
Final

Enhanced Use Lease
Environmental Condition of Property Report

Naval Recreation Center Solomons
Solomons, Maryland

Prepared for:



Naval Facilities Engineering Command Washington
Public Works Department
NAS Patuxent River
22445 Peary Road, Bldg. 504
Patuxent River, MD 20670-5504

Prepared by:



Eastern Research Group, Inc.
14555 Avion Parkway
Suite 200
Chantilly, VA 20151-1102

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ABBREVIATIONS, ACRONYMS, AND SYMBOLS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-containing material
AHERA	Asbestos Hazard Emergency Response Act
AQCR	Air quality control region
ARPA	Archeological Resource Protection Act
AST	Aboveground storage tank
BMP	Best Management Practice
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CWA	Clean Water Act
CZM	Coastal Zone Management
DoD	Department of Defense
ECP	Environmental Condition of Property
EDR	Environmental Data Resources
EFH	Essential fish habitat
EISA	Energy Independence and Security Act
ENE	East-north-east
EO	Executive Order
ER	Environmental Restoration
ESA	Endangered Species Act of 1973
ESD	Environmental site design
ESI	Expanded Site Investigation
EUL	Enhanced Use Lease
FFA	Federal Facility Agreement
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
ga	Gallons
GCR	General Conformity Rule
GIS	Geographic Information System
GSE	Ground Support Equipment
HTH	High Test Hypochlorite
IPMP	Integrated Pest Management Plan
LBP	Lead-based paint
LID	Low impact development
LNG	Liquefied natural gas
LUC	Land use control
MDE	Maryland Department of the Environment
MEC	Munitions and explosives of concern
MEP	Maximum extent practicable
MOA	Memorandum of Agreement
mph	Miles per hour
MRP	Munitions Response Program
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
msl	Mean sea level
MWR	Morale, Welfare, and Recreation
NAAQS	National Ambient Air Quality Standards

NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAS	Naval Air Station
NAVAIR SEFAC	Naval Air Systems Command Support Equipment Facility
NAVFAC	Naval Facilities Engineering Command
NAVRAMP	Naval Radon Assessment and Mitigation Program
NDW	Naval District Washington
NHPA	National Historic Preservation Act of 1966
NMWTS	Naval Mine Warfare Test Station
NOAA	National Oceanographic & Atmospheric Administration
NOL	Naval Ordnance Laboratory
NOLTF	Naval Ordnance Laboratory Test Facility
NOV	Notices of Violation
NO _x	Nitrogen oxide
NRC	Naval Recreation Center
NRCS	Natural Resources Conservation Services
NWI	National Wetlands Inventory
OPNAVINST	Office of the Chief of Naval Operations Instruction
PA	Preliminary Assessment
PCBs	Polychlorinated biphenyls
PTC	Permit to Construct
RCRA	Resource Conservation and Recovery Act
RDT&E	Research, Development, Testing and Evaluation
RONA	Record of Non-Applicability
RT&E	Rare, threatened, and endangered
RVs	Recreational vehicles
SAV	Submerged aquatic vegetation
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SI	Site Investigation
SIP	State Implementation Plan
LQG	Large Quantity Generator
TSCA	Toxic Substances Control Act
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground storage tank
UXO	Unexploded ordnance
VIMS	Virginia Institute of Marine Science
VOC	Volatile organic compound

EXECUTIVE SUMMARY

Under its Enhanced Use Leasing (EUL) program, the Department of the Navy (hereinafter referred to as the “Navy”) is making available for lease non-excess real property for private development at the Naval Recreation Center (NRC) Solomons, Solomons, Maryland (hereinafter referred to as the installation). This Environmental Condition of Property (ECP) report was prepared for NRC Solomons EUL Site and its adjacent properties. This report evaluates the current and former uses of the site; describes the environmental conditions of the land, facilities, and real property assets within the site; and summarizes environmental restrictions, land use controls, and consultation requirements that may be necessary for development within the EUL Site.

The ECP report findings for the EUL Site are based on a record search of readily available documents, a thorough review of the applicable and relevant documents, analysis of the NRC Solomons Geographic Information System (GIS), interviews with personnel knowledgeable about the site and its adjacent properties, and visual site investigations conducted on June 1, 2010 and July 13, 2010.

The EUL Site consists of approximately 12 acres (48,562 square meters) located on the northeastern portion of NRC Solomons. . It is bounded by the installation fence line to the east and north. The western border is between 6th and 7th streets and the southern border is south of Charlie Avenue. It contains RV and boat storage and other facilities and amenities that are made available to NRC Solomons' visitors. The EUL Site remained undeveloped until 1926, when a private developer began construction of cottages as a small summer resort neighborhood. The EUL Site remained housing until the area was designated as NRC Solomons in 1969, and recreational and camping facilities were constructed.

Areas of potential environmental concern identified during the ECP study for the EUL Site and its adjacent properties are listed below by subject area:

- Asbestos-Containing Material;
- Lead-Based Paint;
- Wetlands;
- Floodplains;
- Coastal Zone;
- Essential Fish Habitat; and
- Archeological Resources.

In accordance with DoD policy regarding the classification of properties that may exhibit hazardous substance or petroleum contamination (please reference Deputy Under Secretary of Defense Goodman Memorandum dated 21 October 1996), the EUL Site has been classified as Category 1. This category applies to properties where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas). Based on information gathered from relevant documents and reports, site visits, and personnel interviews, no documentation or other evidence was found of releases or disposal of hazardous substances or petroleum products at the EUL Site.

1. INTRODUCTION

1.1 Introduction and Background

The Navy is making available for lease non-excess real property at the Naval Recreation Center (NRC) Solomons, Solomons, Maryland (hereinafter referred to as the installation) under its Enhanced Use Lease (EUL) program.

NRC Solomons is located 70 miles (113 kilometers) southeast of Washington D.C., in Calvert County, Maryland, near the confluence of the Patuxent River and Chesapeake Bay. The installation encompasses approximately 300 acres (1.2 km²) and is the largest outdoor recreation facility in the Navy. NRC Solomons is under the administrative control of Naval Air Station (NAS) Patuxent River and Naval District Washington (NDW). NAS Patuxent River is located across the Patuxent River in Saint Mary's County, Maryland and covers approximately 6,400 acres (25.9 km²) with an additional 850 acres (3.4 km²) at the Webster Field Annex, located about 15 miles (24.1 km) south of NAS Patuxent River. Figure 1-1 presents the location of NRC Solomons, NAS Patuxent River, and the Webster Field Annex in the Washington, D.C. metropolitan area.

NRC Solomons provides a wide array of vacation lodging and recreational facilities to eligible current, retired, and reserve military personnel, Department of Defense (DoD) civilians, family members, and guests. Monetary funds from the operation of NRC Solomons support other Navy Morale, Welfare and Recreation (MWR) activities, which promote the well-being of military personnel and their families. The types of lodging facilities include apartments, bungalows, cottages, log cabins, trailer camps, camp sites, and other facilities. The types of recreational facilities include swimming and diving pools, a putt-putt golf course, ball fields, picnic pavilions, and other recreational facilities. In addition, NRC Solomons contains an industrial area with workshops, offices, and maintenance facilities that support NAS Patuxent River.

Naval Facilities Engineering Command (NAVFAC) Washington has prepared this ECP report for NRC Solomons EUL Site. The following report presents a summary of readily available information on the current and former uses of, environmental conditions of, and concerns relative to the land, facilities, and real property assets at the EUL Site.

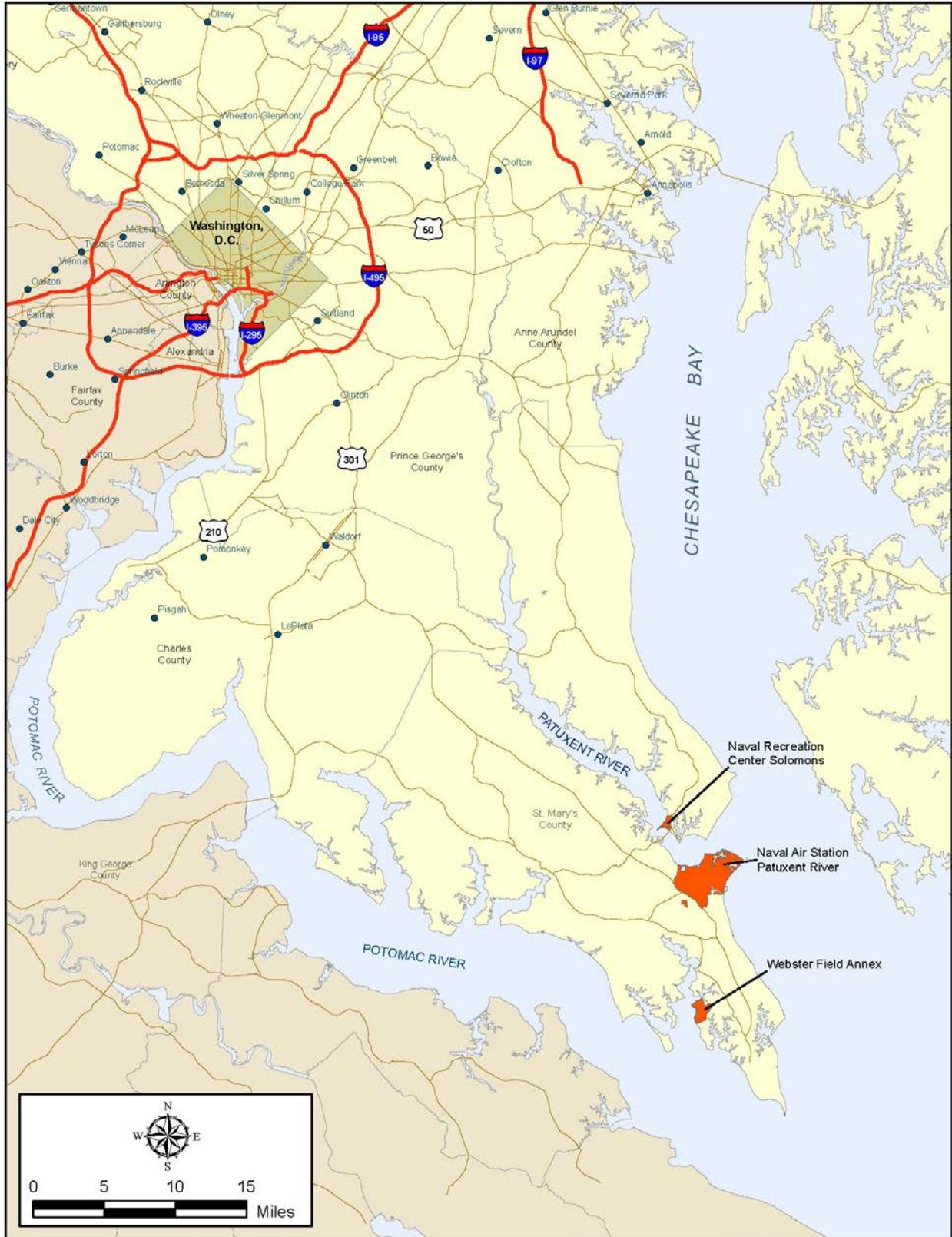


Figure 1-1. Location of NRC Solomons in the Washington, D.C. Metropolitan Area

1.2 **Organization of ECP Report**

The ECP report is organized as follows:

