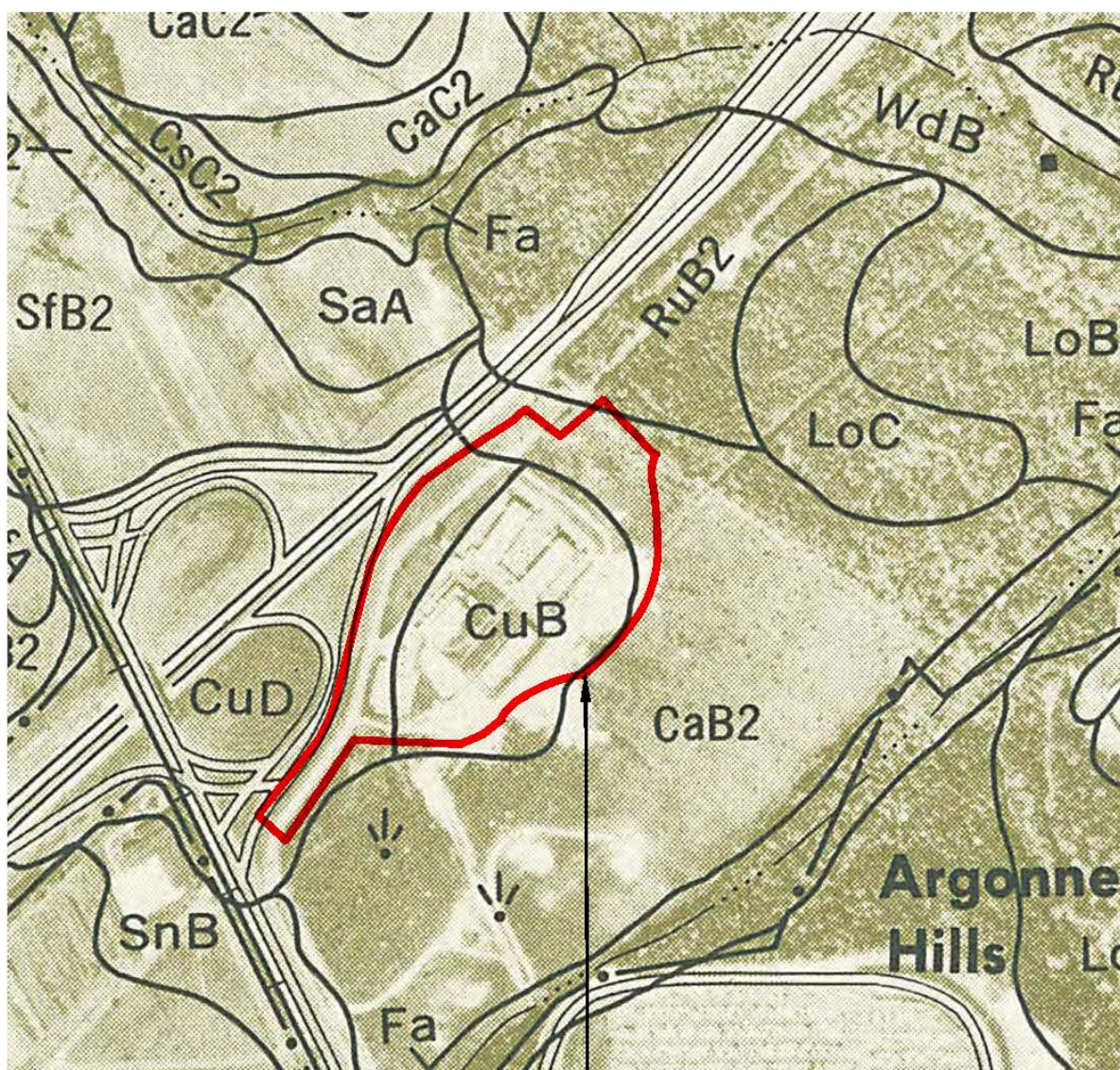
DATE: MAY 2016

SCALE: 1" = 400'

DESIGN BY: RLM

REVIEW BY: FSG

FIGURE: 3



APPROXIMATE SUBJECT
PROPERTY BOUNDARY

NOTES

1. BASED ON THE ANNE ARUNDEL COUNTY SOIL SURVEY, PREPARED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, AND DATED 1973.

0 250 500
APPROXIMATE SCALE
1 INCH = 500 FEET



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NEW MUSEUM PROJECT**

ANNE ARUNDEL COUNTY, MARYLAND

1973 SOIL SURVEY MAP

PROJECT: 152231

DATE: MAY 2016

SCALE: 1" = 500'

DESIGN BY: RLM

REVIEW BY: FSG

FIGURE: 4



LEGEND

Orange square	ESTUARINE
Red square	LACUSTRINE
Light blue square	MARINE
Green square	PALUSTRINE
Dark blue square	RIVERINE

APPROXIMATE SUBJECT
PROPERTY BOUNDARY

NOTES

1. BASED ON AN IMAGE OBTAINED FROM MARYLAND'S ENVIRONMENTAL RESOURCES AND LAND INFORMATION NETWORK (MERLIN) ONLINE, AVAILABLE AT <[HTTP://WWW.MDMERLIN.NET](http://www.mdmerlin.net)>.

0 250 500
APPROXIMATE SCALE
1 INCH = 500 FEET



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ANNE ARUNDEL COUNTY, MARYLAND

DNR WETLANDS MAP

PROJECT: 152231

DATE: MAY 2016

SCALE: 1" = 500'

DESIGN BY: RLM

REVIEW BY: FSG

FIGURE: 5



LEGEND

- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- LAKE
- OTHER
- RIVERINE

APPROXIMATE SUBJECT
PROPERTY BOUNDARY

NOTES

1. BASED ON AN IMAGE OBTAINED FROM THE U.S. FISH AND WILDLIFE SERVICE'S NATIONAL WETLAND INVENTORY DATABASE, AVAILABLE ONLINE AT [HTTP://WETLANDSFWS.ER.USGS.GOV](http://wetlandsfws.er.usgs.gov).

0 250 500
APPROXIMATE SCALE
1 INCH = 500 FEET



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ANNE ARUNDEL COUNTY, MARYLAND

NWI WETLANDS MAP

PROJECT: 152231

DATE: MAY 2016

SCALE: 1" = 500'

DESIGN BY: RLM

REVIEW BY: FSG

FIGURE: 6



APPROXIMATE SUBJECT
PROPERTY BOUNDARY

NOTES

1. BASED ON AN IMAGE OBTAINED FROM THE MARYLAND DEPARTMENT OF NATURAL RESOURCES - MERLIN WEBSITE, AVAILABLE AT <[HTTP://WWW.MDMERLIN.NET](http://www.mdmerlin.net)>.

0 200 400
APPROXIMATE SCALE
1 INCH = 400 FEET



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**CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT**

ANNE ARUNDEL COUNTY, MARYLAND

1965 AERIAL PHOTOGRAPH

PROJECT: 152231

DATE: MAY 2016

SCALE: 1" = 400'

DESIGN BY: RLM

REVIEW BY: FSG

FIGURE: 7



APPROXIMATE LOCATION
OF REVIEW AREA

NOTES:

1. BASE IMAGE OBTAINED FROM GOOGLE EARTH (©2015 GOOGLE)

0 250 500
APPROXIMATE SCALE
1 INCH = 500 FEET



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**CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT**

ANNE ARUNDEL COUNTY, MARYLAND

2014 AERIAL PHOTOGRAPH

PROJECT: 140780

DATE: MAY 2016

SCALE: 1" = 500'

DESIGN BY: RLM

REVIEW BY: FSG

FIGURE: 8

WETLAND DETERMINATION DATA FORM-Atlantic and Gulf Coastal Plain Region

Project/Site: Cyber Center for Education and Innovation - New Museum Project City/County: Anne Arundel County Sampling Date: 5-May-16
 Applicant/Owner: National Cryptologic Museum Foundation State: Maryland Sampling Point: DCP-1
 Investigator(s): F. Gentile Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2±%
 Subregion (LLR or MLRA): MLRA 149A Lat: 39.1157380° Long: -76.7727538° Datum: NAD 83
 Soil Map Unit Name: Chillum loam, 2 to 5 percent slopes NMI classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)
 Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

Remarks:
 The DCP is located in an isolated depression.
 During a field review dated June 18, 2014, Lisa Dosman of the MDE determined that problematic hydric soils were present and therefore, hydric soils should be considered present.

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required, check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water Stained Leaves (B9)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
		<input type="checkbox"/> Sphagnum moss (D') (LRR T, U)

Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (includes capillary fringe)	Depth (inches): <input type="text"/>	

Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DCP-1

Tree Stratum	1/10 acre	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>		40	Yes	FAC
2. <i>Liquidambar styraciflua</i>		20	Yes	FAC
3. <i>Nyssa sylvatica</i>		40	Yes	FAC
4.				
5.				
6.				
7.				
8.				
50% of total cover: 50		100 = Total Cover		
20% of total cover: 20				
Sapling Stratum (Plot size: 1/10 acre)				
1. stratum not present				
2.				
3.				
4.				
5.				
6.				
7.				
50% of total cover: 0		0 = Total Cover		
20% of total cover: 20				
Shrub Stratum (Plot size: 1/10 acre)				
1. <i>Acer rubrum</i>		3	Yes	FAC
2. <i>Vaccinium corymbosum</i>		6	Yes	FACW
3. <i>Viburnum dentatum</i>		1	No	FAC
4.				
5.				
6.				
7.				
50% of total cover: 10		10 = Total Cover		
20% of total cover: 2				
Herb Stratum (Plot size: 1/10 acre)				
1. <i>Acer rubrum</i>		2	Yes	FAC
2. <i>Carex intumescens</i>		5	Yes	FACW
3. <i>Fraxinus pennsylvanica</i>		1	No	FACW
4. <i>Liquidambar styraciflua</i>		2	Yes	FAC
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
50% of total cover: 10		10 = Total Cover		
20% of total cover: 2				
Woody Vine Stratum (Plot size: 1/10 acre)				
1. <i>Lonkera japonica</i>		15	Yes	FACU
2. <i>Smilax rotundifolia</i>		5	Yes	FAC
3.				
4.				
50% of total cover: 20		20 = Total Cover		
20% of total cover: 4				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u> </u> x 1 = <u> </u>	
FACW species <u> </u> x 2 = <u> </u>	
FAC species <u> </u> x 3 = <u> </u>	
FACU species <u> </u> x 4 = <u> </u>	
UPL species <u> </u> x 5 = <u> </u>	
Column Totals: <u> </u> (A) <u> </u> (B)	
Prevalence Index = B/A = <u> </u>	

Hydrophytic Vegetation Indicators:

1-Rapid Dominance Test for Hydrophytic Veg.

X 2-Dominance Test is >50%

3-Prevalence Index is ≤3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: DCP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

National Cryptologic Museum Foundation								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/2	100					Sandy loam	
6-11	10YR 4/3	50	10YR 4/6	50	C	M	Sandy loam	
11-17	10YR 4/6	90	10YR 4/6	10	C	M	Sandy loam	

¹Type: C=concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pipe Lining, M=Matrix

¹Type: C=concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) (LRR T, U)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Clay
Depth (inches): 17

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM-Atlantic and Gulf Coastal Plain Region

Project/Site: Cyber Center for Education and Innovation - New Museum Project City/County: Anne Arundel County Sampling Date: 18-Jun-14
 Applicant/Owner: National Cryptologic Museum Foundation State: Maryland Sampling Point: DCP-2
 Investigator(s): F. Gentile Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2±%
 Subregion (LLR or MLRA): MLRA 149A Lat: 39.1158217° Long: -76.7725836° Datum: NAD 83
 Soil Map Unit Name: Chillum loam, 2 to 5 percent slopes NWM classification: N/A
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil X, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: The DCP is located in an isolated depression. During a field review dated June 18, 2014, Lisa Dosman of the MDE determined that problematic hydric soils were present and therefore, hydric soils should be considered present.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required, check all that apply)		Secondary Indicators (minimum of two required)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Surface Soil Cracks (B6)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Drainage Patterns (B10)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)	<u> </u> Moss Trim Lines (B16)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Crayfish Burrows (C8)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Geomorphic Position (D2)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u> </u> Shallow Aquitard (D3)
<u>X</u> Water Stained Leaves (B9)		<u>X</u> FAC-Neutral Test (D5)
		<u> </u> Sphagnum moss (D*) (LRR T, U)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Saturation (A3) was observed in other locations within the depression.		

VEGETATION - Use scientific names of plants.

Sampling Point: DCP-2

Tree Stratum (Plot size: 25' x 60')	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <i>Acer rubrum</i>	30	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <i>Betula nigra</i>	10	No	FACW																	
3. <i>Liquidambar styraciflua</i>	15	Yes	FAC																	
4. <i>Quercus palustris</i>	10	No	FACW																	
5. <i>Quercus phellos</i>	10	No	FACW																	
6. _____				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
7. _____																				
8. _____																				
50% of total cover: <u>37.5</u> 75 = Total Cover 20% of total cover: <u>15</u>																				
Sapling Stratum (Plot size: 25' x 60')																				
1. stratum not present				Hydrophytic Vegetation Indicators: 1-Rapid Dominance Test for Hydrophytic Veg. _____ 2-Dominance Test is >50% _____ 3-Prevalence Index is ≤3.0 ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) _____ ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____				Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.																
7. _____																				
8. _____																				
9. _____																				
10. _____																				
50% of total cover: _____ 0 = Total Cover 20% of total cover: _____																				
Shrub Stratum (Plot size: 25' x 60')																				
1. <i>Acer rubrum</i>	2	No	FAC	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. <i>Fraxinus pennsylvanica</i>	1	No	FACW																	
3. <i>Liquidambar styraciflua</i>	3	No	FAC																	
4. <i>Quercus palustris</i>	2	No	FACW																	
5. <i>Quercus phellos</i>	10	Yes	FACW																	
6. <i>Ulmus rubra</i>	2	No	FAC																	
7. _____																				
50% of total cover: <u>10</u> 12 = Total Cover 20% of total cover: <u>4</u>																				
Herb Stratum (Plot size: 25' x 60')																				
1. <i>Carex vulpinoidea</i>	9	Yes	FACW																	
2. <i>Microstegium vimineum</i>	1	No	FAC																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
50% of total cover: _____ 10 = Total Cover 20% of total cover: <u>2</u>																				
Woody Vine Stratum (Plot size: 25' x 60')																				
1. stratum not present																				
2. _____																				
3. _____																				
4. _____																				
50% of total cover: _____ 0 = Total Cover 20% of total cover: _____																				
Remarks: (If observed, list morphological adaptations below). The plot size was narrowed to be confined to the width of the feature.																				

