Consultation Correspondence with
Virginia Department of Historic Resources

May 2012 – June 2012

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DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY
SOUTH POTOMAC
6509 SAMPSON ROAD SUITE 217
DAHLGREN, VIRGINIA 22448-5108

IN REPLY REFER TO
5090
Ser PRSD41MG/037
May 17, 2012

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Kathleen Kilpatrick
Commonwealth of Virginia
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Ms. Kilpatrick:

SUBJECT: SECTION 106 CONSULTATION FOR THE ENVIRONMENTAL IMPACT STATEMENT FOR OUTDOOR RESEARCH, DEVELOPMENT, TEST & EVALUATION ACTIVITIES, VIRGINIA DEPARTMENT OF HISTORIC RESOURCES (VDHR) FILE NO. 2009-0099

The Naval Surface Warfare Center, Dahlgren Division (NSWCDD), a tenant of Naval Support Facility (NSF) Dahlgren, Naval Support Activity South Potomac, initiated Section 106 consultation in October 2008 in conjunction with the preparation of an Environmental Impact Statement for the proposed action to increase outdoor research, development, test, and evaluation activities requiring the use of ordnance, electromagnetic energy, high energy lasers, and chemical and biological stimulants (undertaking). A Project Review Application is provided as enclosure (1).

Per your response dated November 4, 2008, VDHR concurred with the Historic Architectural and the Archeological Areas of Potential Effect (APE) and provided additional parties for inclusion with the Navy's proposed list of potential consulting parties. The list of potential parties shown on enclosure (2) were offered the opportunity to consult regarding this undertaking in January 2009. The resulting list of consulting parties is shown in enclosure (3).

The Navy identified 36 National Register of Historic Places (NRHP) eligible or listed architectural historic properties within Maryland and Virginia outside of NSF Dahlgren in the Historic Architectural APE. On November 16 and 17, 2009, the Navy conducted a study within Maryland and Virginia to measure noise and vibration levels at six of the 36 NRHP eligible or listed properties along the Potomac River Test Range (PRTR) during the firing of the largest routinely fired caliber gun (5"/62) with the amounts of detonation explosive ranging up to nine pounds (the largest typically used) at five different target areas. The Navy coordinated with the consulting parties and the property owners/managers in advance. The study report *Noise and*

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Vibration Measurements at Six Historic Structures, August 2010 concluded that the potential for structural damage impacts along the PRTR due to noise or vibration from the firing of NSWCDD's large caliber guns was minimal. Copies of the report were provided to consulting parties and the property managers/owners in September 2010. The only response on the report was a no comment with concurrence from your office dated October 14, 2010.

In accordance with Section 106 of the National Historic Preservation Act (36 CFR Part 800), the Navy has applied the Criteria of Adverse Effect in accordance with 36 CFR 800.5 and determined that the undertaking would have no adverse effect to historic properties within the archaeological or architectural APE's. Enclosure (4) is provided for your use to provide concurrence of No Adverse Effect or recommendations.

Please direct all correspondence to:

ATTN: Director, Environmental Division
Department of the Navy
NAVFAC Washington, PWD South Potomac
18329 Thompson Road, Suite 226
Dahlgren, VA 22448-5110

For further information, please contact Ms. Mary Geil, Cultural Resources Program Office, at(540) 653-8584.

Sincerely,

JEFFREY C. BOSSART
By direction

Enclosures:
1. Project Review Application Form
2. Section 106 Invited Consulting Parties
3. Section 106 Consulting Parties
4. Concurrence Sheet

Copy to: (w/o encls)
Ms. Elizabeth J. Cole
Administrator, Review and Compliance
Maryland Historical Trust
Division of Historical and Cultural Programs
1000 Community Place
Crownsville, Maryland 21032-2023

SUBJECT: SECTION 106 CONSULTATION FOR THE ENVIRONMENTAL IMPACT STATEMENT FOR OUTDOOR RESEARCH, DEVELOPMENT, TEST & EVALUATION ACTIVITIES, VIRGINIA DEPARTMENT OF HISTORIC RESOURCES (VDHR) FILE NO. 2009-0099

Blind copy to:
Reading File
PRSD41MG (Geil)
CX8 (Boyd)

Writer: M. Geil, PRSD41MG, x38584
Typist: C. McGinniss, 30 Apr 12

Project Review Application Form

Enclosure(1)

Project Review Application Form

I. GENERAL PROJECT INFORMATION

1. Has this project been previously reviewed by DHR? **YES** X NO ___ **DHR File #** 2009-0099

2. Project Name EIS on Outdoor Research, Development, Test and Evaluation Activities

3. Project Location

N/A	Dahlgren	King George
City	**Town**	**County**

4. Specify Federal and State agencies involved in project (providing funding, assistance, license or permit). Refer to the list of agencies and abbreviations in the instructions.