- Section 2 (Survey Methodology) provides the methodology used to conduct the ECP study, including records review, site visit, and interviews.
- Section 3 (Past and Current Use) describes the current and former uses of the EUL site and the adjacent property.
- Section 4 (Environmental Setting) describes the environmental setting of the EUL site.
- Section 5 (Environmental Conditions of Subject Property) addresses the environmental conditions and related findings for the EUL site.
- Section 6 (Environmental Conditions of Adjacent Property) addresses the environmental conditions and related findings for property adjacent to the EUL site.
- Section 7 (Conclusions) presents the conclusions and recommendations of the ECP study.
- Section 8 (References) presents a list of references used in preparation of the ECP report.
- Section 9 (Certification) provides certification of the ECP report.

1.3 **Purpose of ECP Report**

The purpose of this ECP report is to establish the environmental condition of the real property to support the proposed EUL real estate action. This ECP study is primarily based on the review of readily available information, visual site inspections, and interviews with personnel familiar with the site history to determine environmental risks associated with the proposed site.

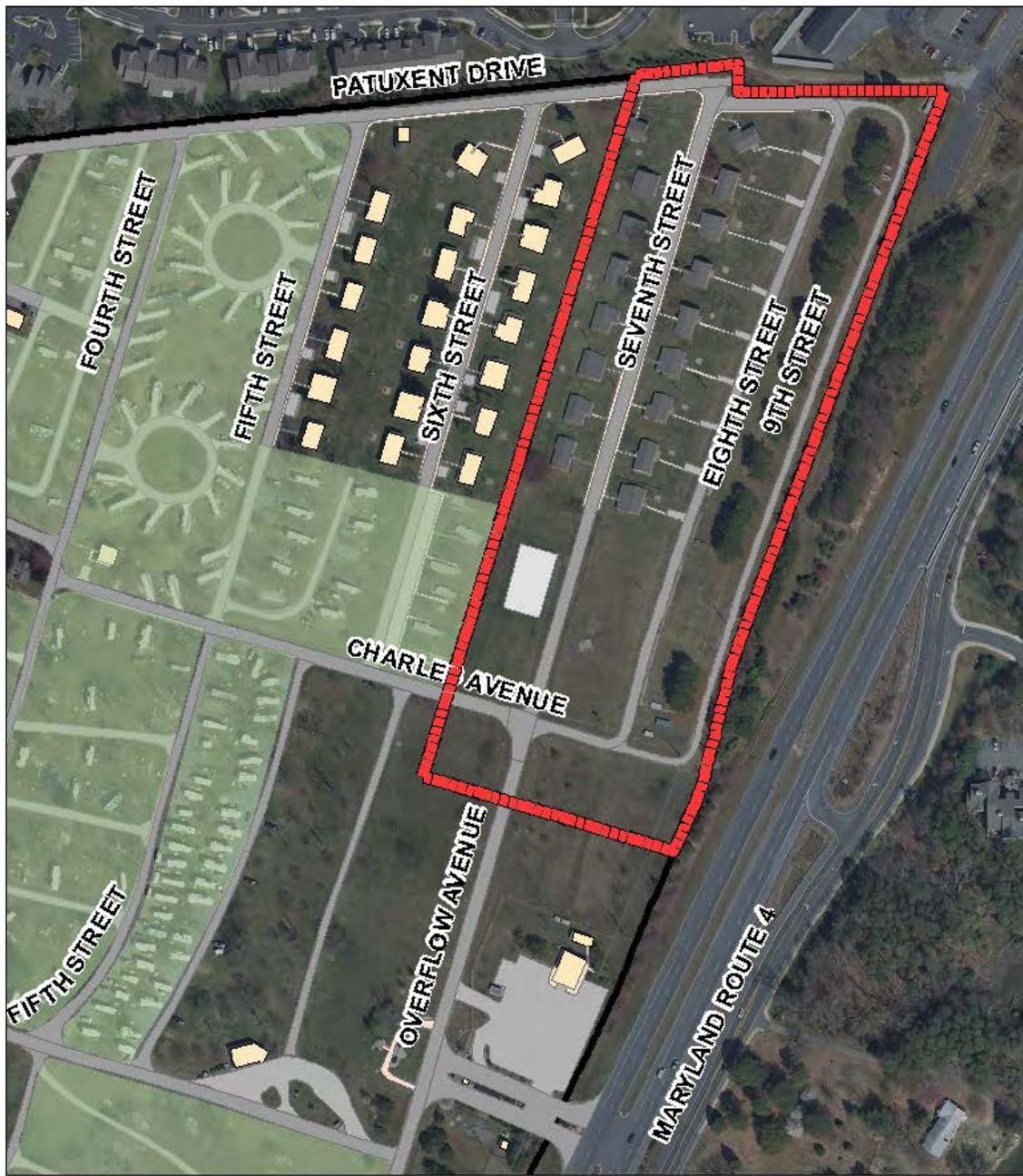
Readily apparent operational and regulatory compliance deficiencies of environmental program areas such as underground storage tanks (USTs), air emissions, lead-based paint, asbestos, pesticides, polychlorinated biphenyls (PCBs), radon, munitions or explosives of concern, stormwater, and natural resources are also provided in the ECP report. This ECP study does not re-investigate or otherwise review the adequacy of previously conducted investigations or remedial actions.

This ECP report will provide baseline environmental conditions for the EUL Site pursuant to the following goals:

- To document inquiry into environmental conditions to support real estate decisions;
- To protect the Navy from future liability;
- To determine risk of exposure to grantees/government employees; and
- To inform grantees of environmental conditions, restrictions, and land use controls (LUCs) associated with the real property (Department of the Navy, 2006).

1.4 Parcel Identification and Boundaries

The EUL Site consists of approximately 12 acres (48,562 m²) located on the northeastern portion of NRC Solomons. The western boundary line is between 6th and 7th Street and the southern boundary is just south of Charles Street. The EUL site is bounded by the installation fenceline to the east and north. A portion of the EUL site is currently being used for open and secure storage space for boats recreational vehicles. The rest of the site is open space with a basketball court, old roads, and sidewalks. Figure 1-2 presents the location of the EUL Site at NRC Solomons.



**NAVAL RECREATION CENTER
SOLOMONS**

POTENTIAL EUL SITE
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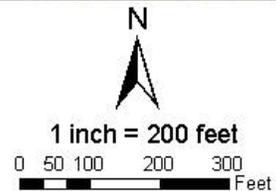


Figure 1-2. EUL Site – NRC Solomons

1.5 **Legal Description**

Facility Name and Address: Naval Recreation Center Solomons, 13855 Solomons Island Road, Solomons, MD 20688-0147

Property Owner: United States Government

Date of Ownership: 1941

Current Occupant: US Navy

Zoning: Military

County, State: Calvert County, Maryland

USGS Quadrangle: Solomons Island, MD. 38076-C4-TF-024

Latitude, Longitude: 38°20'21.84"N, -76°28'10.89"W

Parcel Number: Not Available

2. SURVEY METHODOLOGY

2.1 Approach and Rationale

This ECP report was prepared to document the environmental conditions of, and concerns relative to, the land, facilities, and real property assets of the EUL Site. The environmental conditions of properties adjacent to the EUL Site were also considered in this report.

This report serves as a summary of readily available information based on an extensive record search of available documents, a thorough review of the applicable and relevant documents, analysis of the installation's Geographic Information System (GIS), two visual surveys conducted on June 1, 2010 and July 13, 2010, and on-site interviews with personnel knowledgeable about the history of the EUL Site.

Extensive environmental investigations and reports and pertinent historical documents were reviewed in support of this ECP report. However, no sampling or analysis of media was conducted during this survey. Information obtained is reflected within this report by reference. A complete list of references is provided as Section 8 (References).

The information obtained from the Navy and other environmental reports were considered to be accurate unless reasonable inquiries indicated otherwise. New information or changes in site use could require a review and possible modification of the findings and conclusions contained in this report.

2.2 Property Classification Guidelines

Based on analysis of the available data, the EUL Site was classified into one of seven Department of Defense (DoD) Environmental ECP categories as defined by the S.W. Goodman Memorandum dated October 21, 1996. The property classification categories are as follows:

- Category 1: Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).
- Category 2: Areas where only release or disposal of petroleum products has occurred.
- Category 3: Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.
- Category 4: Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken.
- Category 5: Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken.
- Category 6: Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented.
- Category 7: Areas that are not evaluated or require additional evaluation.

2.3 Related Reports

Related environmental reports used in the preparation of this ECP report include, but are not limited to, the following:

- Final NRC Solomons Integrated Natural Resources Management Plan;
- Tank Management Plan, Volume 1;
- (Environmental Restoration) Site Management Plan, 2009 Update;
- Environmental Restoration Site Summary Reports;
- Final Closeout Report, Surface Debris Removal Action Pistol and East Land Ranges, Naval Recreation Center – Solomons Complex, Solomons, Maryland;
- Final Closeout Report, Removal Action for Cove 1 and Surrounding Areas, Naval Recreation Center – Solomons Complex, Solomons, Maryland;
- Cold War Historic Context (1945-1989) and Architectural Survey and Evaluation;
- Draft Integrated Pest Management Plan, Naval Air Station Patuxent River, Maryland;
- Historic Landscape Survey, Naval Air Station Patuxent River, Webster Field, and Solomons Complex;
- Naval Air Station Patuxent River Spill Records Database;
- Individual source air emission permits;
- Asbestos and lead survey reports;
- General Management Plan for NDW Solomons Complex; and
- Sampling and Analysis Plan for Range Anomaly Removal Action at NRC Solomons.