US Army Corps of Engineers

Atlantic and Gulf Coastal Plain Region-Version 2.0

SOIL

Sampling Point: DCP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

National Cryptologic Museum Foundation

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					Humus	
2-6	2.5Y 4/3	100					Sandy Silt Loam	
6-10	2.5Y 4/3	80	7.5YR 4/6	20	C	M	Sandy Clay Loam	
10-18	7.5YR 4/6	70	2.5Y 5/4	30	R	M	Sandy Clay Loam	
18-20	10YR 4/6	50	10YR 5/8	50	C	M	Clayey Sand	

¹Type: C=concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12) (LRR T, U)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Clay
Depth (inches): 18

Hydric Soil Present? Yes _____ No X

Remarks:

The DCP location represented above exhibits the lowest chromas of multiple locations sampled. Other locations exhibited higher chromas. During a field review dated June 18, 2014, Lisa Dosman of the MDE determined that problematic hydric soils were present and therefore, hydric soils should be considered present.

Photo Page 1

Date Photographed: June 18, 2014 and May 6, 2016

National Cryptologic Museum

GTA Project No. 140780



Photograph 1: View toward south of intermittent stream.



Photograph 2: View of storm drain outfall at the origin of the ephemeral channel.

Photo Page 2

Date Photographed: June 18, 2014 and May 6, 2016

National Cryptologic Museum

GTA Project No. 140780



Photograph 3: Overview of isolated wetland.



Photograph 4: DCP-1, sample location.

Photo Page 3

Date Photographed: June 18, 2014 and May 6, 2016

National Cryptologic Museum

GTA Project No. 140780



Photograph 5: DCP-1, soil sample.



Photograph 6: DCP-2, sample location.

Photo Page 4

Date Photographed: June 18, 2014 and May 6, 2016

National Cryptologic Museum

GTA Project No. 140780

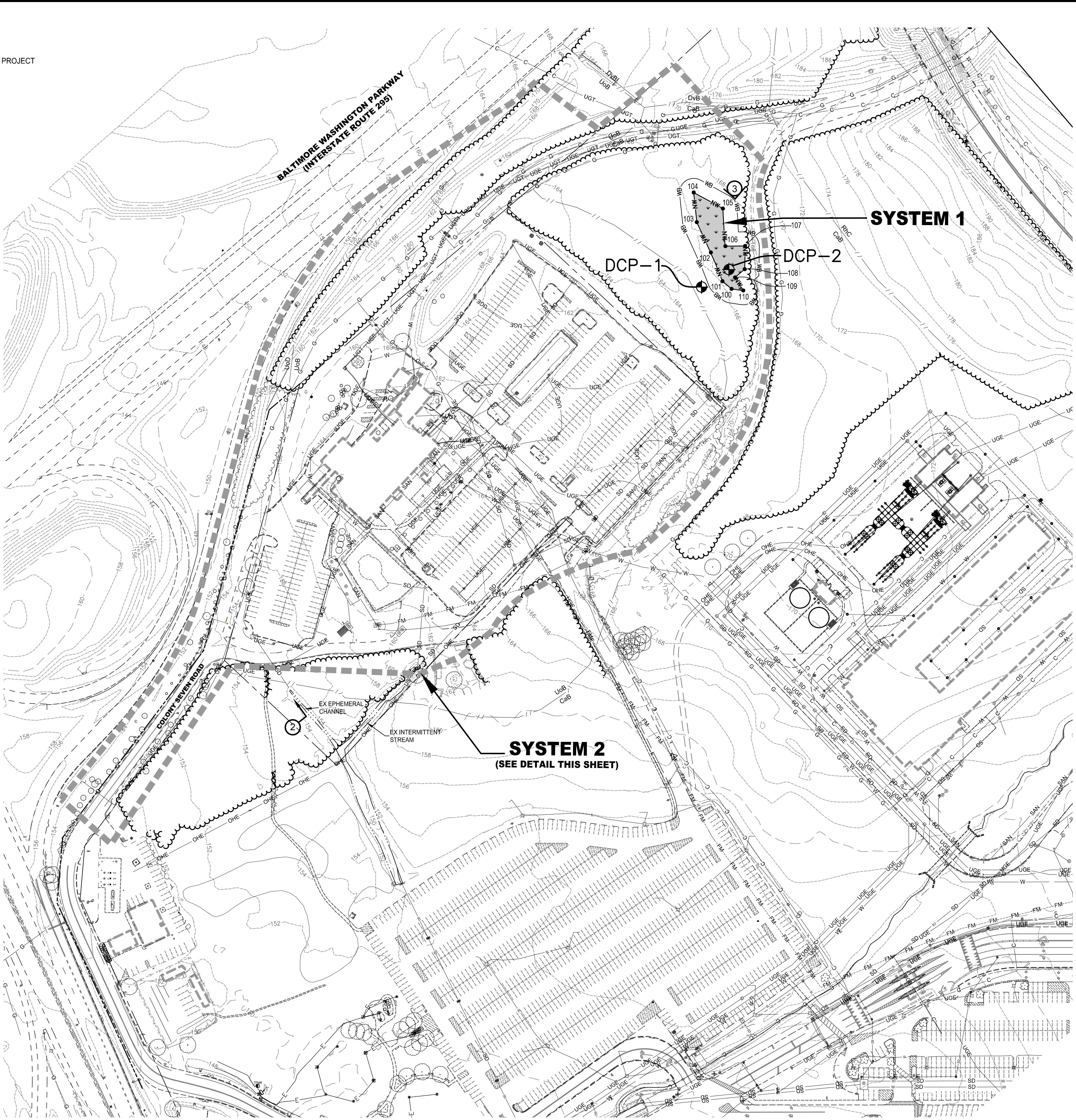
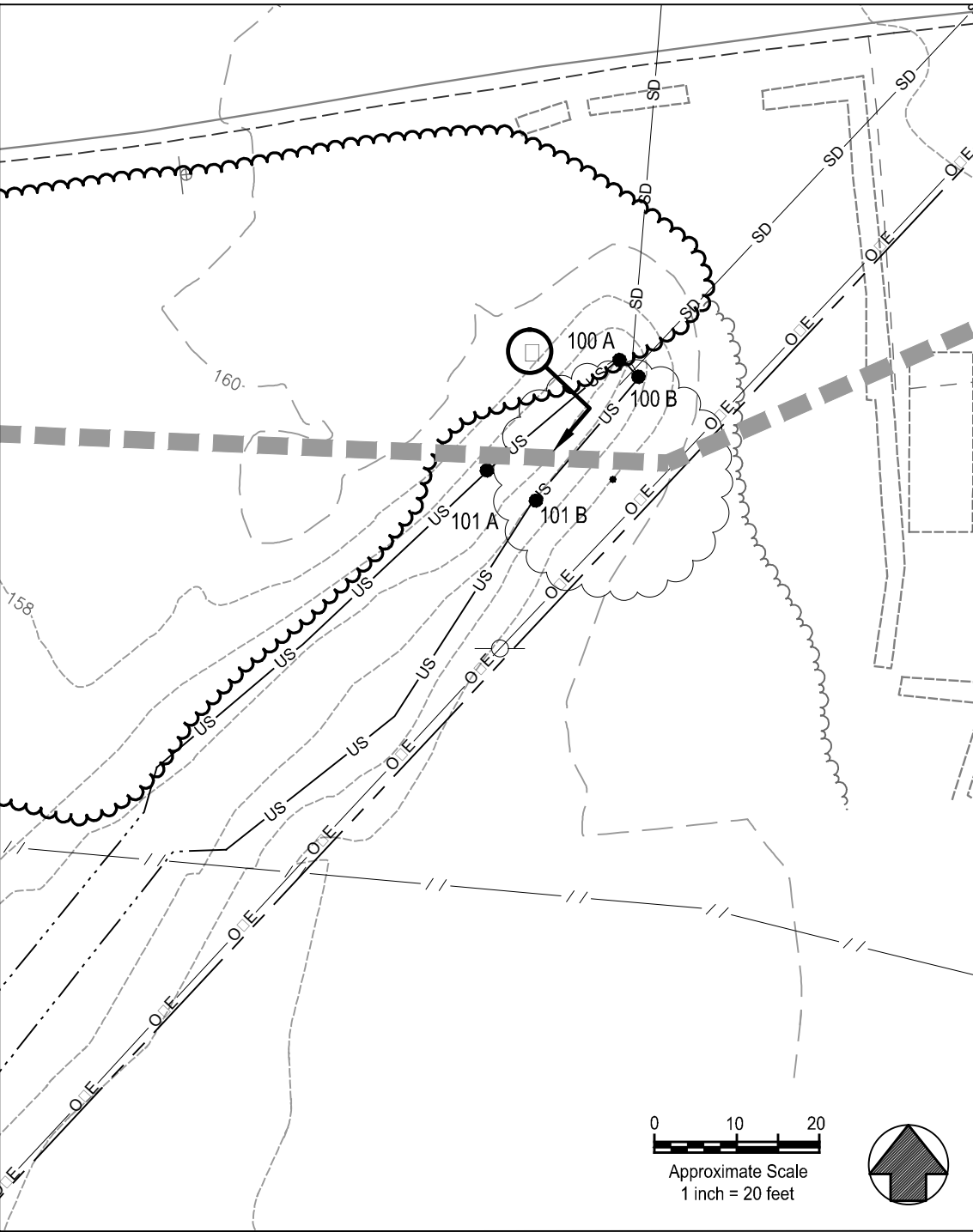


Photograph 7: DCP-2, soil sample.

GENERAL NOTES:

1. APPLICANT/DEVELOPER: THE NATIONAL CRYPTOLOGIC MUSEUM FOUNDATION
CYBER CENTER FOR EDUCATION AND INNOVATION - NEW MUSEUM PROJECT
PO BOX 1563
MILLERSVILLE, MARYLAND 21108
CONTACT: MR. LAWRENCE CASTRO
PHONE: (443) 270-5291
2. PLAN PREPARER: GEO-TECHNOLOGY ASSOCIATES, INC. (GTA)
14280 PARK CENTER DRIVE
LAUREL, MD 20707
CONTACT: FRANCESCO S. GENTILE
PHONE: (410) 792-9446
EMAIL: FGENTILE@GTAENG.COM
3. TAX MAP/GRID/PARCEL: TAX MAP 20 / GRID 4 / PARCEL 61
4. TAX ACCOUNT NUMBER: 04-000-01177100
5. SITE ADDRESS: 8201 COLONY SEVEN ROAD
ANNAPOLIS JUNCTION, MARYLAND 20701
6. REVIEW AREA: 19.11± AC
7. TOPOGRAPHIC CONTOUR INFORMATION SHOWN HERON IS BASED ON AERIAL PHOTOGRAMMETRY PROVIDED BY AXIS GEOSPATIAL, DATED MARCH 30, 2015.
8. ACCORDING TO FLOOD INSURANCE RATE MAP 24003C0107E, DATED OCTOBER 16, 2016, THERE IS NO 100-YEAR FLOODPLAIN WITHIN THE REVIEW AREA.
9. SOILS ARE MAPPED AND LABELED IN ACCORDANCE WITH THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCE CONSERVATION SERVICE'S WEB SOIL SURVEY, CONSULTED ON JANUARY 18, 2016, AND AVAILABLE ON-LINE AT <HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/APPHOME PAGE.HTM>.
10. EXISTING UTILITIES WERE IDENTIFIED AND LOCATED BY INFRAMAP ON APRIL 2, 2015. ADDITIONAL UTILITY LOCATIONS WERE IDENTIFIED AND LOCATED BY MORRIS & RITCHIE ASSOCIATES, INC. (MRA) DURING A FIELD SURVEY PERFORMED ON OCTOBER 22, 2015. SUPPLEMENTAL UTILITY INFORMATION WAS PROVIDED BY THE NATIONAL SECURITY AGENCY (NSA) IN JULY 2014 AND MAY 2015.
11. A WETLAND DELINEATION WAS PERFORMED BY GTA ON JUNE 18, 2014. WETLAND LIMITS WERE CONFIRMED IN THE FIELD BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT ON SEPTEMBER 24, 2014, AND SURVEY LOCATED BY MRA IN OCTOBER OF 2015.
12. THE REVIEW AREA IS NOT LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA.
13. THE REVIEW AREA IS LOCATED IN THE LITTLE PATUXENT RIVER WATERSHED, BASIN NUMBER 02-13-11.
14. STREAMS AND WETLANDS WITHIN THE REVIEW AREA DRAIN TO THE LITTLE PATUXENT RIVER. THE CODE OF MARYLAND REGULATIONS STREAM USE CLASSIFICATION INDEX (COMAR) LISTS THE LITTLE PATUXENT RIVER AND ALL TRIBUTARIES ABOVE OLD FORGE BRIDGE, AS USE I-P (WATER CONTACT RECREATION, PROTECTION OF AQUATIC LIFE, AND PUBLIC WATER SUPPLY).
15. GTA'S CONCLUSIONS REGARDING THIS SITE HAVE BEEN BASED ON OBSERVATIONS OF EXISTING CONDITIONS, PROFESSIONAL EXPERIENCE, AND GENERALLY ACCEPTED PROFESSIONAL ENVIRONMENTAL PRACTICE UNDER SIMILAR CIRCUMSTANCES. SEASONAL VEGETATION CYCLES AND FLUCTUATIONS IN PRECIPITATION OR WEATHER CONDITIONS CAN RESULT IN DIFFERENCES IN THE PERCEPTION OF HYDROLOGIC CONDITIONS AND THE PRESENCE OF PREDOMINANTLY HYDROPHYTIC VEGETATION, WHICH CAN ALTER GTA'S EVALUATION OF WETLANDS/WATERWAYS.
16. IT IS IMPORTANT TO NOTE THAT THIS EVALUATION IS GTA'S PROFESSIONAL OPINION, ONLY. DECISIONS REGARDING THE OFFICIAL JURISDICTIONAL STATUS OF WETLANDS/WATERWAYS ARE MADE BY FEDERAL, STATE, AND/OR LOCAL REGULATORY AGENCIES.
17. THIS PLAN WAS PREPARED BY GTA FOR THE SOLE AND EXCLUSIVE USE OF THE NATIONAL CRYPTOLOGIC MUSEUM FOUNDATION. ANY REPRODUCTION OF THIS PLAN BY ANY OTHER PERSON WITHOUT THE EXPRESSED WRITTEN PERMISSION OF GTA AND OF THE NATIONAL CRYPTOLOGIC MUSEUM FOUNDATION IS UNAUTHORIZED, AND SUCH USE IS AT SOLE RISK OF THE USER.
18. THIS WETLAND DELINEATION PLAN WAS PREPARED ON A BASE PLAN PROVIDED BY MRA.