Lead Federal Agency Department of Defense, Navy

Other Federal Agency

State Agency

5. Lead Agency Contact Information

Contact Person Ms. Mary Geil, Cultural Resources Program Office

Mailing Address NAVFAC Washington, PWD South Potomac, 18329 Thompson Road, Suite 226, Dahlgren, VA 22448-5119

Phone Number 540-653-8584 **Fax Number** 540-653-6242

Email Address Mary.Geil@navy.mil

6. Applicant Contact Information

Contact Person Jeffrey C. Bossart

Mailing Address NAVFAC Washington, PWD South Potomac, 18329 Thompson Road, Suite 226, Dahlgren, VA 22448-5119

Phone Number 301-744-4705 **Fax Number**

Email Address jeffrey.bossart@navy.mil

II. PROJECT LOCATION AND DESCRIPTION

7. USGS Quadrangle Name See continuation sheet

8. Number of acres included in the project See continuation sheet

9. Have any architectural or archaeological surveys of the area been conducted? **YES** X

NO ___

If yes, list author, title, and date of report here. Indicate if a copy is on file at DHR.
See continuation sheet

10. Are any structures 50 years old or older within or adjacent to the project area? YES X NO ___

If yes, give date(s) of construction and provide photographs.
See continuation sheet

11. Does the project involve the rehabilitation, alteration, removal, or demolition of any structure, building, designed site (e.g. park, cemetery), or district that is 50 years or older? If *yes*, this must be explained fully in the project description. YES ___ NO X

12. Does the project involve any ground disturbance (e.g. excavating for footings, installing sewer or water lines or utilities, grading roads, etc.)? If *yes*, this must be explained fully in the project description. YES ___ NO X

13. DESCRIPTION: Attach a complete description of the project. Refer to the instructions for the required information. See continuation sheet

To the best of my knowledge, I have accurately described the proposed project and its likely impacts.

Signature of Applicant/Agent _____ Date _____

The following information must be attached to this form:

X Completed DHR Archives search
X USGS map with APE shown
X Complete project description
X Any required photographs and plans

___ No historic properties affected X No adverse effect
___ Additional information is needed in order to complete our review.
___ We have previously reviewed this project. A copy of our correspondence is attached.

Comments: OUTDOOR RESEARCH, DEVELOPMENT, TEST AND EVALUATION ACTIVITIES, DAHLGREN, KING GEORGE Co.

Signature _____ Date 5 JUNE 12

Phone number 804-482-6090 DHR File # 2009-0099

This Space For Department Of Historic Resources Use Only

II. PROJECT LOCATION AND DESCRIPTION

II-7. USGS Quadrangles

The EIS is being prepared by Naval Surface Warfare Center, Dahlgren Division (NSWCDD), a tenant of Naval Support Facility (NSF) Dahlgren, located on the Dahlgren VA-MD United States Geological Survey (USGS) Quadrangle. The Historic Architectural APE encompasses portions of 16 USGS Quadrangles in King George, Westmoreland and Richmond counties in Virginia, and Charles and St. Mary's counties and the Potomac River in Maryland. The Archaeological APE encompasses portions of six USGS Quadrangles in King George County, Virginia, and Charles and St. Mary's counties and the Potomac River in Maryland, as summarized in Table 1. Figure 1, Historic Architectural and Archaeological APEs, shows an overlay of the Historic Architectural and Archaeological APEs on the appropriate USGS Quadrangles.