A complete list of references is provided in Section 8 (References).

2.4 Real Estate Document Review

A comprehensive property history of the EUL Site was created by reviewing Property Record Cards maintained by NAS Patuxent River for former buildings and infrastructure located within the site. Historical land use records and personal interviews were used to understand property use and condition prior to the Navy taking ownership of the property. In addition, an environmental data and historical records package including a radius report, relevant historical aerial photographs, and topographic maps of the site was obtained from Environmental Data Resources (EDR) on July 1, 2010. Section 3 (Past and Current Use) presents the past and current use of the EUL Site.

3. PAST AND CURRENT USE

3.1 Installation History

Prior to Navy activity on the area currently known as NRC Solomons, the area was composed of large residential parcels, which remained mostly undeveloped. Point Patience Inc., a private developer, owned a 64.5 acre (261,000 m²) tract along the northeastern edge of the current installation. By 1926, Point Patience Inc. had developed a number of cottages and roadways with the intention of establishing a resort area (NAVFACWASH, 2009a; NAVFACWASH, 2009c).

The first known presence of Navy activity in the Solomons area occurred in 1927 by the US Shipping Board, later known as the Maritime Commission. The US Shipping Board used the southern portion of what is currently known as NRC Solomons, including Third Cove, as anchorage for interned German ships from World War One (NDW Public Works Center, 2003). The Navy established the Solomons Complex in 1941, with the Naval Ordnance Laboratory (NOL) as the first occupant. Activities at NOL included research on magnetic, electric, and acoustic countermine testing (NAVFACWASH, 2009c). Later, the Navy established the Naval Mine Warfare Test Station to support research, development, and testing of Navy mine warfare and countermeasures. The Navy continued development on the installation with the establishment of the Naval Ordnance Laboratory Test Facility (NOLTF) in 1947. The NOLTF conducted high and low altitude aircraft drops (primarily mines), torpedo shots in the river, and other explosive tests in mine warfare until 1950. From 1948 to 1950, the Navy acquired additional buildings and open space to create the Naval Civil Engineering Laboratory, which conducted research and development of amphibious equipment. Torpedo work was phased out in 1958 and the torpedo shop was converted into amphibious assembly areas (NAVFACWASH, 2009a).

As a result of an assessment of the installation in 1967, NDW recommended that the land could serve two purposes. NOLTF could continue to operate in the southern part of the installation as an industrial site, while the remaining property could serve as a recreation area. In 1969, the Navy began to convert the northern portion of the installation to a recreational facility for eligible current, retired, and reserve military personnel, Department of Defense (DoD) civilians, family members, and guests, and in 1971 NRC Solomons was officially dedicated. In the 1970s, NOLTF underwent several reorganizations and was eventually deactivated in 1982 due to a reduced workload and impacts to local commercial fisheries. Today, the industrial area supports the Naval Mine Warfare Test Station (NMWTS) and Ground Support Equipment (GSE) for Naval Air Systems Command Support Equipment Facility (NAVAIR SEFAC) (NAVFACWASH, 2009c; NAVFACWASH, 2009a).

NRC Solomons is the largest outdoor recreation facility of its kind in the Navy, encompassing approximately 300 acres (1.2 km²) with approximately 1,200,000 square feet (sf) (111,500 m²) of camping and other outdoor lodging, 800,000 sf (74,300 m²) of indoor and outdoor recreation facilities and other improvements, 150,000 sf (13,900 m²) of industrial buildings and support facilities, and 42,000 sf (3,900 m²) of indoor lodging (Navy EUL Solomons, 2010).

3.2 Subject Property

The EUL Site remained undeveloped until 1926, when Point Patience Inc. began developing a summer resort neighborhood. The area remained housing until the Navy dedicated the areas as

NRC Solomons in 1971. The site continues to operate as a lodging, storage, and recreational facility for use by eligible current, retired, and reserve military personnel, DoD civilians, family members, and guests (NAVFACWASH, 2009a; NAS Patuxent River, NAVFACWASH 2009).

A portion of the EUL site is currently being used for open and secure storage space for boats and recreational vehicles. The rest of the site is open space with a basketball court, old roads, and sidewalks.

3.3 Adjacent Property

Historically, the southern portion of Calvert County was relatively undeveloped and isolated prior to the Civil War. During the late 19th century, Solomons Island served as a center for oyster processing and construction and repair of oystering vessels, while the primary industry throughout the rest of the county was tobacco farming. By the 1880s, a small community of approximately 250 residents and hundreds of fishing vessels called Solomons Island home. However, as the oyster industry began to wane in the 1920s, the economy turned to shipbuilding for recreational purposes, rather than oystering. The southern portion of Calvert County remained considerably isolated until the Governor Thomas Johnson Bridge was completed in 1978. Today, charter-boat fishing, recreational boating, and tourism are major activities in the area. The county is classified as rural; however, commercial and residential development has continued to expand in recent years (Solomons Business Association, 2010).

According to historical topographic maps and property record cards, the property adjacent to the EUL Site remained undeveloped until 1944. Development to the north of the EUL Site currently includes a retirement community (Asbury-Solomons Island) and related services (e.g., medical offices), and commercial retail property. Development to the east of the site includes residential property (e.g., Solomons Landing residential development), commercial property (e.g., Alexander Chiropractic Center, Bristol Technology, Solomon's Floor and Carpeting), and restaurants (e.g., Domino's Pizza). Land to the south and west of the EUL Site is NRC Solomons property. These facilities include recreational and camping facilities including, but not limited to, a water treatment facility, amusement center, multiple cabins, storage sheds, bath houses, and public toilets. Figure 5-1 illustrates the locations of existing adjacent facilities.

The Calvert Cliffs Nuclear Power Plant and Dominion Cove Point liquefied natural gas (LNG) facilities located approximately six miles (9.6 km) and four miles (6.4 km) northeast of NRC Solomons, respectively, are major employers and economic drivers for the region (NAVFACWASH, 2009a). In addition, the Appeal Landfill Site is located approximately three miles (4.8 km) northeast of NRC Solomons. This landfill accepts household trash, as well as bulk trash, construction and demolition debris, electronics, batteries, automotive fluids, Freon appliances, recyclables, and household hazardous waste (Calvert County, 2010).

4. ENVIRONMENTAL SETTING

4.1 Location

NRC Solomons is located at the southern tip of Calvert County, Maryland, at 38°20'N and longitude 76°27'W, approximately 70 miles (112 km) southeast of Washington, D.C. NRC Solomons occupies a peninsula on the Patuxent River in Solomons, Maryland. The installation is bounded by the Patuxent River to the west and south, and the communities of Dowell and Solomons to the north and east, respectively. Figure 1-1 presents the location of NRC Solomons, NAS Patuxent River, and the Webster Field Annex in the Washington, D.C. metropolitan area.

4.2 Climatology

NRC Solomons lies within the Humid Temperate, Semi-Continental Climate Zone. The installation's proximity to the Patuxent and Potomac Rivers, the Chesapeake Bay, and their tributaries affects the local climate. The atmospheric flow in this region is from west to east across North America, and there are four distinct seasons. Prevailing winds are from the northwest, except during the warm months, when they are more southerly. Average wind speeds are approximately nine miles per hour (mph), although winds may reach in excess of 60 mph on rare occasions. Windiest periods in this region include late winter and early spring. Additionally, other extreme weather events, such as tornadoes, hurricanes, and blizzards occur during other seasons, but are very rare.

Normal temperatures for the region are moderate, ranging from an average winter low of 29°F to an average summer high of 86°F. The annual mean precipitation for the area is approximately 43.2 inches (1.1 m), with approximately 15 inches (0.38 m) of this amount occurring as snowfall. Precipitation occurs evenly throughout the year, with slight increases occurring in July and August. In summer, precipitation occurs mostly through thunderstorms, which occur on an average of 33 days per year. Drought may occur in any season but is most likely to occur in the summer (Department of the Navy, 2002; NAVFACWASH, 2009a).

4.3 Geology

The geological deposits underlying NRC Solomons are thick, unconsolidated beds of sand, silt, clay, and gravel resulting from marine deposits. Because these formations are entirely sedimentary in nature, they are extremely vulnerable to erosion. Sediment layers are underlain by hard bedrock, which is approximately 2,500 feet (760 m) below sea level in southern Calvert County near NRC Solomons. Soil series at the installation include Coastal Beaches, Evesboro, Matapeake, Mixed Alluvial, Othello, Sassafra, Tidal Marsh, and Westphalia, as well as Gravel Pits and Man Made Land. Four of the soil series (22 percent) at the installation are classified as hydric by the USDA Natural Resources Conservation Services (NRCS). Hydric soils typically support hydrophytic vegetation and occur in wetland areas (NAVFACWASH, 2009a).

4.4 Hydrogeology

There are three principal groundwater aquifers beneath Calvert County: Piney Point-Nanjemoy Aquifer, Aquia Aquifer, and Magothy Aquifer. The Piney Point-Nanjemoy Aquifer is a major source of potable water for residential users in southern Maryland. The Aquia Aquifer is the principal source of potable and industrial water for both the installation and local public water

suppliers. Groundwater monitoring wells installed throughout the county indicate that groundwater levels have been in decline because of increased usage. The Aquia Aquifer has decreased from 25 feet (7.6 m) below ground level to 160 feet (48.7 m) below ground level in the past 60 years (Department of the Navy, 2002; NAVFACWASH, 2009a).

The elevation of the water table beneath the installation ranges from sea level along the coastal areas to approximately 80 feet (24 m) below msl in the southwestern portion of the facility (Department of the Navy, 2009a).

Several major drainage areas collect precipitation runoff from the installation. This runoff goes directly to one of three hydraulic sinks: (1) Patuxent River, (2) estuary areas, or (3) freshwater creeks and ponds and associated wetland areas. Runoff from the installation eventually flows to the Chesapeake Bay.

4.5 Topography

NRC Solomons lies in the Atlantic Coastal Plain physiographic province, which is characterized by low elevations and little topographical relief. Elevations increase across the Coastal Plain in a westward direction from sea level in the east to approximately 200 feet (60 m) above msl in the west. Elevations at NRC Solomons range from sea level along the installation's shoreline with the Patuxent River to about 30 feet (9 m) above msl in the north central area of the installation. Steep bluffs, 10 to 20 feet (3 to 6 m) in height, occur along much of the installation's shoreline (NAVFACWASH, 2009a). All other areas of the installation are relatively flat with no significant topographic relief (EDR, 2010a).