SYSTEM ☐ DETAIL:



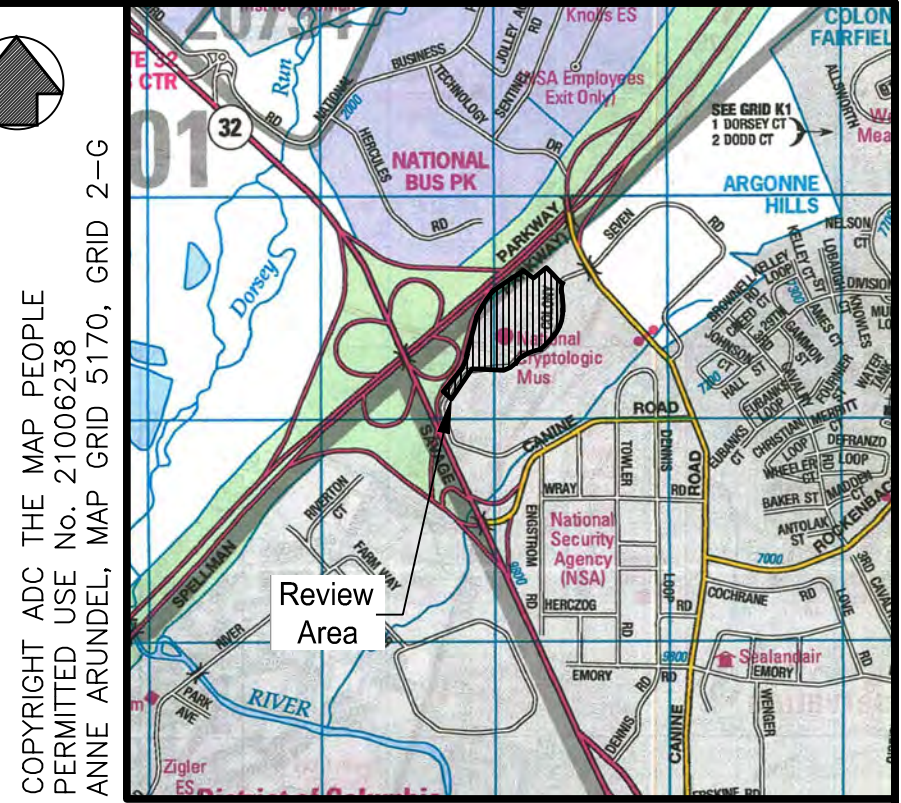
SOILS CHART:

SYMBOL ¹	NAME/DESCRIPTION ¹	HYDRIC ² SOIL	HYDRIC COMPONENTS ²	COMPONENT PERCENT	COMPONENT LOCATIONS ²	K FACTOR ¹
CaB	ANNAPOLIS FINE SANDY LOAM, 25 TO 40 PERCENT SLOPES	YES	WIDEWATER	5	FLOODPLAINS	0.28
DvB	ANNAPOLIS-URBAN LAND COMPLEX, 5 TO 15 PERCENT SLOPES	NO	N/A	N/A	N/A	0.28
RnC	COLLINGTON-WIST COMPLEX, 2 TO 5 PERCENT SLOPES	NO	N/A	N/A	N/A	0.32
UoB	COLLINGTON-WIST-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES	NO	N/A	N/A	N/A	0.32
UoD	DONLONTON FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	YES	COLEMANTOWN	5	DEPRESSIONS	0.32

1. SOURCE: THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCE CONSERVATION SERVICE'S WEB SOIL SURVEY, CONSULTED ON JANUARY 18, 2016, AVAILABLE ON-LINE AT <HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/APPHOME PAGE.HTM>. K-FACTOR IS FOR WIDE SOIL.
2. HYDRIC SOILS INFORMATION ADAPTED FROM THE NATIONAL HYDRIC SOILS LIST BY STATE, AT <HTTP://SOILS.USDA.GOV/USEHYDRIC>, CONSULTED ON JANUARY 18, 2016.



DESIGN & DRAWING BASED ON MARYLAND COORDINATE SYSTEM: HORIZONTAL NAD 83/CORS



LEGEND:

- REVIEW AREA
- EX. PROPERTY LINE
- EX. RIGHT-OF-WAY
- EX. INDEX CONTOUR
- EX. INTERIM CONTOUR
- EX. SOILS LINE
- EX. PAVEMENT
- EX. BUILDING
- EX. FENCE
- EX. GUARDRAIL
- EX. BUILDING
- EX. CURB
- EX. WALL
- EX. STORM DRAIN
- EX. SANITARY LINE
- EX. WATER LINE
- EX. GAS LINE
- EX. UNDERGROUND ELECTRIC
- EX. UNDERGROUND TELEPHONE
- EX. FORCE MAIN
- EX. UNDERGROUND COMMUNICATION LINE
- EX. OVERHEAD ELECTRIC
- EX. FIRE HYDRANT
- EX. WATER VALVE
- EX. WATER METER
- EX. WELL
- EX. POWER POLE
- EX. LIGHT POLE
- EX. SIGNS
- EX. INDIVIDUAL TREE
- EX. TREE LINE
- EX. SCRUB-SHRUB, HEDGEROW, OR SMALL TREE GROUP
- EPHEMERAL, PERENNIAL, OR INTERMITTENT STREAM (FROM OTHERS)
- EX. WETLAND BUFFER
- INTERMITTENT STREAM (FROM WETLAND DELINEATION, WITH FLAG LOCATIONS, NUMBERED & SURVEYED)
- EX. NONTIDAL WETLAND (WITH FLAG LOCATIONS, NUMBERED & SURVEYED)
- WETLAND DELINEATION DATA COLLECTION POINT (DCP)
- PHOTOGRAPH LOCATION (NUMBERS CORRELATE WITH PHOTOGRAPHS IN GTA'S WETLAND DELINEATION SUMMARY LETTER)

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
14280 PARK CENTER DRIVE, SUITE: A
LAUREL, MARYLAND 20707
(410) 792-9446 or (301) 470-4470
FAX: (410) 792-7395

GTAENG.COM

WETLAND DELINEATION PLAN

CYBER CENTER FOR EDUCATION AND INNOVATION - NEW MUSEUM PROJECT

8201 COLONY SEVEN ROAD, ANNAPOLIS JUNCTION, MARYLAND 20701 ~ ANNE ARUNDEL COUNTY

REVISIONS:

JOB NO.: 140780
SCALE: 1" = 100'
DATE: 5-16-2016
DRAWN BY: RLM
DESIGN BY: RLM
REVIEW BY: FSG/DPS
SHEET: 1 OF 1

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APPENDIX D – FOREST STAND DELINEATION

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FOREST STAND DELINEATION REPORT

Cyber Center for Education and Innovation New Museum Project

Anne Arundel County, Maryland

May 16, 2016

Prepared For:

The National Cryptologic Museum Foundation

Cyber Center for Education and Innovation – New Museum Project
PO Box 1563
Millersville, Maryland 21108

Attn: Mr. Larry Castro

Prepared By:

GEO-TECHNOLOGY ASSOCIATES, INC.

Geotechnical and Environmental Consultants

14280 Park Center Drive
Laurel, Maryland 20707
Phone: (410) 792-9446
Fax: (410) 792-7395
www.gtaeng.com

GTA Job No: 14078

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing GBA Member Firm



May 16, 2016

The National Cryptologic Museum Foundation
Cyber Center for Education and Innovation – New Museum Project
PO Box 1563
Millersville, Maryland 21108

Attn: Mr. Larry Castro

Re: Forest Stand Delineation Report
Cyber Center for Education and Innovation – New Museum Project
Anne Arundel County, Maryland

Dear Mr. Castro:

In accordance with our agreement, Geo-Technology Associates, Inc. (GTA) has performed a Forest Stand Delineation (FSD) on a review area at the above referenced site. The overall property is located at 8201 Colony Seven Road, Annapolis Junction, Maryland, and is located at the terminus of Colony Seven Road, east of the interchange of the Baltimore Washington Parkway (Interstate Route 295) and the Patuxent Freeway (Maryland Route 32). The review area currently comprises of the existing National Cryptologic Museum, parking lots, and open and wooded land. The purpose of this FSD is to evaluate the review area's existing forest or natural resources with regard to compliance with the Maryland Forest Conservation Act and the Anne Arundel County Code (AACC, Article 17, Title 6, Subtitle 3, Forest Conservation). At the time of GTA's review, the review area consisted of approximately 17.07 acres of land, approximately 6.4 acres of which were forested. This Report and the accompanying FSD Plan summarize GTA's findings.

14280 Park Center Drive, Suite A, Laurel, MD 20707 (410) 792-9446 (301) 470-4470 Fax (410) 792-7395

◆ Abingdon, MD ◆ Baltimore, MD ◆ Laurel, MD ◆ Frederick, MD ◆ Waldorf, MD ◆ Sterling, VA ◆ Fredericksburg, VA ◆ Malvern, OH
◆ Somerset, NJ ◆ NYC Metro ◆ New Castle, DE ◆ Georgetown, DE ◆ York, PA ◆ Quakertown, PA ◆ Towanda, PA ◆ Charlotte, NC ◆ Raleigh, NC

Visit us on the web at www.gtaeng.com

We appreciate the opportunity to be of assistance on this project. If you have questions or require additional information, please contact this office at (410) 792-9446.

Sincerely,
GEO-TECHNOLOGY ASSOCIATES, INC.



Maxwell D. Potember
Environmental Scientist



Daniel Synoracki
Senior Wetland Scientist

MDP/FSG/DPS
140780

S:\Project Files\2014\140780 National Cryptologic Museum\Doc\NRP 140780 FSD Report.doc

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3.0	Methodology and Equipment.....	2
4.0	Geology / Soils	3
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APPENDICES

Appendix A	Figures
	Figure 1 - Site Location Map (<i>1 page, color</i>)
	Figure 2 - Topographic Map (<i>1 page, color</i>)
	Figure 3 – Web Soil Survey (<i>1 page, color</i>)
	Figure 4 – 2014 Aerial Photograph (<i>1 page, color</i>)
Appendix B	Forest Stand Delineation Plan (<i>3 sheets, 24" x 36"</i>)
Appendix C	Correspondence (<i>10 pages</i>)
Appendix D	Forest Sampling Data Worksheets (<i>5 pages</i>)
Appendix E	Forest Stand Summary Worksheets (<i>1 page</i>)

FOREST STAND DELINEATION REPORT

CYBER CENTER FOR EDUCATION AND INNOVATION MUSEUM PROJECT ANNE ARUNDEL COUNTY, MARYLAND

MAY 16, 2016

1.0 Background Information

At the request of The National Cryptologic Museum Foundation, Geo-Technology Associates, Inc. (GTA) has prepared this Forest Stand Delineation (FSD) Report to document the existing forest or natural resources within the review area. The purpose of this FSD Report is to address the requirements of the Maryland Forest Conservation Act of 1991 and local forest conservation regulations, the provisions of which may be found in the *Annotated Code of Maryland* (Natural Resources Article, Title 5, Subtitle 16), the *Code of Maryland Regulations* COMAR Title 08, Subtitle 19, Forest Conservation) and the *Anne Arundel County Code* (AACC, Article 17, Title 6, subtitle 3), Forest Conservation for the review area. This Report was prepared in general accordance with the *State Forest Conservation Technical Manual, Third Edition, 1997*, prepared by the Maryland Department of Natural Resources (DNR) and addresses the following issues:

1. Field assessment of forest stands and environmental features;
2. Forest stand identification and delineation;
3. Forest structure and potential for wildlife habitat; and
4. Assessment of priority retention areas.

This Report and the accompanying *FSD Plan (Appendix B)* summarize GTA's findings.

2.0 Site Location and General Conditions

The overall property is located at 8201 Colony Seven Road, Annapolis Junction, Maryland. The overall property is located at the terminus of Colony Seven Road, east of the interchange of the Baltimore Washington Parkway (Interstate Route 295) and the Patuxent Freeway (Maryland Route 32). At the time of GTA's review, a review area was established within the overall property. The review area encompasses approximately 17.07 acres of land, approximately 6.4 acres of which were forested. The review area currently comprises of the existing National Cryptologic Museum, parking lots, and open and wooded land. The review area is bounded by the Baltimore Washington Parkway (US Route 295) to the north; wooded land, followed by Connector Road and Fort George G. Meade to the east; the Patuxent Freeway (Maryland Route 32) to the west; and the National Security Agency (NSA) to the south. The review area is zoned C4 (Commercial - Highway) and R1 (Residential). A *Site Location Map* is included as *Figure 1* in *Appendix A*.

3.0 Methodology and Equipment

In preparation of the FSD, GTA was provided with a base plan of existing conditions prepared by Morris and Ritchie Associates, Inc. (MRA). The plan identifies existing features such as roads, property lines, the woods line, structures, existing utilities and easements, and contour information. GTA used information from this plan as a guide for the field review of the review area and as a base for the FSD.