Table 1

USGS Quadrangles within Historic Architectural and Archaeological APEs

USGS Quadrangle	Historic Architectural APE	Archaeological APE
Champlain, VA	X	
Charlotte Hall, MD	X	
Colonial Beach North, VA-MD	X	X
Colonial Beach South, VA-MD	X	X
Dahlgren VA-MD	X	X
Hollywood, MD	X	
Leonardtown, MD	X	
Machodoc, VA	X	
Mathias Point, MD-VA	X	
Montross, VA	X	
Piney Point, MD-VA	X	
Popes Creek, MD	X	
Rock Point, MD	X	X
Rollins Fork, VA	X	
St. Clement's Island, MD-VA	X	X
Stratford Hall, VA-MD	X	X

II-8. Number of Acres included in the Project

The Historic Architectural APE encompasses 313,103 acres in Virginia and Maryland, including the 4,320-acre NSF Dahlgren installation that NSWCDD is a tenant upon. Approximately 133,855 acres are situated in Virginia with the remainder in Maryland, whose jurisdiction includes the Potomac River. The Archaeological APE encompasses 34,417 acres, the majority of which is located within the Potomac River. Each APE is briefly described below.

Historic Architectural APE

The Historic Architectural APE for this project was developed to account for potential *direct* and *indirect effects* of the Proposed Action on historic architectural resources in accordance with Section 106 of the National Historic Preservation Act (NHPA). The Historic Architectural APE has been approved by the Virginia Department of Historic Resources (VDHR) and the Maryland Historic Trust (MHT).

The Proposed Action is to expand NSWCDD's outdoor research, development, testing and evaluation (RDT&E) capabilities within the Potomac River Test Range (PRTR) and Explosives Experimental Area (EEA) complexes, and the Mission Area on the installation. The complexes are shown in Figure 2, Potomac River Test Range Complex, and Figure 3, Ranges and Mission Area. Section II-13d of this document provides detailed information concerning the project.

The Historic Architectural APE is based upon peak-noise contours associated with multiple gun/projectile tests and detonations that would not occur simultaneously, but combined together, form the worst case scenario. The gun/projectile tests include the inert and live firing of multiple large-caliber guns tested at land-based ranges within the PRTR Complex. Detonations include testing of ordnance within the EEA Complex. Two key events help define the peak-noise contours which form the Historic Architectural APE shown in Figure 1. These events include:

- Live firing of 8" guns at a 27,500-yard distance from the Main Range of the PRTR Complex.
- Detonations of 200-lb net explosive weight (NEW) ordnance within Churchill Range at the EEA Complex.

The one 120 decibel peak (dBP) noise contour and three 134 dBP noise contours depicted in Figure 1 represent locations where average peak-noise levels associated with these events are predicted to occur under a range of weather conditions. The noise produced by gun firing and detonations is impulsive – one quick noise – rather than the continuous noise generated by highways, and is measured when it reaches its peak or highest level.

Impulsive noise that results in potential vibrations, and is associated with large-gun firing and detonations, such as those that occur at NSWCDD, is typically noticed when it reaches levels of 120 dBP. Such noises may result in vibrations which have the potential to rattle loose window panes and cause concern on the part of property owners. At levels of 134 dBP large-gun firing

and detonations have the potential to result in vibrations which may cause window panes and plaster to crack in weak buildings.

Although the 120 dBP noise contour is below the property damage-causing threshold, it has the potential to concern affected property owners. Thus, it has been selected as the larger Historic Architectural APE for this project.

The three 134 dBP noise contours depicted in Figure 1 are situated within the 120 dBP noise contour. These include the westernmost, central and easternmost contours, and are described below:

- The westernmost contour reflects noise levels originating from guns fired from Main Range of the PRTR Complex, and detonations within Churchill Range at the EEA Complex. The contour partially occurs on land within NSF Dahlgren and within the PRTR Middle Danger Zone (MDZ) in the Potomac River.

- Two contours coincide with target areas where live (explosive) projectiles fired from the Main Range of the PRTR Complex. The central contour solely occurs within the PRTR MDZ. The majority of the easternmost contour occurs within the PRTR MDZ, while the southeast portion of the contour occurs in the Stratford Harbour residential development in Westmoreland County. When totally inert projectiles are fired, the only noise source is at the gun – there is no second noise source at a target area downriver.