5. ENVIRONMENTAL CONDITIONS OF SUBJECT PROPERTY

This section discusses various aspects of the affected environment within the EUL Site and provides regulatory background, discussion of resources or features present, and an overview of restrictions, land use controls, and consultation requirements that may be necessary for development within this site.

It should be noted that personnel from the Public Works Office of NAS Patuxent River, including the Environmental Division, oversee and implement property and environmental programs and requirements at NRC Solomons.

A site map (Figure 5-1) was developed using GIS data retrieved from the Navy. This figure represents available GIS information for the site.

5.1 Environmental Restoration

The Environmental Restoration (ER) program at NRC Solomons was established to comply with the Federal Facility Agreement (FFA) signed on December 2000 between the Navy and the US Environmental Protection Agency (EPA) Region III. The ER program identifies, investigates, and environmentally restores sites containing hazardous substances to reduce the risk to human health and the environment. The ER program also incorporates the Munitions Response Program (MRP), which manages the environmental, health, and safety issues presented by unexploded ordnance (UXO), discarded munitions, munitions constituents (MC), and other munitions and explosives of concern (MEC) found on base.

Related to historical use, a variety of multi-site and single-site environmental investigations have been conducted at NRC Solomons to identify ER sites. Additional site investigations and remedial actions have also taken place, where appropriate.

The EUL Site

Upon review of pertinent documents, including a variety of preliminary site assessments, site investigations and other state and federal documents, it has been determined that no documented ER sites are located within the EUL Site and no additional investigations are underway or anticipated within the EUL Site (MDE, 2010c). Therefore, no environmental conditions, restrictions, or land use controls associated with the ER program would apply to the EUL Site. Documented ER sites are located adjacent to the EUL Site; however, these sites do not present contamination concerns. Please see Section 6 (Environmental Conditions of Adjacent Property) for more information.

5.2 Munitions or Explosives of Concern

The EUL Site

There are no documented MRP sites within the EUL Site, and no explosives operations (e.g., munitions storage or handling) are known to have taken place within the EUL Site. A documented MRP site is located adjacent to the EUL Site; however, the site does not present

contamination concerns. Please see Section 6 (Environmental Conditions of Adjacent Property) for more information.

If MEC is discovered during earth work at the installation, earth disturbance in the vicinity of the discovery must cease and the location and description of the item(s) must be reported immediately to the Navy Project Manager.

5.3 Tanks/Petroleum Contamination

Storage tanks are classified based on their location and referred to as aboveground storage tanks (AST) or underground storage tanks (UST). Through the Resource Conservation and Recovery Act's (RCRA) Hazardous and Solid Waste Amendments, EPA established a federal program to regulate USTs containing petroleum and hazardous chemicals to limit corrosion and structural defects and thus minimize future tank leaks. In addition, the amendments directed EPA to set operating requirements and technical standards for tank design and installation, leak detection, spill and overfill control, corrective action, and tank closure. The UST program is implemented in Maryland by the Maryland Department of the Environment (MDE) (USEPA, 2010a).

Storage tanks at NRC Solomons are used to store a variety of petroleum products to support recreational and industrial-related activities. NAS Patuxent River has an active Tank Management Plan that lists ASTs in use at NRC Solomons, identifies regulatory requirements for each storage tank, and ensures proper inspection and maintenance is performed (NAS Patuxent River, 2008). Spills and resulting soil contamination from ASTs or other sources of petroleum are documented and stored in a spill database specific to NRC Solomons. The spill database contains a complete record of spills dating back to 1995.

The EUL Site

There are no petroleum ASTs present on the EUL Site (NAVFACWASH, 2010). The 80 gallon tank contains diesel and is located along the eastern edge of the EUL Site, adjacent to the installation access gate. This tank is included in the NAS Patuxent River Tank Management Plan and is inspected, maintained and refueled accordingly. No documented leaks or spills have been reported in regards to this tank.

Historical records indicate 33 USTs were located throughout NRC Solomons. These USTs, the majority of which were unregulated heating oil tanks, were decommissioned and removed between 1991 and 1992, with the last one removed in 2000 (MDE, 2010d). The former locations of these tanks at NRC Solomons are unknown and it is possible that some of the USTs were present on the EUL Site. No releases were reported. If undocumented tanks are discovered, earth disturbance in the vicinity of the discovery must cease and the location and description of the item(s) must be reported immediately to the Navy Project Manager.

5.4 Hazardous Substances/Hazardous Waste

A hazardous substance or waste is defined by EPA as a material that exhibits a characteristic of ignitability, corrosivity, reactivity, or toxicity, or is specifically listed as a hazardous material. Several federal environmental policies list and require special handling procedures for certain hazardous substances, including the Comprehensive Environmental Response, Compensation

and Liability Act (CERCLA), Toxic Substances Control Act (TSCA), and RCRA. CERCLA, better known as the Superfund, ensures liability and clean-up of abandoned hazardous material by responsible parties provides (USEPA, 2010c). EPA controls hazardous substances through TSCA, which addresses chemical substances and mixtures whose manufacture, processing, distribution, use, or disposal may present an unreasonable risk of injury to health or the environment. RCRA is broad in its regulatory management of solid and hazardous waste, including cleanup, through corrective action, of releases of hazardous waste at RCRA-regulated facilities, such as NRC Solomons. RCRA requires cradle-to-grave management of hazardous waste through a recordkeeping system that tracks shipments of hazardous waste. Hazardous waste treatment, storage, and disposal facilities are regulated through the issuance of operating permits. EPA has delegated the enforcement of RCRA in Maryland to MDE.

Hazardous waste generation and storage at NRC Solomons is restricted to the industrial area of the installation. On-site accumulation times for hazardous waste at NRC Solomons are restricted by the applicable time frames referenced in 40 CFR 262.34 and other applicable Maryland laws or regulations. Non-explosive hazardous waste is transported to an approved, off-site hazardous waste treatment, storage, or disposal facility in accordance with Department of Transportation regulations. The hauling and disposal of demolition debris, including hazardous wastes containing lead, asbestos, and air conditioner refrigerant, is performed in compliance with local, state, and federal codes and requirements.

NRC Solomons is classified as a Large Quantity Generator (LQG) of hazardous wastes (Olson, 2010b). There are three satellite accumulation areas (SAAs) for hazardous waste at NRC Solomons in the industrial area. Pursuant to 40 CFR 262.34(c)(1), these areas may accumulate as much as 55 gallons (208 liters) of hazardous waste or one quart (0.9 liters) of acutely hazardous waste. Once they become full, containers at these SAAs must be transferred to the one active less-than-90-day accumulation site at NRC Solomons.

The EUL Site

There are no records of hazardous waste storage or contamination at the EUL Site (Olson, 2010a). Therefore, no environmental conditions, restrictions, or land use controls associated with hazardous waste would apply to the EUL Site.

5.5 Solid/Bio-Hazardous Waste

Solid waste is any garbage, refuse, sludge, or other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, agricultural, or community activities. Bio-hazardous waste, or medical waste, is defined as all waste generated at health care facilities, such as hospitals, clinics, physician's offices, dental practices, blood banks, and veterinary hospitals/clinics, as well as medical research facilities and laboratories. Solid and bio-hazardous waste generators, transporters, destruction facilities, and disposal facilities are subject to RCRA and applicable state and local regulations that prohibit disposing of solid waste in open dumps and require bio-hazardous waste to be treated and disposed of safely (USEPA, 2010b).

The EUL Site

The EUL Site has not been associated with the generation, handling, or storage of bio-hazardous waste. There are several dumpsters located throughout the site to collect solid waste from visitors; however, there is no known contamination as a result of these dumpsters (Olson, 2010a). Therefore, no environmental conditions, restrictions, or land use controls associated with solid and bio-hazardous waste would apply to the EUL Site.

5.6 Polychlorinated Biphenyls

TSCA authorizes EPA to secure information on all new and existing chemical substances and to control substances that could cause an unreasonable risk to public health or the environment. PCBs are regulated under Title I, Control of Toxic Substances, which includes provisions for testing chemical substances and mixtures, manufacturing and processing notices, regulating hazardous chemicals substances and mixtures, managing imminent hazards, and reporting and retaining information.

The EUL Site

PCBs were originally used at NRC Solomons in transformers located throughout the installation. However, transformers containing PCBs were retrofitted or replaced in the 1970s and 1980s. No PCB program or reports have been developed due to the overall low risk of PCB equipment and exposure (Ichniowski, 2010a). As a result, no environmental conditions, restrictions, or land use controls associated with PCBs would apply to the EUL Site.

5.7 Asbestos-Containing Material

Asbestos abatement is regulated under TSCA Title II, Asbestos Hazard Emergency Response, which was added by the Asbestos Hazard Emergency Response Act (AHERA). AHERA provides for the promulgation of federal regulations requiring inspection for asbestos and appropriate response actions in schools and mandates periodic re-inspection. In addition, it requires EPA Administrators to determine "the extent of the danger to human health posed by asbestos in public and commercial buildings and the means to respond to any such danger" (Department of the Navy, 2009b).

Most of the buildings at NRC Solomons were built before health concerns related to asbestos-containing material (ACM) arose and regulations were implemented. Due to the likelihood that ACM remains present in many buildings, it should be assumed that buildings subject to renovation or demolition contain ACM unless a survey demonstrates otherwise.

EUL Site

There are no structures within the EUL site; therefore, the presence of ACM is not expected.

5.8 Lead-Based Paint

The use of toxic lead-based paint (LBP) was banned in 1977 by the Consumer Product Safety Commission. MDE has established the Lead Poisoning Prevention Program to enhance citizen safety and prevent exposure to LBP (MDE, 2010b).

Before it was removed from the market, LBP was commonly used on the exterior and interior walls during the renovation or construction of buildings at NRC Solomons. Many of these buildings remain today. Due to the age of many buildings at NRC Solomons and lack of LBP mitigation or clean-up efforts, it is suspected that buildings built before 1978 contain LBP unless documentation demonstrates otherwise.

EUL Site

There are no structures within the EUL site; therefore, the presence of LBP is not expected.