On December 15, 2015, GTA's environmental scientist conducted the field review portion of the FSD. GTA personnel walked the review area to observe and characterize the woody vegetation by species composition. GTA's environmental scientist identified two forest stands within the review area. The forest stands are identified on the *Forest Stand Delineation Plan* included in *Appendix B*. A strategic, one-tenth-acre fixed plot sampling technique was used to identify tree species and vegetation for categorization and recordation. Sampling was determined by an accepted methodology that establishes sampling plots at the minimum

frequency of one plot per four acres of forest stand, with at least two plots per stand. Five sample plots were performed as representative samples of the forest stand within the review area. Sample plots (A1, A2, A3, B1, and B2) were marked in the field and labeled at the center with blue flagging. The perimeter of each sample plot was also identified at north, south, east, and west quadrants, with blue flagging placed at a radial distance of approximately 37.2 feet from the center.

Basal area was determined for each sample plot from the center using a factor 10 prism. Trees within the sample plot were visually assessed for their diameters at breast height (DBH) and tallied in the appropriate diameter category on the Forest Sampling Data Worksheet. Trees with a DBH approaching 30 inches or greater were measured using a diameter tape to determine their status as specimen trees. Those trees having a DBH of greater than or equal to 30 inches, or having a DBH of 75 percent or greater of the State or County Champion, were identified within the review area and marked in the field with blue flagging tied around their trunks. No specimen trees were identified within the review area. The one-tenth-acre plot was also sampled for forest structure. GTA's findings have been recorded on *Forest Sampling Data Worksheets* and a *Forest Stand Summary Worksheet*, which are included in *Appendices D* and *E*, respectively.

4.0 Geology / Soils

A topographic plateau is located on the northern central portion of the review area in the location of the existing structures. In general, the review area slopes towards the east and west away from the knoll. The topographic information on the base plan provided by MRA indicates that the ground surface elevations within the review area range from 200 feet above Mean Sea Level (MSL) near the easternmost portion of the review area to a minimum of approximately 154 feet above MSL near the westernmost review area boundary. A *Topographic Map* is included as *Figure 2* in *Appendix A*.

To determine the soils underlying the review area, GTA’s environmental scientist reviewed the United States Department of Agriculture, Natural Resources Conservation Service’s (NRCS) Web Soil Survey (WSS). The *Web Soil Survey* identified five soil units within the review area, which are identified on *Table 1*. According to the NRCS Hydric Soils List by State, one mapping unit within the review area is listed as hydric soils. The soils boundaries are shown on the *FSD Plan*.

Table 1

SYMBOL ¹	NAME/DESCRIPTION ¹	HYDRIC SOIL ²	HYDRIC COMPONENT ²	COMPONENT PERCENTAGE ²	COMPONENT LOCATION ²	K-FACTOR ¹
CaB	Chillum loam, 2 to 5 percent slopes	No	-	-	-	0.32
DvB	Downer-Hammonton complex, 2 to 5 percent slopes	No	-	-	-	0.10
RhC	Russett-Christiana-Hambrook complex, 5 to 10 percent slopes	Yes	Fallsington	5	Depressions, drainageways, drainhead complexes, interfluves, swales	0.28
UoB	Udorthents, loamy, 0 to 5 percent slopes	No	-	-	-	0.37
UoD	Udorthents, loamy, 5 to 15 percent slopes	No	-	-	-	0.37

Notes:

1. NRCS’s *Web Soil Survey*, available at <<http://websoilsurvey.nrcsusda.gov>>, consulted on January 18, 2016. K-Factors shown are for whole soil.
2. NRCS’s *Hydric Soils List*, on January 18, 2016, at <ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/Lists/hydric_soils.xlsx>.

5.0 Rare, Threatened, and Endangered Species and Historical Resources

GTA sent an inquiry to the Maryland Department of Natural Resource (DNR) as to the potential presence of any rare, threatened, or endangered species or habitats on, or in, the vicinity of the review area. According to Ms. Lori Byrne of DNR, in a response letter dated December 18, 2015, “there are no state or federal records for rare, threatened, or endangered species within the boundaries of the project site.” An Official Species List was generated through the United States Fish and Wildlife Service (USFWS) online project review process. No federally listed threatened or endangered species, or critical habitats were identified within the vicinity of the

review area. In a letter dated February 23, 2016, the USFWS concurred with the findings of the online project review process and stated “the Service has no Fish and Wildlife Coordination Act Concerns regarding this project. In addition, there are no listed species identified in the vicinity of the project. The DNR inquiry letter, DNR response letter, and USFWS response letter are included in *Appendix C* of this Report.

An inquiry was sent to the Maryland Historical Trust (MHT) regarding the site. The Maryland Department of Planning (MDP) provided a response letter to the inquiry, which included MHT’s response. According to the response letter, “The Maryland Historical Trust determined that the project had no effect on historic properties.” A copy of the response letter is included in *Appendix C* of this Report.

6.0 Wetlands and Waters of the U.S.

GTA performed a wetland delineation on portions of the review area on June 18, 2014. A small wetland depression was identified on the northeastern portion of the review area. One intermittent stream and one ephemeral channel originating south of the review area were identified by GTA. These streams converge and extend south, away from the review area. A stream buffer was projected into the review area from the intermittent stream. The area on the northern portion of the review area was not reviewed by GTA during the June 18, 2014 wetland delineation. This area, depicted on the accompanying FSD Plan (*Appendix B*), is not proposed to be impacted for this project and was added to the project area to satisfy forest conservation requirements. To identify jurisdictional resources in the areas excluded from the wetland delineation, GTA’s wetland scientist consulted Maryland’s Environmental Resources and Land Information Network (MERLIN) website (www.mdmerlin.net) and the United States Fish and Wildlife Service’s (USFWS) National Wetland Inventory (NWI) website (<http://wetlandsfws.er.usgs.gov>). The Maryland Department of Natural Resources (DNR) wetlands map (downloaded from the MERLIN website) and the NWI wetlands map do not depict wetlands within the remaining portions of the review area. The wetland field review is

documented in a letter-report titled, *Cyber Center for Education and Innovation – New Museum Project – Wetland Delineation Letter Report*, dated May 16, 2016.

7.0 Forest Stand Narratives

The following paragraphs contain a narrative of the conditions and characteristics of the two forest stands identified within the review area.

The forest on the property can be divided into two forest stands. Stand A consists of an mid-stage, deciduous, upland forest, which grows on the north and northeastern portion of the review area. Stand A is divided by two access roads and utility easements. A portion of Stand A was inaccessible at the time of GTA's field review, however based on GTA's observations, the inaccessible portion of Stand A appeared generally consistent with the other portions of Stand A. The northern portion of Stand A, north of the access road and utility easement, has greater canopy cover, and therefore contains an understory that is not as dense as the central portion of Stand A. Stand B consists of early-mid stage, deciduous, upland forest, which grows on the southern portion of the property. The majority of Stand B is located south of the review area, approximately 0.2 acres extends into the review area. Sample plots were established outside the review area within Stand B to better characterize the overall stand characteristics. No specimen trees were identified within or immediately surrounding the review area.

7.1 Stand A

Forest Stand A encompasses 6.2± acres and is located on a flat to gently sloped area in the northern and northeastern portion of the review area. Stand A is a mid-stage, deciduous, upland forest, predominantly composed of *Acer rubrum*, *Liquidambar styraciflua*, *Quercus phellos*, and *Ulmus rubra*. Common codominant canopy species observed in the stand include *Acer rubrum* and *Ulmus rubra*. The majority of the dominant trees in this stand exhibit average DBHs in the 6- to 11.9-inch range, with some larger trees in the northern portions of the stand. The understory, dominated by *Acer rubrum*, *Celastrus orbiculatus*, *Lonicera japonica*, *Smilax*

rutundifolia, and *Toxicodendron radicans*, is thicker on the central portion of the stand where some blowdowns have encouraged understory growth. The understory is much sparser towards the northern portion of the stand, between the Baltimore Washington Parkway (Interstate 295) and an existing access drive and utility easement that segregates portions of the Stand. The herbaceous layer is also dense on the central portion of the stand and much sparser towards the northern portion of the stand. Portions of the understory and herbaceous layers are comprised of invasive vine species including *Celastrus orbiculatus* and *Lonicera japonica*. No specimen trees are located within Stand A. A small wetland depression is located on the central portion of the Stand. The vegetation in the area of the wetland varies slightly from the other portions of the Stand. Within and immediately surrounding the wetland, a predominance of *Betula nigra*, *Quercus phellos*, and *Ulmus rubra* was observed.

Except for the wetland and its associated buffer, no “priority retention areas,” as defined in AACC Section 17-6-303, were observed within Stand A. This stand extends a short distance off-site to the north before it is limited by the Baltimore Washington Parkway (Interstate 295), and to the south before it is limited by the NSA campus. An access road to the east of the stand disconnects Stand A from forest to the east of the review area. Given the lack of off-site contiguous forest and prevalence of exotic invasive species, this stand may provide limited benefit as wildlife habitat.

7.2 Stand B

Forest Stand B consists of the edge of a forest area that is located mostly outside of the review area. Encompassing approximately 0.2 acres, Stand B is located on a gentle to moderate sloped area on the southern portion of the review area. Stand B is an early to mid-successional stage forest, predominantly composed of *Acer rubrum* and *Nyssa sylvatica*. In addition to *Acer rubrum* and *Nyssa sylvatica*, *Quercus phellos* was also observed as a codominant canopy species within the stand. The majority of the dominant trees in this stand exhibit average DBHs in the 6- to 11.9-inch range. The understory in Stand B is relatively dense, compared to interior portions

of the same forest beyond the review area. The understory is dominated by *Celastrus orbiculatus*, *Ligustrum vulgare*, *Liquidambar styraciflua*, *Lonicera japonica*, and *Smilax rotundifolia*. The herbaceous layer is also denser within the review area than in the forest's interior. The majority of the understory and herbaceous layers are comprised of invasive species. No specimen trees are located within Stand B. One intermittent stream and one ephemeral channel are located south of the review area within the forest. A stream buffer is projected from the intermittent stream into a small portion of the review area.

Except for the area of stream buffer that is projected into Stand B, no “priority retention areas,” as defined in AACC Section 17-6-303, were observed within this stand. The forest beyond Stand B extends off-site to the south for approximately 400 feet before it is limited by the NSA Campus. Given the lack of large areas of contiguous forest and the prevalence of exotic invasive species, this stand may provide limited benefit as wildlife habitat.

8.0 Summary and Conclusion

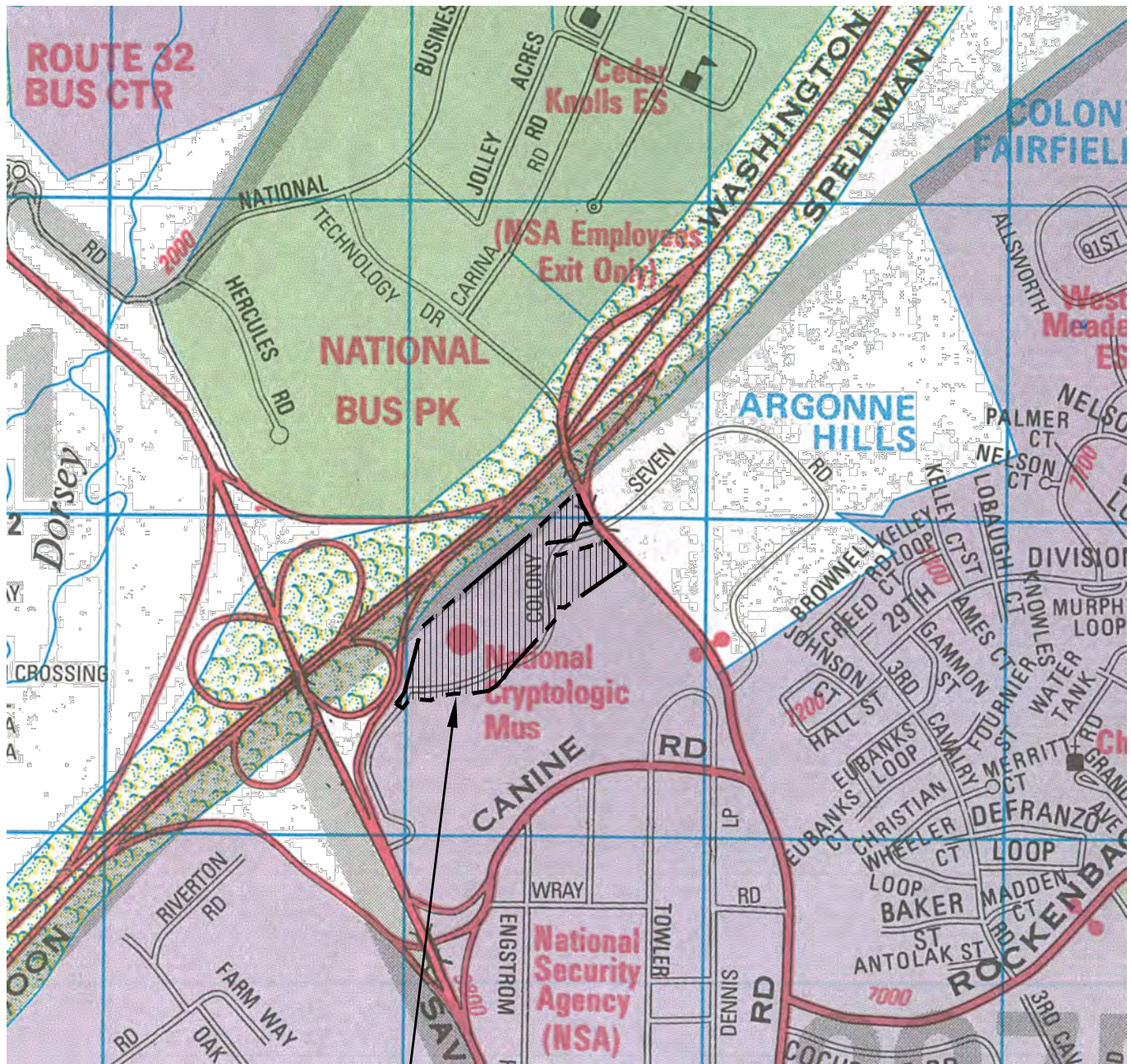
GTA has concluded an FSD of the review area. The individual forest stands have been identified on the *Forest Stand Delineation Plan* with acreages for each stand. Cumulatively, the two stands comprise 6.4± acres of forest within the review area.