5.9 Pesticides and Herbicides

Pest management strategies for NRC Solomons are documented in the NAS Patuxent River Integrated Pest Management Plan (IPMP). The IPMP is a long-range planning and operational tool that establishes the strategy and methods for conducting a safe, effective, and environmentally sound integrated pest management program. The IPMP covers pest management and pesticide-related activities conducted within areas of the installation. The IPMP was developed in accordance with Navy guidance (e.g., OPNAVINST 6250.4) and applicable laws and regulations, including Executive Order (EO) 13112 (Invasive Species), the Noxious Weed Act of 1974, and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FIFRA provides the basis for regulation, sale, distribution and use of pesticides in the US, and addresses applicator certification requirements, record keeping, and penalties for pesticide misuse (NAVFAC, Atlantic Division, 2009a). An invasive species survey conducted in 2007 identified more than 30 invasive, non-native plant species that occur at NRC Solomons. Approximately 15 of these species have been recommended for control (NAVFACWASH, 2009a).

EUL Site

No pesticide or herbicide treatments have been applied for targeted invasive species control at the EUL Site (Smith, 2010c; NAVFACWASH, 2009a). Known pesticide and herbicide applications associated with general landscaping comply with NAS Patuxent River's IPMP, which ensures safe, environmentally sound, and cost effective control of pests. Therefore, no environmental conditions, restrictions, or land use controls associated with pesticide and herbicide contamination would apply to the EUL Site.

5.10 Radon/Radiological Material

Indoor radon concentrations are regulated under TSCA Title III (Indoor Radon Abatement). In response, the Navy established the Radon Assessment and Mitigation Program (NAVRAMP), which identifies, assesses, and mitigates the infiltration of radon into existing Navy-occupied buildings and incorporates preventive practices in the design and construction of new buildings.

EUL Site

Calvert County is classified as Zone 3 by the EPA, indicating the highest potential for elevated indoor radon levels. However, an installation-wide survey of radon levels was completed in the 1970s and 1980s and the survey found no radon levels of concern; therefore, no radon program is established at the installation (Ichniowski, 2010a). Therefore, no environmental conditions,

restrictions, or land use controls associated with elevated radon levels would apply to the EUL Site.

5.11 Water Quality

5.11.1 *Surface Water*

Important aquatic resources at or near NRC Solomons include the Patuxent River, Chesapeake Bay, and two coves referred to as Second Cove, and Third Cove. These open water areas support a variety of fish and wildlife resources. Second Cove is a recreational marina (Point Patience Marina) and Third Cove is a harbor for the installation's industrial complex. Additional surface waters include an unnamed stream and tidal creek that flow into Second Cove.

NRC Solomons shares a boundary with the Patuxent River, which flows directly to the Chesapeake Bay. The Patuxent River is one of the rivers initially designated as part of the Maryland State Wild and Scenic Rivers Program. In addition, while no Maryland river is on the National Wild and Scenic Rivers System, Patuxent River is listed in the Nationwide Rivers Inventory as having the significant resource values required for potential inclusion. The Chesapeake Bay, with its associated salt marshes, is the largest estuary in North America and one of the most productive in the world. Its bounty of finfish, shellfish, crabs, and waterfowl is world-renowned (Department of the Navy, 2002).

EUL Site

There are no surface waters at the EUL Site (Department of the Navy, 2002).

Stormwater

Stormwater is generated when precipitation runs off from land and impervious areas such as paved streets, parking lots, and building rooftops. Stormwater runoff can collect pollutants such as oil and grease, chemicals, nutrients, metals, and bacteria as it travels across land, and it also causes soil erosion when traveling at velocities sufficient to carry sediment particles. The Clean Water Act (CWA) regulates both direct and indirect discharges of "priority" pollutants that are often conveyed by stormwater, such as total suspended solids, fecal coliform, and oil and grease. Stormwater is typically managed using structural or nonstructural Best Management Practices (BMPs). Structural BMPs include control systems such as infiltration devices, ponds, filters and constructed wetlands, while nonstructural BMPs include low impact development (LID) practices and management measures (USEPA, 2004).

EUL Site

Stormwater runoff from the central portion of NRC Solomons enters a small stream that flows southward into an unnamed tidal creek, then into Second Cove, and eventually the Patuxent River. An additional swale may also retain and convey stormwater runoff after significant rainfall events (NAVFACWASH, 2009a). At the EUL Site, stormwater flows across impervious surfaces and vegetated areas toward the site boundaries, which include the shoreline of the Patuxent River. New development within the EUL Site must be designed and executed in accordance with applicable requirements of the following standards and regulations to ensure that stormwater impacts are minimized. Pursuant to the Energy Independence and Security Act

(EISA) of 2007, development with a footprint greater than 5,000 sf (465 m²) must maintain or restore to the maximum extent practicable pre-development hydrology with respect to temperature, rate, volume, and duration of flow (U.S. Congress, 2007). Pursuant to the Navy's LID policy, the Navy sets a goal of no net increase in stormwater volume and sediment or nutrient loading from construction projects (Department of the Navy, 2007). Pursuant to Maryland's Stormwater Management Act of 2007, development with a footprint greater than 5,000 sf (465 m²) must implement environmental site design (ESD), to the maximum extent practicable (MEP) in accordance with Section 4.0 Stormwater Management Criteria of the 2000 Maryland Stormwater Design Manual. Additionally, re-development with a footprint greater than 5,000 sf (465 m²) must implement ESD to the MEP to provide water quality treatment for a minimum of 50 percent of the existing impervious area within the limits of disturbance. For additional information, please reference the 2000 Maryland Stormwater Design Manual (MDE, 2009; MDE, 2010a). Groundwater

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires the protection of drinking water and its sources – rivers, lakes, reservoirs, springs, and groundwater wells. SDWA authorizes the US EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water (USEPA, 2010e).

The drinking water at NRC Solomons is pumped from the Aquia aquifer, the primary groundwater source below Calvert County. Water quality in the Aquia aquifer is acceptable; however, arsenic concentrations in some areas of southern Maryland exceed the US EPA Maximum Contaminant Level for public water supplies. Therefore, water-supply managers in Calvert and St. Mary's counties are seeking to shift some groundwater usage from the Aquia aquifer to deeper aquifers. This shift should also reduce stress on declining water-levels the Aquia aquifer (NAVFACWASH, 2009a). The drinking water at NRC Solomons was analyzed for arsenic in October 2009 and was well below the US EPA Maximum Contaminant Level.

EUL Site

There are no operational groundwater monitoring wells present within the EUL Site; therefore, there is no current site-specific information on the groundwater quality.

5.12 Natural Resources

5.12.1 *Flora*

A comprehensive flora survey has not been conducted at NRC Solomons; however, through previous forest surveys in 2003, an invasive species survey in 2007, and observations made during field reconnaissance in 2009, more than 70 plant species have been identified at the installation. As a result of development and associated landscaping efforts at NRC Solomons, 30 of the plant species found at the installation are invasive and/or non-native (NAVFACWASH, 2009a).

A majority of the land cover at NRC Solomons is dominated by mowed lawns and ornamental trees and shrubs, while native vegetative communities are limited. Natural areas include mixed shrub/woodlands, forested wetlands, and pine stands in the center and southeast portions of the

installation, respectively. Grasses, forbs, and herbaceous species occur along the nature trail and throughout the installation as well (NAVFACWASH, 2009a).

EUL Site

Flora within the EUL Site includes mowed lawns, ornamental trees and shrubs, and some native vegetation. (Smith, 2010a).

5.12.2 Submerged Aquatic Vegetation

Submerged aquatic vegetation (SAV) is a classification of vascular plants that are submerged in water for a majority or all of the plant's life cycle. Many species of SAV have extensive root structures that allow the plants to remain anchored to each other and to the sediment despite the current and tidal action of a water body. This root structure promotes the creation of dense mats or meadows of SAV within the shallow waters of a water body. Like terrestrial plants, SAV depends upon sunlight and nutrients to survive; therefore, water depth and clarity as well as sediment and water nutrient concentrations are primary factors that determine SAV distribution and density. Other factors include salinity, wave action, competition with other plant species, such as algae, and the density of herbivores, such as fish, waterfowl, and marine mammals. SAV serves many important ecological roles including water quality improvement, serving as spawning grounds and nurseries for fish and benthic species, and decreasing shoreline erosion rates by stabilizing shoreline sediments and inhibiting wave action (MDNR, 2008).

EUL Site

Widgeon Grass (*Ruppia Spp.*) was planted on the southwestern shore of NRC Solomons in April 2000 as part of a shoreline stabilization project (Smith, 2010b). However, there are no documented SAV beds at NRC Solomons, according to recent SAV surveys performed by the Virginia Institute of Marine Science (VIMS) in 2009 (VIMS, 2010). Due to its proximity to the Patuxent River, development of the EUL Site may have the potential to impact downstream SAV beds. However, impacts to SAV should be minimized through adherence to state erosion and sediment control and stormwater management regulations. Any projects with the potential to affect SAV or other resources of the coastal zone would require submission of a Coastal Zone Consistency Determination to MDE's Wetlands and Waterways Program. Please reference Section 5.12.5 (Coastal Zone) for further discussion of the coastal zone.

5.12.3 Wetlands

The United States Army Corps of Engineers (USACE) and EPA define jurisdictional wetlands as areas that are inundated or saturated by surface water or groundwater frequently and long enough to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands provide important plant and wildlife habitat and serve as buffers and filters essential for maintaining the water quality of nearby surface waters.

The wetlands at NRC Solomons are protected by Section 404 of the CWA, EO 11990 (Wetland Protection), and applicable state regulations, including the Maryland Nontidal Wetlands Protection Act, Maryland Tidal Wetlands Act, and the Waterway and 100-Year Floodplain Construction Regulations. Section 404 of the CWA prohibits the discharge of dredged or fill

material into wetlands or other waters of the United States if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's water would be significantly degraded. Regulated activities are controlled by a permit review process administered by the USACE (USEPA, 2010d).

EO 11990 was implemented in 1977 to protect wetlands and their associated ecosystem services. This EO directs each federal agency to avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds that 1) there is no practicable alternative to such construction, and 2) all practicable measures will be taken to minimize impacts to the wetlands. In addition, the Navy has a “no net loss” policy requiring the replacement of wetlands destroyed or eliminated through a project.

To protect jurisdictional wetlands, MDE requires maintaining an area surrounding a wetland called a buffer. Activities that may disturb or occur within a non-tidal or tidal wetland or surrounding buffer are regulated under COMAR 26.23 and COMAR 26.24, respectively. According to COMAR 26.23.01, a buffer is a regulated area that extends 25 feet (7.6 m) from the outer edge of a non-tidal wetland. MDE requires the action proponent to obtain a Non-tidal Wetlands and Waterways Permit for activity that alters a non-tidal wetland or its 25-foot (7.6-m) buffer.

The Chesapeake Bay Critical Area Commission requires maintaining a 100-foot (30.4-m) buffer around tidal wetlands and streams to improve runoff water quality and reduce the amounts of toxic substances entering tidal waters (MDNR, 2010). The Navy maintains these areas at NRC Solomons by avoiding removal of trees within 100-foot (30.4-m) riparian buffers wherever possible (Department of the Navy, 2002).

Wetlands at NRC Solomons were delineated by the US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) based on aerial imagery from 1981 and 1982 (NAVFACWASH, 2009a). This technique produced a wetland delineation that was conservative and probably included some upland areas. These delineations were not flagged or surveyed in the field; therefore, they should be considered rough estimates. Through this technique, approximately 16 acres of wetlands were identified at NRC Solomons (NAVFACWASH, 2009a).

EUL Site

There are no wetlands within the EUL site boundary.

5.12.4 Floodplains

A floodplain is the area along or adjacent to a stream or a body of water that is capable of storing or conveying floodwaters. Floodplains perform important natural functions, including moderating peak flows, maintaining water quality, recharging groundwater, and preventing erosion. In addition, floodplains provide wildlife habitat, recreational opportunities, and aesthetic benefits. To protect floodplains and minimize future flood damage, EO 11988 Floodplain Management restricts development within the 100-year floodplain. A 100-year floodplain is defined as an area that is subject to a one-percent or greater chance of flooding in any given year. Under EO 11988, all federal agencies must 1) determine if their actions would occur within a floodplain, 2) evaluate the potential effects of these actions, and 3) analyze alternatives to these

actions. The 100-year floodplain at NRC Solomons is approximately 10 feet above msl and is typically located next to major waterways.

EUL Site

The EUL Site is not within the 100-year floodplains.

Coastal Zone

Maryland's Coastal Zone Management (CZM) Program was created in response to the passage of the Federal Coastal Zone Management Act of 1972. The goal of this program is to "preserve, protect, develop and, where possible, restore our coastal resources." Maryland's CZM Program was created in 1978 and is a network of state laws and policies designed to protect coastal and marine resources. Maryland's coastal zone includes 3,190 miles (5,130 km) of coast in 16 counties and Baltimore City (MDNR, 2002). This area includes the Chesapeake Bay, coastal bays, and the Atlantic Ocean, as well as the towns, cities, and counties that have jurisdiction over the coastline. Maryland's coastal zone encompasses two thirds of the state's land area and is home to greater than 65 percent of the state's residents (MDNR, 2002). Federally controlled lands are excluded from the coastal zone per 16 U.S.C. 1453, Section 304, Paragraph (1). However, the Coastal Zone Management Act requires all federal activities that could affect land, water, or natural resources of the coastal zone to be consistent to the maximum extent practicable with the enforceable policies of the approved state CZM Program. That is, even if the action occurs on federal land (excluded from the coastal zone), the action must be consistent to the maximum extent practicable with the state CZM Program if it affects coastal resources.

EUL Site

The EUL Site could potentially affect the lands, waters, and natural resources of the coastal zone, regulated by Maryland's CZM Program. Potential impacts (e.g., wastewater discharges, air emissions, noise, etc.) would require consultation with the MDE Wetlands and Waterways Program and submission of a Coastal Zone Consistency Determination. Department of the Navy, 2002; Smith, 2010a).

5.12.5 Essential Fish Habitat

Fish and invertebrate species and their habitat are regulated and protected by several federal laws. The most notable of the federal laws is the Fishery Conservation and Management Act of 1976, which was reauthorized and amended by the Sustainable Fisheries Act in 1996 and is now popularly designated as the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). These acts mandated habitat conservation for federally managed fish species via the conservation tool known as essential fish habitat (EFH). The EFH mandate required that regional fishery management councils, through Federal Fishery Management Plans, describe and identify EFH for each federally managed species, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitats. EFH is defined by Congress for managed species as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802[10]).

The National Oceanic and Atmospheric Administration (NOAA) Fisheries Service has surveyed major bodies of water in the mid-Atlantic coast and identified EFH. In the Patuxent River and Chesapeake Bay near NRC Solomons, EFH has been designated for the following species:

- Clearnose Skate (*Raja eglanteria*);
- Little Skate (*Leucoraga erinacea*);
- Winter Skate (*Leucoraja ocellata*);
- Windowpane Flounder (*Scophthalmus aquosus*);
- Summer Flounder (*Scophthalmus dentatus*);
- Bluefish (*Pomatomus saltatrix*);
- King Mackerel (*Scomberomorus cavalla*);
- Spanish Mackerel (*Scomberomrus maculatus*);
- Cobia (*Rachycentron canadum*); and
- Red Drum (*Sciaenops ocellatus*).

EUL Site

Due to its proximity to the Patuxent River, development of the EUL Site may have the potential to impact EFH (e.g., wastewater discharges). Potential impacts would require consultation with the US Department of Commerce and NOAA Fisheries Service on activities that may adversely affect EFH, in accordance with MSFCMA and the Department of Commerce’s EFH consultation regulations (FHA, 2004; Smith, 2010a).

5.12.6 Rare, Threatened or Endangered Species

The Endangered Species Act of 1973 (ESA) protects federally-listed threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Under this law, no Federal action is allowed to jeopardize the continued existence of an endangered or threatened species. ESA also requires consultation with the United States Fish and Wildlife Service (USFWS) and the NOAA Fisheries Service, and the preparation of a biological assessment when such species are present in an area that is affected by government activities (USFWS, 2010).

A survey for rare, threatened, and endangered (RT&E) species was conducted at NRC Solomons in 2007. The study determined that there are no federally-listed RT&E species; however, the following state-listed species were observed:

- Royal Tern (*Thalasseus maximus*) – endangered bird;
- White Spikerush (*Eleocharis albida*) – threatened plant; and
- Showy Goldenrod (*Solidago speciosa*) – threatened plant.

EUL Site

There are no federally- or state-listed RT&E species within the EUL Site. Therefore, no environmental conditions, restrictions, or land use controls associated with RT&E species would apply to the EUL Site (Smith, 2010c).

5.13 Cultural Resources

The National Historic Preservation Act of 1966 (NHPA), enacted under 16 United States Code (U.S.C.) 470, provides for the National Register of Historic Places (the Register), defines National Historic Landmarks, provides for the designation of a State Historic Preservation Officer (SHPO), and establishes the Advisory Council on Historic Preservation (ACHP). The Register lists sites, districts, buildings, structures, and objects of significance in American history, architecture, archeology, engineering, and culture. These resources may be of local, State, or national significance. Section 106 of the NHPA requires federal agencies to consider the effects of undertakings (i.e., actions) on any resource that is included or eligible for inclusion in the Register, and to afford the ACHP a reasonable opportunity to comment on such undertakings. In Maryland, the Maryland Historical Trust (a division of the Maryland Department of Planning) serves as the SHPO and also participates in Section 106 consultations. Pursuant to OPNAVINST 5090.1C, Chapter 5-5, an Environmental Assessment must be prepared for any proposed action that would have an adverse effect on resources listed or determined to be eligible for listing in the Register.

Section 110 of the NHPA requires federal agencies to establish a preservation program for the identification, evaluation, nomination (for the Register), and protection of historic properties. To this end, the Navy performs surveys and investigations to identify historic properties under its jurisdiction.

5.13.1 Historic Architectural Resources

An architectural and historic landscape evaluation of NRC Solomons was performed in October 2009 (NAVFACWASH, 2009c; NAVFACWASH, 2009b; NAVFACWASH, 2010). The surveys identified architectural resources and determined if resources were eligible for listing on the Register.

The EUL Site

There are no structures on the EUL site. There will be no effects or impacts to the Navy's historic architectural resources.

5.13.2 Archeological Resources

Archeological resources are material remains of past life or activities (Reinke & Swartz, 1999). Some examples of archeological resources include pottery, basketry, bottles, weapons, tools, rock paintings, rock carvings, and gravesites.

The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), enacted under 25 U.S.C. 3001, prohibits the intentional removal of certain types of Native American cultural items from Federal or tribal lands. Removal of cultural items may be permitted under an Archeological Resource Protection Act (ARPA) permit, which includes authorization and a written agreement between the federal agency and an appropriate repository that will house and curate the collection recovered from the project, and in consultation with the appropriate Native American groups (USDI, 2010). NAGPRA provides for the return of burial remains, associated funerary objects, sacred objects, and objects of cultural patrimony to the appropriate tribes. It

established Native American ownership of human remains and associated artifacts discovered on Federal lands after the date of enactment (USDI, 2010).

EUL Site

A comprehensive archaeological Phase I survey was conducted in 1996 of the NRC Solomons facility and the EUL area was included in that survey. There are no known archaeological sites or other extant cultural resources in the EUL site.

Artifacts found during construction must be brought to the attention of the Navy and are property of the Navy.

5.14 Air Quality

Air quality is regulated under the authority of Title I, Part A, Section 109 of the Clean Air Act (CAA). EPA has established health-based National Ambient Air Quality Standards (NAAQS) for the criteria pollutants carbon monoxide, nitrogen dioxide, ozone, particulate matter, lead, and sulfur dioxide. To monitor and meet the NAAQS, the CAA divides the United States into geographic areas called “air quality control regions” (AQCRs). An AQCR in which levels of a criteria air pollutant meet the health-based NAAQS is defined as an *attainment* area for the pollutant, while an area that does not meet the NAAQS is designated a *nonattainment* area for the pollutant. An area that was once designated a nonattainment area but was later reclassified as an attainment area is known as a *maintenance* area. An area may have an acceptable level for one criteria air pollutant but may have unacceptable levels for other criteria air pollutants. Thus, an area could be attainment, maintenance, and nonattainment at the same time for different pollutants. Nonattainment AQCRs are responsible for submitting a State Implementation Plan (SIP), which specifies the manner in which NAAQS will be achieved and maintained.

In addition to NAAQS requirements, federal agencies must obtain permits to operate equipment that generates air emissions. The CAA also requires that federal agencies comply with state and local air quality requirements in the same manner as a non-governmental entity (NAS Patuxent River, 2010).