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***** END OF REPORT *****

APPENDIX A

FIGURES



APPROXIMATE LOCATION
OF REVIEW AREA

NOTES:

MAP COPYRIGHT © ADC THE MAP PEOPLE, (800) 829-6277
PERMITTED USE NUMBER 21006238

0 500 1,000

APPROXIMATE SCALE
1 INCH = 1,000 FEET



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14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9446 OR (301) 470-4470
FAX: (410) 792-7395
WWW.GTAENG.COM
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CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT

ANNE ARUNDEL COUNTY, MARYLAND

SITE LOCATION MAP

PROJECT: 140780

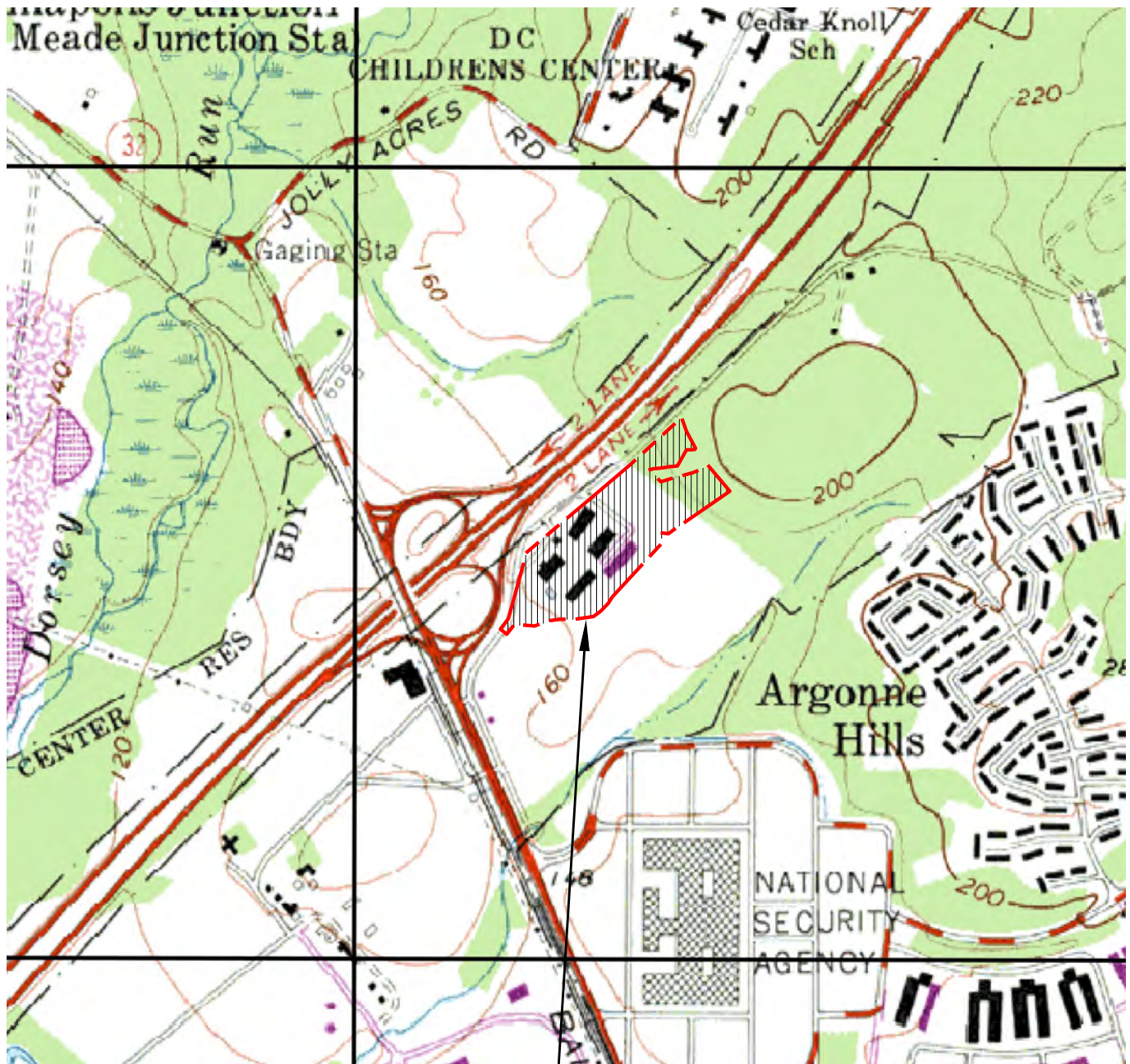
DATE: APRIL 2016

SCALE: 1" = 1,000'

DESIGN BY: MDP

REVIEW BY: FSG

FIGURE: 1



APPROXIMATE LOCATION
OF REVIEW AREA

NOTES:

1. BASED ON THE USGS LAUREL, MD 7.5 MINUTE QUADRANGLE MAP.
2. COPYRIGHT 2013 MY TOPO, INC.

0 500 1,000

APPROXIMATE SCALE
1 INCH = 1,000 FEET



GTA

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CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT

ANNE ARUNDEL COUNTY, MARYLAND

TOPOGRAPHIC MAP

PROJECT: 140780

DATE: APRIL 2016

SCALE: 1" = 1,000'

DESIGN BY: MDP

REVIEW BY: FSG

FIGURE: 2



APPROXIMATE LOCATION
OF REVIEW AREA

NOTES:

IMAGE OBTAINED FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY, AVAILABLE AT [HTTP://WEBSOILSURVEY.NRCS.USDA.GOV](http://websoilsurvey.nrcs.usda.gov).

0 150 300
APPROXIMATE SCALE
1 INCH = 300 FEET



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CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT

ANNE ARUNDEL COUNTY, MARYLAND

WEB SOIL SURVEY

PROJECT: 140780

DATE: APRIL 2016

SCALE: 1" = 300'

DESIGN BY: MDP

REVIEW BY: FSG

FIGURE: 3



APPROXIMATE LOCATION
OF REVIEW AREA

NOTES:

1. BASE IMAGE OBTAINED FROM GOOGLE EARTH (©2015 GOOGLE)

0 250 500

APPROXIMATE SCALE
1 INCH = 500 FEET



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CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT

ANNE ARUNDEL COUNTY, MARYLAND

2014 AERIAL PHOTOGRAPH

PROJECT: 140780

DATE: APRIL 2016

SCALE: 1" = 500'

DESIGN BY: MDP

REVIEW BY: FSG

FIGURE: 4

APPENDIX B

FOREST STAND DELINEATION PLAN

1. PROPERTY OWNER: UNITED STATES OF AMERICA
C/O U.S. ARMY CORPS OF ENGINEERS
PO BOX 1715
BALTIMORE MARYLAND, 21203

2. APPLICANT/DEVELOPER: THE NATIONAL CRYPTOLOGIC MUSEUM FOUNDATION
CYBER CENTER FOR EDUCATION AND INNOVATION - N
BOX 1563
MILLERSVILLE, MARYLAND 21108
CONTACT: MR. LAWRENCE CASTRO
PHONE: (443) 270-5291

3. PLAN PREPARER: GEO-TECHNOLOGY ASSOCIATES, INC. (GTA)
14280 PARK CENTER DRIVE
LAUREL, MD 20707
CONTACT: MAXWELL D. POTEMBER
PHONE: (410) 792-9446
EMAIL: MPOTEMBER@GTAENG.COM

4. TAX MAP/GRID/PARCEL: TAX MAP 20 / GRID 4 / PARCEL 61

5. TAX ACCOUNT NUMBERS: 04-000-01177100

6. ASSESSMENT DISTRICT: 4

7. COUNCIL DISTRICT: 1

8. SITE ADDRESS: 8201 COLONY SEVEN ROAD,
ANNAPOLIS JUNCTION, MARYLAND 20701

9. ZONING: C4 (COMMERCIAL - HIGHWAY) AND R1 (RESIDENTIAL)

10. EXISTING EXEMPT COMMERCIAL - MUSEUM

11. PROPOSED USE: EXEMPT COMMERCIAL - MUSEUM

12. REVIEW AREA: 17.07± AC

13. TOPOGRAPHIC CONTOUR INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAMMETRY PROVIDED BY AXIS GEOSPATIAL, DATED MARCH 30, 2015.

14. EXISTING UTILITIES WERE IDENTIFIED AND LOCATED BY INFRAMAP ON APRIL 2, 2015. ADDITIONAL UTILITY LOCATIONS WERE IDENTIFIED AND LOCATED BY MORRIS & RITCHE ASSOCIATES, INC. (MRA) DURING A FIELD SURVEY PERFORMED ON OCTOBER 22, 2015. SUPPLEMENTAL UTILITY INFORMATION WAS PROVIDED BY THE NATIONAL SECURITY AGENCY (NSA) IN JULY 2014 AND MAY 2015.

15. ACCORDING TO FLOOD INSURANCE RATE MAP 24003C0107E, DATED OCTOBER 16, 2016 THERE IS NO 100-YEAR FLOODPLAIN WITHIN THE REVIEW AREA.

16. SOILS ARE MAPPED AND LABELED IN ACCORDANCE WITH THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCE CONSERVATION SERVICE'S WEB SOIL SURVEY, CONSULTED ON JANUARY 18, 2016, AND AVAILABLE ON-LINE AT <HTTP://WEBBOSOILSURVEY.NRCS.USDA.GOV/APP/HOME.PAGE.HTM>.

17. ACCORDING TO A LETTER FROM THE MARYLAND DEPARTMENT OF PLANNING (MDP), "THE MARYLAND HISTORICAL TRUST DETERMINED THAT THE PROJECT HAD NO EFFECT ON HISTORIC PROPERTIES"

18. ACCORDING TO MS. LORI A. BYRNE OF THE MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR), "THERE ARE NO STATE OR FEDERAL RECORDS FOR RARE THREATENED OR ENDANGERED SPECIES WITHIN THE BOUNDARIES OF THE PROJECT SITE."

19. AN OFFICIAL SPECIES LIST WAS GENERATED THROUGH THE UNITED STATES FISH AND WILDLIFE SERVICE (USFWS) ONLINE PROJECT REVIEW PROCESS. NO FEDERALLY LISTED THREATENED OR ENDANGERED SPECIES, OR CRITICAL HABITATS WERE IDENTIFIED WITHIN THE VICINITY OF THE SUBJECT PROPERTY. IN A LETTER, DATED FEBRUARY 23, 2016, THE USFWS CONCURRED WITH THE FINDINGS OF THE ONLINE PROJECT REVIEW PROCESS AND STATED "THE SERVICE HAS NO FISH AND WILDLIFE COORDINATION ACT CONCERNS REGARDING THIS PROJECT. IN ADDITION, THERE ARE NO LISTED SPECIES IDENTIFIED IN THE VICINITY OF THE PROJECT."

20. A WETLAND DELINEATION WAS PERFORMED BY GTA ON JUNE 18, 2014. WETLAND LIMITS WERE CONFIRMED IN THE FIELD BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT ON SEPTEMBER 24, 2014, AND SURVEY LOCATED BY MRA IN OCTOBER OF 2015.

21. NO SPECIMEN TREES WERE IDENTIFIED WITHIN THE REVIEW AREA.

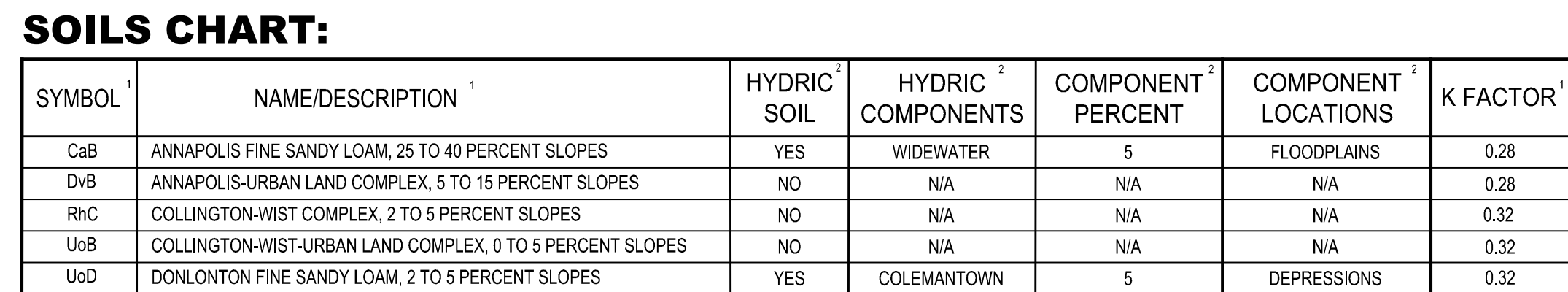
22. THE FOREST STAND DELINEATION FIELD WORK WAS PERFORMED BY GTA ON DECEMBER 15, 2015.

23. THERE ARE NO NATURAL STEEP SLOPES (25 %+) WITHIN THE REVIEW AREA WHICH MEET THE ANNE ARUNDEL COUNTY DEFINITION OF STEEP SLOPES.

24. NO ROCK OUTCROPPINGS WERE OBSERVED WITHIN THE REVIEW AREA.

25. THE REVIEW AREA IS NOT LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA.

26. THIS FOREST STAND DELINEATION PLAN WAS PREPARED ON A BASE PLAN PROVIDED BY MRA.



1. SOURCE: THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCE CONSERVATION SERVICE'S WEB SOIL SURVEY, CONSULTED ON JANUARY 18, 2016, AVAILABLE ON-LINE AT <[HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/APP/HOME.PAGE.HTM](http://websoilsurvey.nrcs.usda.gov/app/home.page.htm)>.





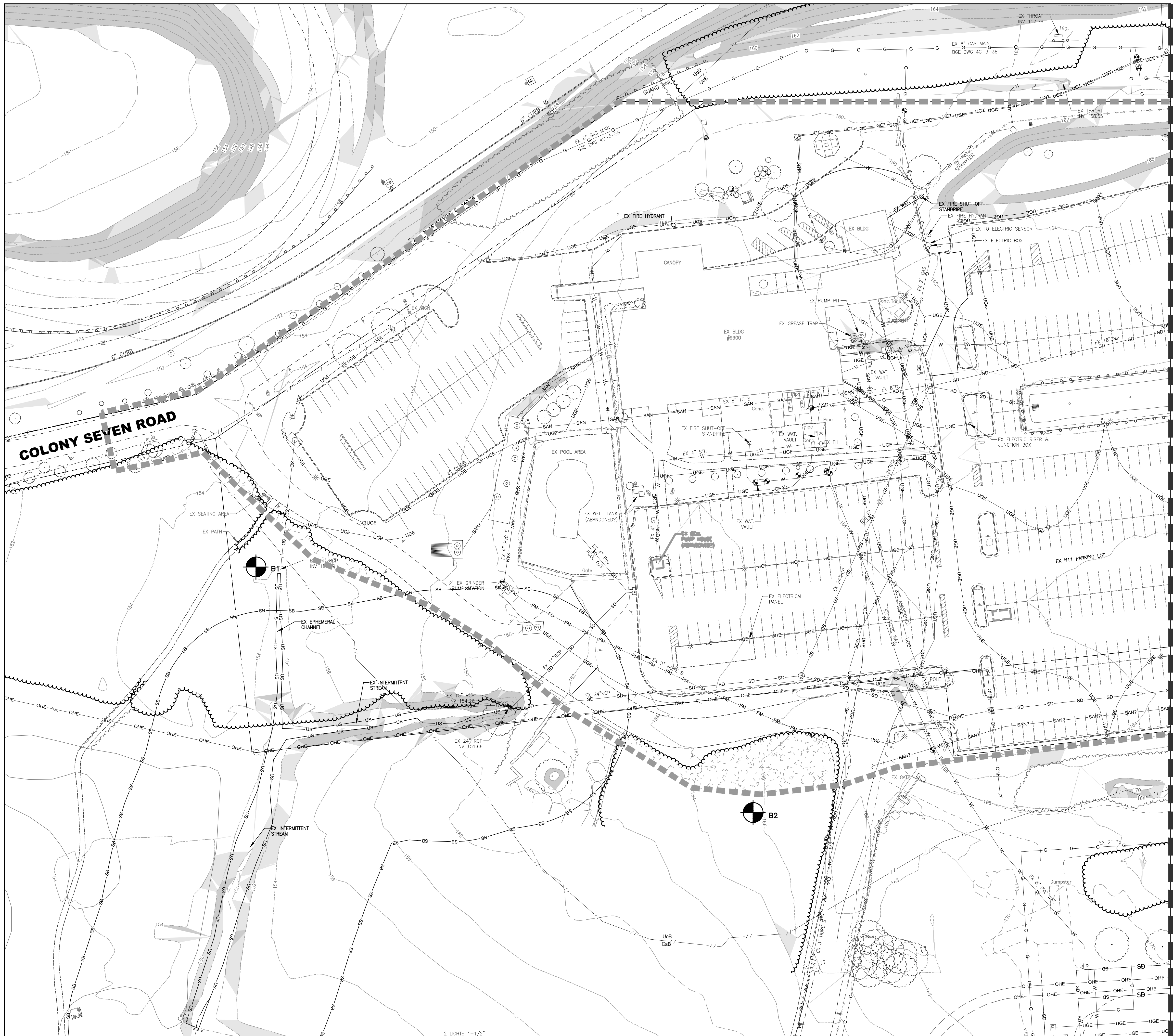
LEGEND:

	REVIEW AREA
	EX. PROPERTY LINE
	EX. RIGHT-OF-WAY
	EX. INDEX CONTOUR
	EX. INTERIM CONTOUR
	EX. SOILS LINE
	EX. PAVEMENT
	EX. BUILDING
	EX. FENCE
	EX. GUARDRAIL
	EX. BUILDING
	EX. CURB
	EX. WALL
	EX. ZONING BOUNDARY
	EX. STORM DRAIN
	EX. SANITARY LINE
	EX. WATER LINE
	EX. GAS LINE
	EX. UNDERGROUND ELECTRIC
	EX. UNDERGROUND TELEPHONE
	EX. FORCE MAIN
	EX. UNDERGROUND COMMUNICATION LINE
	EX. OVERHEAD ELECTRIC
	EX. FIRE HYDRANT
	EX. WATER VALVE
	EX. WATER METER
	EX. WELL
	EX. POWER POLE
	EX. LIGHT POLE
	EX. SIGNS
	EX. INDIVIDUAL TREE
	EX. WATERS-OF-THE-US
	EX. STREAM BUFFER
	EX. NONTIDAL WETLAND
	EX. WETLAND BUFFER
	AREA EXCLUDED FROM WETLAND FIELD D
	EX. TREE LINE
	EX. SCRUB-SHRUB, HEDGEROW, OR SMALL TREE GROUP
	FOREST STAND LIMITS
	FOREST STAND DELINEATION SAMPLE PLOT LOCATION

<u>FOREST STAND #</u>	<u>ACREAGE</u>
A	6.2± ACRES
B	0.2± ACRES
TOTAL	6.4± ACRES

FOREST STAND #	PRIORITY RETENTION AREAS
A	WETLAND AND WETLAND BUFFER
B	STREAM BUFFER

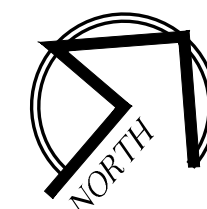
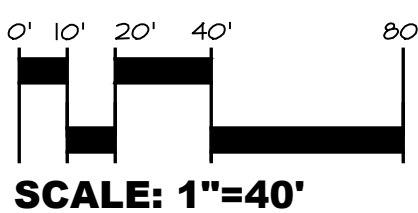
	<p align="center"> GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 14280 PARK CENTER DRIVE, SUITE: A LAUREL, MARYLAND 20707 (410) 792-9446 or (301) 470-4470 FAX: (410) 792-7395 GTAENG.COM </p>															
<p align="center"> FOREST STAND DELINEATION PLAN CYBER CENTER FOR EDUCATION AND INNOVATION - NEW MUSEUM PROJECT </p> <p align="center"> TAX MAP 20 ~ GRID 4 ~ PARCEL 61 8201 COLONY SEVEN ROAD, ANNAPOLIS JUNCTION, MARYLAND 20701 ~ ANNE ARUNDEL COUNTY </p>																
REVISIONS:	<table border="1"> <tr> <td>JOB NO.:</td> <td>140780</td> </tr> <tr> <td>SCALE:</td> <td>1" = 100'</td> </tr> <tr> <td>DATE:</td> <td>5-16-2016</td> </tr> <tr> <td>DRAWN BY:</td> <td>MDP</td> </tr> <tr> <td>DESIGN BY:</td> <td>MDP</td> </tr> <tr> <td>REVIEW BY:</td> <td>FSG/DPS</td> </tr> <tr> <td>SHEET:</td> <td>1 OF 3</td> </tr> </table>		JOB NO.:	140780	SCALE:	1" = 100'	DATE:	5-16-2016	DRAWN BY:	MDP	DESIGN BY:	MDP	REVIEW BY:	FSG/DPS	SHEET:	1 OF 3
JOB NO.:	140780															
SCALE:	1" = 100'															
DATE:	5-16-2016															
DRAWN BY:	MDP															
DESIGN BY:	MDP															
REVIEW BY:	FSG/DPS															
SHEET:	1 OF 3															



MATCHLINE - SEE SHEET 3 OF 3 FOR CONTINUATION

LEGEND:

- REVIEW AREA
- EX. PROPERTY LINE
- EX. RIGHT-OF-WAY
- EX. INDEX CONTOUR
- EX. INTERIM CONTOUR
- EX. SOILS LINE
- EX. PAVEMENT
- EX. BUILDING
- EX. FENCE
- EX. GUARDRAIL
- EX. BUILDING
- EX. CURB
- EX. WALL
- EX. ZONING BOUNDARY
- EX. STORM DRAIN
- EX. SANITARY LINE
- EX. WATER LINE
- EX. GAS LINE
- EX. UNDERGROUND ELECTRIC
- EX. UNDERGROUND TELEPHONE
- EX. FORCE MAIN
- EX. UNDERGROUND COMMUNICATION LINE
- EX. OVERHEAD ELECTRIC
- EX. FIRE HYDRANT
- EX. WATER VALVE
- EX. WATER METER
- EX. WELL
- EX. POWER POLE
- EX. LIGHT POLE
- EX. SIGNS
- EX. INDIVIDUAL TREE
- EX. WATERS-OF-THE-US
- EX. STREAM BUFFER
- EX. NONTIDAL WETLAND
- EX. WETLAND BUFFER
- EX. TREE LINE
- EX. SCRUB-SHRUB, HEDGEROW, OR SMALL TREE GROUP
- FOREST STAND LIMITS
- FOREST STAND DELINEATION SAMPLE PLOT LOCATION
- SLOPES $\geq 15\%$ & $< 25\%$
- SLOPES $\geq 25\%$



DESIGN & DRAWING BASED ON
MARYLAND COORDINATE SYSTEM:
HORIZONTAL NAD 83/CORS



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FOREST STAND DELINEATION PLAN

**CYBER CENTER FOR EDUCATION AND INNOVATION -
NEW MUSEUM PROJECT**

TAX MAP 20 ~ GRID 4 ~ PARCEL 61
8201 COLONY SEVEN ROAD, ANNAPOLIS JUNCTION, MARYLAND 20701 ~ ANNE ARUNDEL COUNTY

REVISIONS:

JOB NO.:	140780
SCALE:	1" = 40'
DATE:	5-16-2016
DRAWN BY:	MDP
DESIGN BY:	MDP
REVIEW BY:	FSG/DPS
SHEET:	2 OF 3

MATCHLINE - SEE SHEET 2 OF 3 FOR CONTINUATION



LEGEND:

- REVIEW AREA
- EX. PROPERTY LINE
- EX. RIGHT-OF-WAY
- EX. INDEX CONTOUR
- EX. INTERIM CONTOUR
- EX. SOILS LINE
- EX. PAVEMENT
- EX. BUILDING
- EX. FENCE
- EX. GUARDRAIL
- EX. BUILDING
- EX. CURB
- EX. WALL
- EX. ZONING BOUNDARY
- EX. STORM DRAIN
- EX. SANITARY LINE
- EX. WATER LINE
- EX. GAS LINE
- EX. UNDERGROUND ELECTRIC
- EX. UNDERGROUND TELEPHONE
- EX. FORCE MAIN
- EX. UNDERGROUND COMMUNICATION LINE
- EX. OVERHEAD ELECTRIC
- EX. FIRE HYDRANT
- EX. WATER VALVE
- EX. WATER METER
- EX. WELL
- EX. POWER POLE
- EX. LIGHT POLE
- EX. SIGNS
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- EX. STREAM BUFFER
- EX. NONTIDAL WETLAND
- EX. WETLAND BUFFER
- EX. TREE LINE
- EX. SCRUB-SHRUB, HEDGEROW, OR SMALL TREE GROUP
- FOREST STAND LIMITS
- FOREST STAND DELINEATION SAMPLE PLOT LOCATION
- SLOPES $\geq 15\%$ & $< 25\%$
- SLOPES $\geq 25\%$

0' 10' 20' 40' 80'
SCALE: 1"=40'

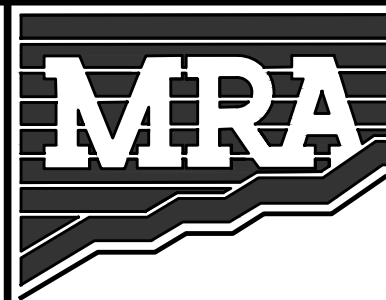


DESIGN & DRAWING BASED ON
MARYLAND COORDINATE SYSTEM:
HORIZONTAL NAD 83/CORS



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FOREST STAND DELINEATION PLAN

**CYBER CENTER FOR EDUCATION AND INNOVATION -
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TAX MAP 20 ~ GRID 4 ~ PARCEL 61
8201 COLONY SEVEN ROAD, ANNAPOLIS JUNCTION, MARYLAND 20701 ~ ANNE ARUNDEL COUNTY

REVISIONS:

JOB NO.:	140780
SCALE:	1" = 40'
DATE:	5-16-2016
DRAWN BY:	MDP
DESIGN BY:	MDP
REVIEW BY:	FSG/DPS
SHEET:	3 OF 3

APPENDIX C

CORRESPONDENCE



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Joanne Throwe, Deputy Secretary

December 18, 2015

Mr. Lawrence Castro
National Cryptologic Museum Foundation
Tlcastro1@comcast.net

RE: Environmental Review for Cyber Center for Education and Innovation, New Museum Project, 8290 Colony Seven Road, Annapolis Junction, Anne Arundel County, Maryland.

Dear Mr. Castro:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted. It is also important to note that the utilization of state funds, or the need to obtain a state authorized permit may warrant additional evaluations that could lead to protection or survey recommendations by the Wildlife and Heritage Service. If this project falls into one of these categories, please contact us for further coordination.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2015.1769.aa

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing ASFE Member Firm



May 21, 2014

Maryland Department of Natural Resources
Wildlife and Heritage Division
Tawes Office Building E-1
Annapolis, Maryland 21401

Attn: Ms. Lori Byrne

Re: Rare, Threatened, or Endangered Species and Critical Habitats Evaluation
National Cryptologic Museum
Anne Arundel County, Maryland
GTA Project No. 140780 (*please reference on reply*)

Dear Ms. Byrne:

Geo-Technology Associates, Inc. (GTA) is enclosing a copy of a *Site Location Map* and a *Topographic Map* for the above referenced subject property. The subject property consists of parking lots, buildings, and wooded and open land. A new National Cryptologic Museum is to be constructed on the subject property. GTA is not aware of any rare, threatened, or endangered species or habitats on, or in, the vicinity of the subject property. GTA respectfully requests that you verify this, and notify us in writing of your findings.

Please do not hesitate to contact me with questions regarding this request. Thank you for your attention to this matter and I look forward to receiving your response.