NRC Solomons is located in Calvert County, MD, which is classified as an attainment area for carbon monoxide, nitrogen dioxide, particulate matter, lead, and sulfur dioxide and a moderate nonattainment area for ozone (8-hour). Federal actions located in nonattainment areas are required to demonstrate compliance with the General Conformity Rule (GCR) established under Section 176 of the CAA and codified in 40 CFR Part 93. The GCR ensures that federal actions will conform to the SIP and not delay progress in reaching attainment levels (USEPA, 2010f). Actions at NRC Solomons whose emissions would exceed *de minimis* levels for GCR applicability would require preparation of a conformity determination to ensure compliance with the GCR. *De minimis* levels are emission rates specified in 40 CFR 93.153(b). In moderate nonattainment areas for 8-hour ozone, *de minimis* levels are 50 tons per year of VOC and 100 tons per year of NO_x.

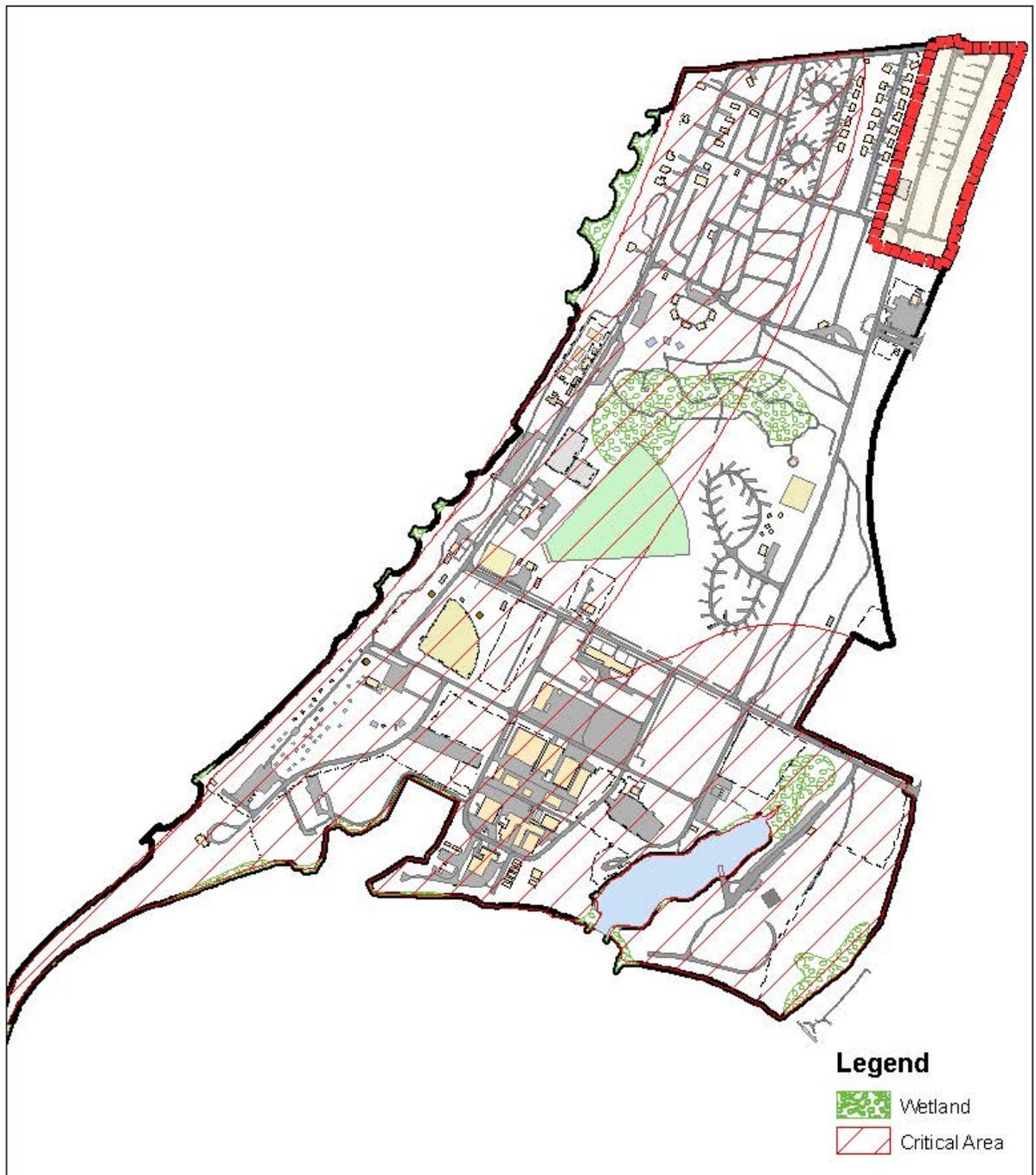
EUL Site

The EUL Site has no equipment that generates emissions, and therefore, no individual air permits are currently associated with the site.

Development of the EUL Site would result in the emission of ozone precursors—specifically, nitrogen oxides (NO_x) and volatile organic compounds (VOCs)—from construction equipment, generators, and other fuel-burning sources. Emissions are expected to be below GCR *de minimis* levels for the type of development anticipated at the EUL Site, which would not require a conformity determination. However, coordination with NAS Patuxent River Environmental Office personnel will be necessary to prepare the Record of Non-Applicability (RONA) documentation for the development (Ichniowski, 2010b). New emission units constructed within the EUL Site may require a Permit to Construct (PTC).

5.15 Notices of Violation*EUL Site*

There are no documented Notices of Violations (NOVs) other than those pertaining to administrative concerns at the EUL Site. As a result, no environmental conditions, restrictions, or land use controls associated with NOVs would apply to the EUL Site.



**NAVAL RECREATION CENTER
SOLOMONS**

POTENTIAL EUL SITE
05 JUNE 2014

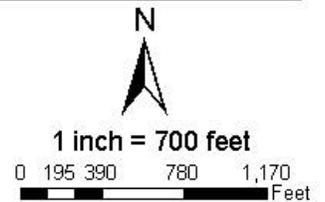


Figure 5-1. Site Conditions – The EUL Site

6. ENVIRONMENTAL CONDITIONS OF ADJACENT PROPERTY

This ECP study evaluated the adjacent property with respect to environmental considerations that are discussed in Section 5 (Environmental Conditions of Subject Property). This section presents only those adjacent property findings that could potentially affect development or use of the EUL Site.

The southern adjoining property of the EUL Site is within the boundaries of NRC Solomons. The eastern and northern adjoining properties are privately owned and developed. See Figure 5-1 for the site boundaries).

Environmental Restoration

There are two ER sites found adjacent to the EUL Site. Past site assessments have concluded that both sites do not pose a threat to human health and the environment and do not present contamination concerns within the EUL Site. Details for each site are described below.

Cabin Disposal Area

The Cabin Disposal Area is located south of the EUL Site, across Fox Avenue. The Cabin Disposal Area is bounded by Patuxent Drive to the west, Fox Avenue to the north, a grassy field to the east, and upland vegetation to the far south. An installation-wide Preliminary Assessment (PA) of environmental contamination prepared in 1990 did not identify areas of environmental concern related to the Cabin Disposal Area; however, subsequent interviews with former base employees and review of historical photographs suggest waste may have been buried under and around the rental cabins that currently occupy the site (Department of the Navy, 2003a). Waste was reported to include mine and torpedo casings, batteries, and paint cans. An Expanded Site Investigation (ESI) was completed in 1998, which included sampling of surface soil, subsurface soil, groundwater, surface water and sediment. The ESI concluded that construction debris exists within the Cabin Disposal Area; however, it is non-hazardous and not contaminating the site. This conclusion is supported by MDE.

Suspected Landfill Site

The Suspected Landfill Site is located south of the EUL Site, along the shoreline of the Patuxent River between the pool complex to the north and the intersection of Patuxent Drive and A Avenue to the south. A visual inspection of the site in 1991 revealed refuse and debris protruding from the bluff and onto the beach, suggesting the site may have been used previously as a landfill. To further investigate, a site inspection was conducted in the suspected area that included drilling 15-foot (4.5-m) test borings. The inspection revealed no evidence that the site was used previously as a landfill and concluded that the debris protruding from the bluffs was likely emplaced intentionally for erosion control purposes (Department of the Navy, 2003b). This conclusion is supported by MDE (MDE, 2003b).

Munitions or Explosives of Concern

East Land Range No. 1

One MRP site is located adjacent to the EUL Site. East Land Range No. 1 was once used for Research, Development, Testing and Evaluation (RDT&E) including measuring trajectories, altitudes, and actuations of small quantities of anti-boat and anti-personnel weapons between 1968 and 1980. The former range is located south of the EUL Site at the corner of Overflow Road and A Avenue and stretches north approximately 1,500 feet (450 m) towards upland vegetation. It measures approximately 8 acres (32,000 m²) in size and is currently used for recreational purposes including a golf driving range. Due to the historical uses around the range, including a cemetery, warehouses and several personnel buildings, the types of ordnance used at the range are expected to have been limited to either inert or practice items. This assumption coincides with the purpose of the range, which was for gathering ballistics data (e.g., trajectories, altitudes, and impact points) but not effectiveness data (e.g., blast and pressure measurements). A site clearing, surface debris removal action and geophysical survey were conducted at the East Land Range No. 1 in 2006. No MEC was identified during the survey (NAVFACWASH, 2006; NAVFACWASH, 2007). In 2008, MDE’s Hazardous Waste Program supported the Navy’s recommendation that no further action is necessary for East Land Range No. 1 (MDE, 2008).

This MRP site does not present contamination concerns within the EUL Site.

Tanks/Petroleum Contamination

There are five tanks located adjacent to the EUL Site (NAVFACWASH, 2010). Four out of the five tanks are ASTs and located south of the EUL Site within NRC Solomons. The fifth tank is a UST located north of the EUL Site outside of the NRC Solomons property boundary in the Asbury-Solomons Island Community (MDE, 2010e). No documented leaks or spills have been reported in regards to these tanks. Details for each tank are provided in Table 6-1 below.