Sincerely,
GEO-TECHNOLOGY ASSOCIATES, INC.

Francesco S. Gentile, RLA
Senior Wetland Scientist
fgentile@gtaeng.com

Attachments:

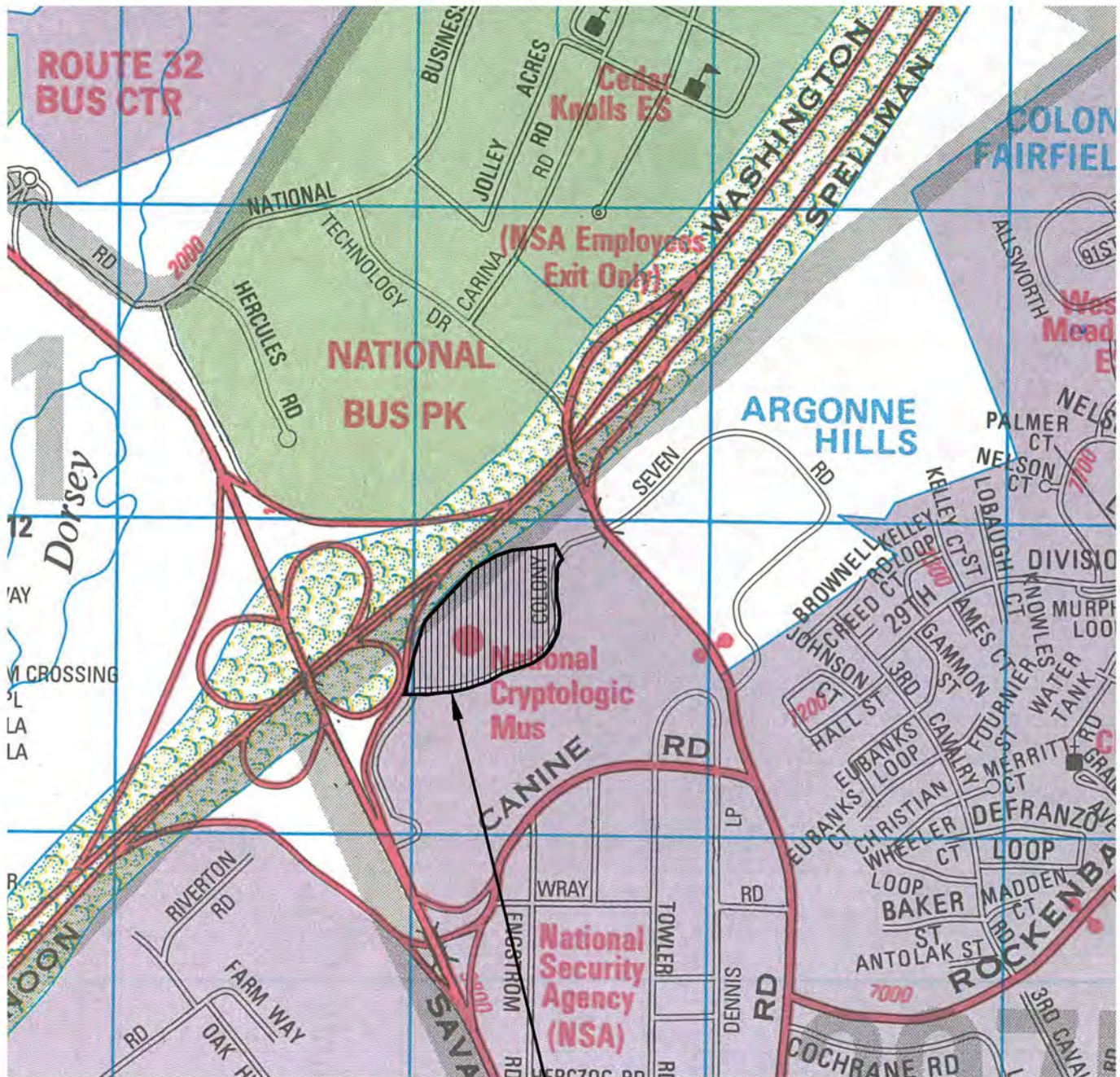
- Site Location Map (*color*)
- Topographic Map (*color*)

S:\Project Files\2014\140780 National Cryptologic Museum\Doc\NRP 140780 DNR RTE Letter.doc

14280 Park Center Drive, Suite A, Laurel, Maryland 20707 (410) 792-9446 (301) 470-4470 Fax: (410) 792-7395

◆ Abingdon, MD ◆ Laurel, MD ◆ Frederick, MD ◆ Waldorf, MD ◆ Sterling, VA ◆ Somerset, NJ
◆ New Castle, DE ◆ Georgetown, DE ◆ York, PA ◆ Quakertown, PA ◆ Charlotte, NC ◆ Williston, ND

Visit us on the web at www.mragta.com



APPROXIMATE LOCATION
OF SUBJECT PROPERTY

NOTES:

1. COPYRIGHT ADC THE MAP PEOPLE, BY PERMISSION.
2. PERMITTED USE NUMBER 21006238.

0 500 1,000

APPROXIMATE SCALE
1 INCH = 1,000 FEET

North

GTA

GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9446 OR (301) 470-4470
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NATIONAL CRYPTOLOGIC MUSEUM
ANNE ARUNDEL COUNTY, MARYLAND

SITE LOCATION MAP

PROJECT: 140780

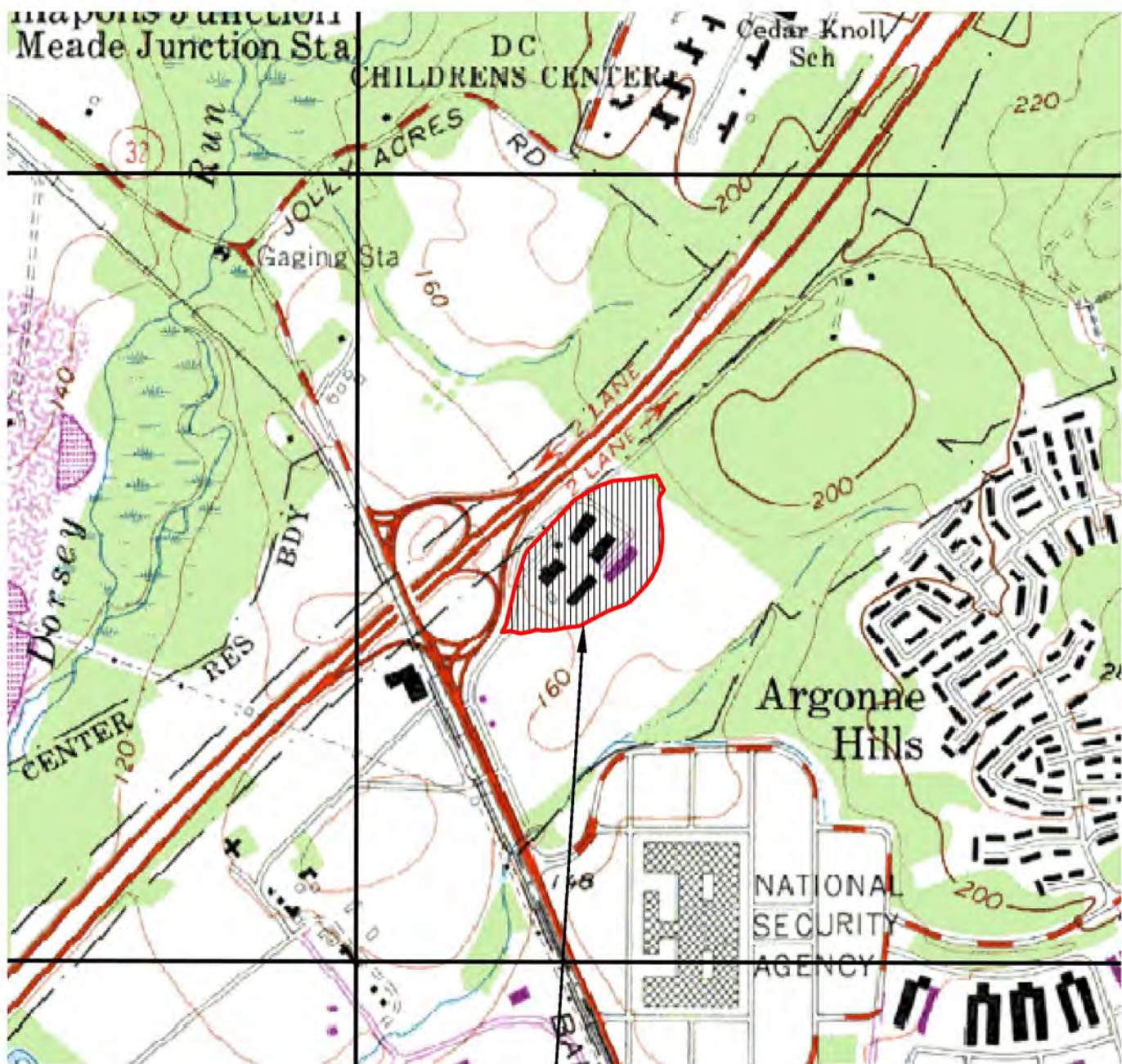
DATE: MAY 2014

SCALE: 1" = 1000'

DESIGN BY: FSG

REVIEW BY:

FIGURE: 1



APPROXIMATE LOCATION
OF SUBJECT PROPERTY

NOTES:

1. BASED ON THE USGS LAUREL, MD 7.5 MINUTE QUADRANGLE MAP.
2. COPYRIGHT 2010 MY TOPO, INC.

0 500 1,000

APPROXIMATE SCALE
1 INCH = 1,000 FEET



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NATIONAL CRYPTOLOGIC MUSEUM
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TOPOGRAPHIC MAP

PROJECT: 140780

DATE: MAY 2014

SCALE: 1" = 1000'

DESIGN BY: FSG

REVIEW BY:

FIGURE: 2



United States Department of the Interior

FISH AND WILDLIFE SERVICE



Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

February 23, 2016

Mr. Maxwell D. Potember
Environmental Scientist
GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive, Suite A
Laurel, MD 20707

RE: Cyber Center for Education and Innovation – New Museum Project in Anne Arundel County, MD (Environmental Assessment)

Dear Mr. Potember:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter with attachments dated November 30, 2015 and your project information from the Service's Information for Planning and Conservation (IPaC) online system dated February 17, 2016. The comments provided below are in accordance with section 7(c) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 et seq.).

The purpose of this proposed project is to construct the proposed Cyber Center for Education and Innovation and New Museum Project. This project site currently consists of developed and forested lands.

The Service has no Fish and Wildlife Coordination Act concerns regarding this proposed project. In addition, there are no listed species identified in the vicinity of this project.

If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

Genevieve LaRouche
Supervisor





United States Department of the Interior
U.S. Fish & Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573 4575



Online Certification Letter

Today's date: February 17, 2016

Project: National Cryptologic Museum

Dear Applicant for online certification:

Thank you for using the U.S. Fish and Wildlife Service (Service) Chesapeake Bay Field Office 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 referenced project 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). 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.

Based on this information and in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), we certify that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project area. Therefore, no Biological Assessment or further section 7 consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For additional information on threatened or endangered species in Maryland, you should contact the Maryland Wildlife and Heritage Division at (410) 260-8573. For information in Delaware you should contact the Delaware Division of Fish and Wildlife, Wildlife Species Conservation and Research Program at (302) 735-8658. For information in the District of Columbia, you should contact the National Park Service at (202) 339-8309.

The U.S. Fish and Wildlife Service also works with other Federal agencies and states to minimize loss of wetlands, reduce impacts to fish and migratory birds, including bald eagles, and restore habitat for wildlife. Information on these conservation issues and how development projects can avoid affecting these resources can be found on our website (www.fws.gov/chesapeakebay)

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Chesapeake Bay Field Office Threatened and Endangered Species program at (410) 573-4527.

Sincerely,

Genevieve LaRouche
Field Supervisor



Maryland Department of Planning

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor

David R. Craig, Secretary
Wendy W. Peters, Deputy Secretary

February 22, 2016

Ms. Marilee Tortorelli
MRA Representative
Morris & Ritchie Associates, Inc.
14280 Park Center Drive, Suite A
Laurel, MD 20707

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20151210-1071

Applicant: Morris & Ritchie Associates, Inc.

Project Description: Scoping prior to Environmental Assessment: Cyber Center for Education and Innovation - New Museum Project: consider one Alternative to Construct a New Center and No Action Alternative: construct the new center within the existing museum site

Project Address: 8290 Colony Seven Road, Annapolis Junction, MD 20701

Project Location: Anne Arundel County

Approving Authority: U.S. Department of Defense (DOD/NSA)

Recommendation: Consistent with Qualifying Comments

Dear Ms. Tortorelli:

In accordance with Presidential Executive Order 12372 and (Code of Maryland Regulations) 34.02.01.04-.06, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Departments of Agriculture, General Services, Natural Resources, Transportation, the Environment; the Maryland Military Department; Anne Arundel County; and the Maryland Department of Planning, including the Maryland Historical Trust. The Maryland Department of Agriculture, and the Maryland Military Department and Anne Arundel County had no comment. Anne Arundel County added that it had no jurisdiction over Fort Meade, or the National Security Agency.

The Maryland Department of the Environment submitted these qualifying comments.

1. Any above-ground or underground petroleum storage tanks, which may be utilized, must be installed and maintained in accordance with applicable State and Federal laws and regulations. Underground storage tanks must be registered and the installation must be conducted and performed by a contractor certified to install underground storage tanks by the Land Management Administration in accordance with (COMAR) 26.10.01- .16 Contact the Oil Control Program at (410) 537-3442 for additional information.
2. If the proposed project involves demolition, any above-ground or underground petroleum storage tanks that may be on site must have contents and tanks along with any contamination removed. Please contact the Oil Control Program at (410) 537-3442 for additional information.
3. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3315 for additional information regarding solid waste activities and contact the Waste Diversion and Utilization Program at (410) 537-3314 for additional information regarding recycling activities.
4. The Waste Diversion and Utilization Program should be contacted directly at (410) 537-3314 by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable State and Federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.
5. Any contract specifying "lead paint abatement" must comply with Code of Maryland Regulations (COMAR) 26.16.01 - Accreditation and Training for Lead Paint Abatement Services. If a property was built before 1950 and will be used as rental housing, then compliance with (COMAR) 26.16.02 - Reduction of Lead Risk in Housing; and Environment Article Title 6, Subtitle 8, is required. Additional guidance regarding projects where lead paint may be encountered can be obtained by contacting the Environmental Lead Division at (410) 537-3825.
6. The proposed project may involve rehabilitation, redevelopment, revitalization, or property acquisition of commercial, industrial property. Accordingly, MDE's Brownfields Site Assessment and Voluntary Cleanup Programs (VCP) may provide valuable assistance to you in this project. These programs involve environmental site assessment in accordance with accepted industry and financial institution standards for property transfer. For specific information about these programs and eligibility, please contact the Land Restoration Program at (410) 537-3437

The Maryland Departments of General Services, Natural Resources, and Transportation; and the Maryland Department of Planning; including the Maryland Historical Trust found this project to be consistent with their plans, programs, and objectives.

The Maryland Historical Trust determined that the project had no effect on historic properties.

Ms. Marilee Tortorelli

February 22, 2016

Page 3

State Application Identifier: MD20151210-1071

Any statement of consideration given to the comments should be submitted to the approving authority, with a copy to the State Clearinghouse. The State Application Identifier Number must be placed on any correspondence pertaining to this project. The State Clearinghouse must be kept informed if the approving authority cannot accommodate the recommendation. Please remember, you must comply with all applicable State and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at bob.rosenbush@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,

A handwritten signature in blue ink that reads "Linda C. Janey".

Linda C. Janey, J.D., Assistant Secretary

LCJ:BR

cc: Debra Falconer - ANAR
Lawrence Castro - NCMF
Rosa Malloy- GTAE
Greg Golden - DNR
Amanda Degen - MDE

Tina Quinichette - MDOT
Wendy Scott-Napier - DGS

Sandi Fleischer - MDA
Daniel Pyle - MILT

Peter Conrad - MDPL
Beth Cole - MHT

15-1071_CRR.CLS.doc

APPENDIX D

FOREST SAMPLING DATA WORKSHEETS

Property: <u>CCEI – New Museum Project</u> Prepared By: <u>Geo-Technology Associates, Inc.</u> Stand #: <u>A</u> Plot #: <u>1</u> Plot Size: <u>1/10 Acre</u> Date: <u>December 15, 2015</u>															Sheet 1 of 5		
Basal Area in sf/acre: 100	Size class of trees > 20' height with sample plot																
Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9" dbh			# of Trees >30" dbh			Total	
Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		
<i>Acer rubrum</i>	2	1	4		1											8	
<i>Liriodendron tulipifera</i>		1					1									2	
<i>Nyssa sylvatica</i>		1														1	
<i>Prunus serotina</i>		2		1												3	
<i>Quercus falcata</i>				1												1	
Total Number of Trees per Size Class	11			3			1			0			0			15	
Number & Size of Standing Dead Trees	2			1			0			0			0			3	
List of Common Understory Species 3'-20': <i>Acer rubrum</i> , <i>Celastrus orbiculatus</i> , <i>Liquidambar styraciflua</i> , <i>Lonicera japonica</i> , <i>Prunus serotina</i> , <i>Smilax rotundifolia</i> , <i>Toxicodendron radicans</i> , <i>Vitis sp.</i>							% of Canopy Closure						Percent of Invasive Cover per Plot (All Layers): 15%			Plot Successional Stage: Mid	
							C Y	N Y	E N	S N	W Y	Total 60%					
List of Herbaceous Species 0'-3': <i>Allium vineale</i> , <i>Duchesnea indica</i> , <i>Microstegium vimineum</i> , <i>Polygonum perfoliatum</i>							% of Understory Cover 3'-20'										
							C Y	N Y	E Y	S Y	W N	Total 80%					
							% of Herbaceous Cover 0'-3'										
							C N	N Y	E Y	S Y	W N	Total 60%					
Comments:																	
Forest Sampling Data Worksheet															Figure 2:10		

Property: <u>CCEI – New Museum Project</u> Prepared By: <u>Geo-Technology Associates, Inc.</u> Stand #: <u>A</u> Plot #: <u>2</u> Plot Size: <u>1/10 Acre</u> Date: <u>December 15, 2015</u>															Sheet 2 of 5		
Basal Area in sf/acre: 90	Size class of trees > 20' height with sample plot																
Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9" dbh			# of Trees >30" dbh			Total	
Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		
<i>Acer rubrum</i>		3	4	1	3											11	
<i>Betula nigra</i>			2		1			1								4	
<i>Liriodendron tulipifera</i>	1			2			1									4	
<i>Quercus phellos</i>				2												2	
<i>Ulmus rubra</i>		2		1	1											4	
Total Number of Trees per Size Class	12			11			2			0			0			25	
Number & Size of Standing Dead Trees	1			1			0			0			0			2	
List of Common Understory Species 3'-20': <i>Acer rubrum</i> , <i>Betula nigra</i> , <i>Celastrus orbiculatus</i> , <i>Liquidambar styraciflua</i> , <i>Lonicera japonica</i> , <i>Pinus virginiana</i> , <i>Quercus falcata</i> , <i>Smilax rotundifolia</i> , <i>Toxicodendron radicans</i>							% of Canopy Closure						Percent of Invasive Cover per Plot (All Layers): <div style="text-align: center;">15%</div>			Plot Successional Stage: <div style="text-align: center;">Mid</div>	
							C Y	N Y	E Y	S Y	W Y	Total 100%					
List of Herbaceous Species 0'-3': <i>Carex vulpinoidea</i> , <i>Microstegium vimineum</i> , <i>Solidago speciosa</i>							% of Understory Cover 3'-20'										
							C N	N Y	E N	S N	W N	Total 20%					
							% of Herbaceous Cover 0'-3'										
							C N	N Y	E Y	S Y	W N	Total 60%					
Comments:																	
Forest Sampling Data Worksheet															Figure 2:10		

Property: <u>CCEI – New Museum Project</u> Prepared By: <u>Geo-Technology Associates, Inc.</u> Stand #: <u>A</u> Plot #: <u>3</u> Plot Size: <u>1/10 Acre</u> Date: <u>December 15, 2015</u>															Sheet 3 of 5		
Basal Area in sf/acre: 70	Size class of trees > 20' height with sample plot																
Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9" dbh			# of Trees >30" dbh			Total	
Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		
<i>Acer rubrum</i>		2		1			1									4	
<i>Liriodendron tulipifera</i>				1												1	
<i>Pinus virginiana</i>					1		1									2	
<i>Prunus serotina</i>			1													1	
<i>Quercus falcata</i>			1		1											2	
<i>Ulmus rubra</i>			2	1			1									4	
Total Number of Trees per Size Class	6			5			3			0			0			14	
Number & Size of Standing Dead Trees	0			0			0			0			0			0	
List of Common Understory Species 3'-20': <i>Acer rubrum, Celastrus orbiculatus, Lonicera japonica, Quercus falcata, Quercus phellos, Smilax rotundifolia, Solidago speciosa, Toxicodendron radicans</i>							% of Canopy Closure						Percent of Invasive Cover per Plot (All Layers): <div style="text-align: center;">15%</div>			Plot Successional Stage: <div style="text-align: center;">Mid</div>	
							C N	N Y	E N	S Y	W Y	Total 60%					
List of Herbaceous Species 0'-3': <i>Alliaria petiolata, Allium vineale, Dichanthelium clandestinum, Schedonorus arundinaceus</i>							% of Understory Cover 3'-20'										
							C N	N N	E Y	S Y	W Y	Total 60%					
							% of Herbaceous Cover 0'-3'										
							C Y	N Y	E Y	S Y	W Y	Total 100%					
Comments:																	
Forest Sampling Data Worksheet															Figure 2:10		

Property: <u>CCEI – New Museum Project</u> Prepared By: <u>Geo-Technology Associates, Inc.</u> Stand #: <u>B</u> Plot #: <u>1</u> Plot Size: <u>1/10 Acre</u> Date: <u>December 15, 2015</u>															Sheet 4 of 5		
Basal Area in sf/acre: 50		Size class of trees > 20' height with sample plot															
Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9" dbh			# of Trees >30" dbh			Total	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD		Other
<i>Acer rubrum</i>				1		1	1	2									5
<i>Betula nigra</i>					2												2
<i>Liriodendron tulipifera</i>					2												2
<i>Nyssa sylvatica</i>	3				1												4
<i>Prunus serotina</i>				1													1
Total Number of Trees per Size Class	5			7			2			0			0			14	
Number & Size of Standing Dead Trees	0			0			0			0			0			0	
List of Common Understory Species 3'-20': <i>Celastrus orbiculatus</i> , <i>Ligustrum vulgare</i> , <i>Liquidambar styraciflua</i> , <i>Lonicera japonica</i> , <i>Rosa multiflora</i> , <i>Smilax rotundifolia</i> , <i>Toxicodendron radicans</i>							% of Canopy Closure						Percent of Invasive Cover per Plot (All Layers): 20%			Plot Successional Stage: Early-Mid	
							C Y	N N	E Y	S Y	W Y	Total 80%					
List of Herbaceous Species 0'-3': <i>Alliaria petiolate</i> , <i>Duchesnea indica</i> , <i>Solidago speciosa</i>							% of Understory Cover 3'-20'										
							C Y	N Y	E Y	S Y	W Y	Total 100%					
							% of Herbaceous Cover 0'-3'										
							C Y	N Y	E Y	S Y	W Y	Total 100%					
Comments:																	
Forest Sampling Data Worksheet															Figure 2:10		

Property: <u>CCEI – New Museum Project</u> Prepared By: <u>Geo-Technology Associates, Inc.</u> Stand #: <u>B</u> Plot #: <u>2</u> Plot Size: <u>1/10 Acre</u> Date: <u>December 15, 2015</u>															Sheet 5 of 5		
Basal Area in sf/acre: 70		Size class of trees > 20' height with sample plot															
Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9" dbh			# of Trees >30" dbh			Total	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD		Other
<i>Acer rubrum</i>	1	1			1												3
<i>Liriodendron tulipifera</i>			3														3
<i>Nyssa sylvatica</i>			2	2	1	1											6
<i>Prunus serotina</i>				1		1											2
<i>Quercus phellos</i>						1											1
Total Number of Trees per Size Class	10			5			0			0			0			15	
Number & Size of Standing Dead Trees	1			0			0			0			0			1	
List of Common Understory Species 3'-20': <i>Celastrus orbiculatus</i> , <i>Ligustrum vulgare</i> , <i>Liquidambar styraciflua</i> , <i>Lonicera japonica</i> , <i>Smilax rotundifolia</i> , <i>Vitis</i> sp.							% of Canopy Closure						Percent of Invasive Cover per Plot (All Layers): 20%			Plot Successional Stage: Early-Mid	
							C N	N Y	E Y	S Y	W N	Total 60%					
List of Herbaceous Species 0'-3': <i>Alliaria petiolata</i> , <i>Duchesnea indica</i> , <i>Glechoma hederacea</i>							% of Understory Cover 3'-20'										
							C Y	N Y	E Y	S Y	W Y	Total 100%					
							% of Herbaceous Cover 0'-3'										
							C Y	N Y	E Y	S Y	W Y	Total 100%					
Comments:																	
Forest Sampling Data Worksheet																Figure 2:10	

APPENDIX E

FOREST STAND SUMMARY WORKSHEETS

Property Name: CCEI - New Museum Project Location: Anne Arundel County, Maryland Prepared By: Geo-Technology Associates, Inc. MDP			Date: December 15, 2015
Stand Variable	Stand # A	Stand # B	
1. Dominant species/Codominant species	DOMINANT: <i>Acer rubrum</i> , <i>Liquidambar styraciflua</i> , <i>Ulmus rubra</i> CODOMINANT: <i>Acer Rubrum</i> , <i>Ulmus rubra</i>	DOMINANT: <i>Acer rubrum</i> , <i>Nyssa sylvatica</i> CODOMINANT: <i>Acer rubrum</i> , <i>Nyssa sylvatica</i>	
2. Successional Stage (most common successional stage from plots)	Mid	Early-Mid	
3. Basal area in s.f. per acre (average of plots)	90	50	
4. Size class of dominant species (most common size class of dominant trees from plots)	6-11.9" dbh	6-11.9"" dbh	
5. Percent of canopy closure (average of plots)	70%	70%	
6. Number of tree species per acre (total number of species from all plots)	10	6	
7. Common understory species per acre (3-4 most common amongst plots)	<i>Acer rubrum</i> , <i>Celastrus orbiculatus</i> , <i>Ligustrum vulgare</i> , <i>Lonicera japonica</i> , <i>Smilax rotundifolia</i> , <i>Toxicodendron radicans</i>	<i>Celastrus orbiculatus</i> , <i>Ligustrum vulgare</i> , <i>Liquidambar styraciflua</i> , <i>Lonicera japonica</i> , <i>Smilax rotundifolia</i>	
8. Percent of understory cover 3' to 20' tall (average of plots)	50%	100%	
9. Number of woody plant species 3' to 20' tall (total number of species from all plots)	12	8	
10. Common herbaceous species 0' to 3' tall (total number of species from all plots)	9	4	
11. Percent of herbaceous & woody plant cover 0' to 3' tall (average of plots)	70%	100%	
12. List of major invasive plant species & percent of cover (percentages are averages of all plots)	15%; <i>Alliaria petiolata</i> , <i>Celastrus orbiculatus</i> , <i>Lonicera japonica</i> , <i>Microstegium vimineum</i>	20%; <i>Alliaria petiolata</i> , <i>Celastrus orbiculatus</i> , <i>Glechoma hederacea</i> , <i>Ligustrum vulgare</i> , <i>Lonicera japonica</i> , <i>Rosa multiflora</i>	
13. Number of standing dead trees 6" dbh or greater (average per plot divided by plot size)	2	0	
14. Comments			
Forest Stand Summary Worksheet			Sheet 1 of 1
			Figure 2:11