Table 6-1. Adjacent Tanks to the EUL Site

Tank #	Size (ga)	Contents	Location
N/A	6,000	Heating Oil	Asbury-Solomons Island Community
N/A	N/A	Propane	Adjacent to Building 330 – NRC Solomons
S6041-A	275	#2 Fuel Oil	Inside Building 41 – NRC Solomons
S6041-B	275	#2 Fuel Oil	Inside Building 41 – NRC Solomons
S412-1	500	#2 Fuel Oil	Adjacent to Building 412 – NRC Solomons

Hazardous Substances/Hazardous Waste

Building 373 (MWR Bath House), located approximately 500 feet (152 meters) south of the EUL Site, stores several hazardous chemical materials for the operation and maintenance of the pool. Hazardous chemical materials are stored in a secured closet and include the following: soda ash, calcium chloride, High Test Hypochlorite (HTH), Clear Blue, Algaecide, and Chlor Sticks. Materials are properly stored and pose a minimal threat for potential contamination (Olson, 2010a).

Submerged Aquatic Vegetation

According to surveys performed by VIMS in 2009, documented SAV beds are present in the Patuxent River approximately 1.4 miles (2.3 km) southeast of southern shoreline of NRC Solomons. Due to its proximity to the Patuxent River, development of the EUL Site may have the potential to impact downstream SAV beds. However, impacts to SAV should be minimized through adherence to state erosion and sediment control and stormwater management regulations. As discussed in Section 5.12.2 (Submerged Aquatic Vegetation), any projects with the potential to affect SAV or other resources of the coastal zone would require submission of a Coastal Zone Consistency Determination to MDE's Wetlands and Waterways Program.

7. CONCLUSIONS

Findings of this ECP report for the EUL Site and its adjacent properties are based on an extensive record search of available documents, a thorough review of the applicable and relevant documents, analysis of the installations, a visual survey conducted on June 1, 2010 and July 13, 2010, and on-site interviews with personnel knowledgeable about the history of the EUL Site. Findings related to the areas of environmental considerations that were evaluated during the ECP study include the following:

- Environmental Restoration – No documented ER sites are located within the EUL Site and no additional investigations are underway or anticipated within the EUL Site. There are two ER sites found adjacent to the EUL Site; however, these sites do not present contamination concerns within the EUL Site.
- Munitions or Explosives of Concern – There are no documented MRP sites within the EUL Site, and no explosives operations (e.g., munitions storage or handling) are known to have taken place within the EUL Site. One MRP site is located adjacent to the EUL Site; however, it does not present contamination concerns within the EUL Site. In 2008, MDE’s Hazardous Waste Program supported the Navy’s recommendation that no further action is necessary for East Land Range No. 1.
- Tanks/Petroleum Contamination – No documented leaks or spills have been reported in regards to the petroleum and propane storage tanks located within the EUL Site. Historical records indicated that 33 USTs were located throughout NRC Solomons. The former locations of these tanks at NRC Solomons are unknown and it is assumed that some of the USTs were present on the EUL Site. If undocumented tanks are discovered, earth disturbance in the vicinity of the discovery must cease and the location and description of the item(s) must be reported immediately to the Navy Project Manager.
- Hazardous Substances/Waste Management – There are no records of hazardous waste storage or contamination at the EUL Site. Building 373 (MWR Bath House), located approximately 500 feet (150 meters) south of the EUL Site, stores several hazardous chemical materials for the operation and maintenance of the pool. Materials are properly stored and pose a minimal threat for potential contamination.
- Solid/Bio-hazardous Waste – The EUL Site has not been associated with the generation, handling, or storage of bio-hazardous waste. There are several dumpsters located throughout the site to collect solid waste from visitors; however, there is no documented contamination associated with these dumpsters.
- Polychlorinated Biphenyls – Transformers containing PCBs were retrofitted or replaced in the 1970s and 1980s. No PCB program or reports have been developed due to the overall low risk of PCB equipment and exposure.
- Asbestos-Containing Materials – There are no structures within the EUL site. There is no ACM suspected on the EUL site.

- Lead-based Paint – There are no structures within the EUL site. There is no LBP suspected on the EUL site.
- Pesticides and Herbicides – Pesticide and herbicide treatment associated with landscaping maintenance has been performed in accordance with the IPMP and does not present contamination concerns within the EUL Site.
- Radon/Radiological Material – An installation-wide survey of radon levels was completed in the 1970's and 1980's. The survey found no radon levels of concern.
- Surface Water – There are no surface waters within the EUL Site.
- Stormwater – New development within the EUL Site must be designed and executed in accordance with applicable requirements of the following standards and regulations to ensure that stormwater impacts are minimized: Section 438 of EISA, Navy's LID policy, and Maryland's Stormwater Management Act of 2007.
- Groundwater – No current site-specific information is available on the groundwater quality within the EUL Site.
- Flora – Flora within the EUL Site includes mowed lawns, ornamental trees and shrubs, and native vegetation.
- Submerged Aquatic Vegetation – There are no SAV beds within the EUL Site. SAV beds are present in the Patuxent River southeast of NRC Solomons. Any projects with the potential to affect SAV or other resources of the coastal zone would require submission of a Coastal Zone Consistency Determination to MDE's Wetlands and Waterways Program.
- Wetlands – There are no wetlands located within the EUL site.
- Floodplains – The 100-year floodplains do not occur within the EUL site.
- Coastal Zone – Development of the EUL Site could potentially affect the lands, waters, and natural resources of the coastal zone, regulated by Maryland's CZM Program. Potential impacts would require submission of a Coastal Zone Consistency Determination to MDE's Wetlands and Waterways Program. In addition, the CZM Program establishes a threshold of 25% of land area for allowable development of impervious surfaces before mitigation is required for grandfathered lots.
- Essential Fish Habitat – Development of the EUL Site may have the potential to impact EFH in the Patuxent River. Potential impacts would require consultation with the US Department of Commerce and NOAA Fisheries Service.
- Rare, Threatened or Endangered Species – There are no documented state- or federally-listed RT&E species within the EUL Site.
- Historic Architectural Resources – No eligible historic buildings or landscapes have been identified within the EUL Site.

- Archeological Resources –The EUL Site contains no archeological sites.
- Air Quality – The EUL Site has no equipment that generates emissions, and therefore, no individual air permits are currently associated with the site. Emissions from the development of the EUL Site are expected to be below GCR de minimis levels.
- Notices of Violation – There are no documented NOV's at the EUL Site.

In accordance with DoD policy regarding the classification of properties that may exhibit hazardous substance or petroleum contamination (please reference Deputy Under Secretary of Defense Goodman Memorandum dated 21 October 1996), the EUL Site has been classified as Category 1. This category applies to properties where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas). Based on information gathered from relevant documents and reports, site visits, and personnel interviews, no documentation or other evidence was found of releases or disposal of hazardous substances or petroleum products at the EUL Site.

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9. CERTIFICATION

Based on records reviews, site inspections, and interviews, the environmental professional(s) certify that the environmental conditions of the property are as stated in this document and this property is suitable for outgrant.

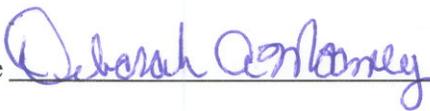
Environmental Professional:

Signature  Title ENVIRONMENTAL DIRECTOR

Print Name LANCE MCDANIEL Date 6/10/14

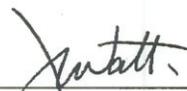
The real estate professional(s) acknowledge these restrictions and/or LUCs identified above and will ensure they are made a part of the outgrant document.

Real Estate Professional:

Signature  Title Asset Management Real Estate Product Line Coordinator

Print Name Deborah A Mooney Date 6/13/2014

Property Owner (Activity or Region) acknowledges and accepts the foregoing statement of environmental conditions and the land use controls (if any) that will be required for this real estate outgrant:

Signature  Title PUBLIC WORKS OFFICER

Print Name JAMES WATTS Date 6/9/14

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Appendix A
LIST OF CONTACTS

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List of Contacts

Contact Name	Title/Position	Email Address	Telephone Number
Erika Jiang	Community Planner	erika.jiang@navy.mil	(301) 757-4890
Gerald Burandt	Environmental Media Manager (Water)	gerald.burandt@navy.mil	(301) 342-1817
Carrie Rose	NRC Site Director	carrie.rose@navy.mil	(410) 286-8321
Gary Costanzo	Tank Compliance and Recycling Specialist	gary.costanzo@navy.mil	(301) 995-3625
Larry Donmoyer	Environmental Compliance Branch Supervisor	larry.donmoyer@navy.mil	(301) 757-2903
Denise Reichard	Drinking Water Program Manager	denise.reichard@navy.mil	(301) 757-4953
Alexis Gray	NEPA Program Manager	alexis.gray@navy.mil	(301) 757-1925
Julie Grudzinsakas	Occupational Health and Safety Manager	julie.grudzinsakas@med.navy.mil	(301) 757-0597
Steven Holmes	Entomologist	steven.p.holmes@navy.mil	(757) 322-8295
Leslie Churilla	Air Program Manager	leslie.chrilla@navy.mil	(301) 757-4930
Tim Humphreys	SE Rework Commodity Manager	arthur.humphreys@navy.mil	(410) 326-2000 ext. 2177
Bill Lowther	Engineer	william.lowther@navy.mil	(301) 757-4749
Mike Oliver	Utilities and Energy Management Branch Head	michael.oliver@navy.mil	(301) 757-4723
Dawn Olson	Regulated Waste Program Manager	dawn.olson@navy.mil	(301) 995-3627
Mario Maningas	Clean Water Program Manager	mario.maningas@navy.mil	(301) 757-4825
Tracy Maningas	Stormwater Program Manager	tracy.maningas@navy.mil	(301) 757-4910
Tara Meadows	Natural Resources Specialist	tara.meadows@navy.mil	(202) 685-8415
Lance McDaniel	Installation Environmental Program Manager	lance.mcdaniel@navy.mil	(301) 757-2903
Dave Morley	Safety Manager	david.morley@navy.mil	(301) 757-4845
Terry Pearce	Safety Manager	terry.pearce@navy.mil	(301) 342-5377
Kyle Rambo	Conservation Director	kyle.rambo@navy.mil	(301) 757-0005
Skip Simpson	Environmental Restoration Program Manager	charles.simpson@navy.mil	(301) 757-4897
Joe Slade	Fleet Readiness Center Hazardous Material POC	joseph.slade@navy.mil	(301) 342-0627
Jackie Smith	Natural Resources Specialist	jacqueline.c.smith@navy.mil	(301) 757-0007
Mike Smolek	Cultural Resources Manager	michael.a.smolek@navy.mil	(301) 757-4774
Jim Swift	Natural Resources Specialist	james.swift@navy.mil	(301) 757-0006
Donna Weeks	Occupational Health and Safety	donna.weeks@med.navy.mil	(301) 757-0144