The 134 dBP noise contours also represent target areas from the firing of inert projectiles with live fuzes. It should be noted that more than 70 percent of the projectiles fired by NSWCDD are inert and contain no explosive material. Therefore, the 120 dBP noise contour is much smaller when inert ordnance is fired, which is the majority of the time.

Archaeological APE

Traditionally, an archaeological APE is concerned with *direct effects* and defined by considering the areas of ground disturbance that would occur as a result of carrying out a proposed project action, such as building a new facility. In terms of the Proposed Action, they would have little-to-no direct impact on archaeological resources within or near NSF Dahlgren, because no groundbreaking activities are proposed. However, *indirect effects* upon archaeological resources resulting from testing-related noise are of potential concern, particularly with regard to shipwrecks in the Potomac River.

Therefore, the Archaeological APE for this project is based on portions of the PRTR and EEA complexes that would be utilized during noise-generating RDT&E activities. These include detonations at the EEA Complex and the large-caliber gun fire within the PRTR MDZ. In addition, the Archaeological APE includes a 300-foot (ft) wide buffer zone along the southern boundary of the EEA Complex from Upper Machodoc Creek to the Potomac River shoreline where indirect impacts resulting from testing-related noise may occur. Figure 1 depicts the location of the Archaeological APE, which has been approved by VDHR and MHT.

II-9. Historic Architectural and Archaeological Surveys

According to VDHR, multiple historic architectural and archaeological surveys have been conducted within and outside the Historic Architectural APE in King George, Westmoreland and Richmond counties. A VDHR archives search pertaining to historic architectural surveys relevant to this project was conducted in December 2008 (Williams, December 7, 2008). In addition, a search pertaining to archaeological surveys relevant to this project was conducted in September 2008. Table 2 provides a list of cultural resources surveys conducted in King George County, Virginia in chronological order (including NSF Dahlgren), with special emphasis on historic architectural resources. Table 3 provides a list of cultural resources surveys in Westmoreland and Richmond counties in chronological order with special emphasis on historic architectural resources.

Consultation with VDHR and NSF Dahlgren indicates that multiple cultural resources surveys have been conducted within and in the vicinity of the Archaeological APE in King George County, Virginia. Table 4 provides a chronological list of these surveys, with special emphasis on archaeological surveys that were specifically conducted within the Archaeological APE. Figure 4, Terrestrial Archaeological Resources Within or in the Vicinity of APE, indicates the approximate location of such resources based on data provided by VDHR, NSF Dahlgren, and MHT. MHT has jurisdiction over the Potomac River, including land masses such as St. Clement's Island and St. Catherine Island where terrestrial archaeological resources have been documented.

Table 2

Cultural Resources Surveys in King George County, Virginia
Including Historic Architectural Resources

Author	Title	Date	Survey at NSF Dahlgren	Archive
Robin L. Ryder & Luke Boyd/Virginia Commonwealth University	Phase I Cultural Resources Survey of Route 667, King George County, Virginia (Addition to Edgehill Area Maintenance Headquarters)	1988		VDHR
Donna Akers/James Madison University	Phase I Cultural Resources Survey of the Proposed West-Bound Lane, Route 3 in King George County, Virginia	1989		VDHR
Greenhorne & O'Mara	Historic Structure Report for the Administration Building 101, Naval Surface Warfare Center Dahlgren, Virginia	1990	X	VDHR
Greenhorne & O'Mara	Historic and Archaeological Resources Protection (HARP) Plan for Naval Surface Warfare Center, Dahlgren, Virginia	1991	X	VDHR
Lyle E. Browning	Phase I Intensive Cultural Resources Survey Sewer Treatment Plant Replacement Naval Surface Warfare Center, Dahlgren, Virginia	1992		VDHR
Leonard Schmookler/ Ecology & Environment	Phase I Cultural Resources Survey for the Proposed Consolidation of Research, Development, Test & Evaluation Laboratory Site, Naval Surface Warfare Center Dahlgren Laboratory, Dahlgren, Virginia	1992	X	VDHR
Leonard Schmookler/ Ecology & Environment	Phase I Cultural Resources Survey for the Proposed 150-Unit Family Housing Project at the Naval Surface Warfare Center, Dahlgren Laboratory, Dahlgren, Virginia	1993	X	VDHR
Leonard Schmookler/ Ecology & Environment	Phase I Cultural Resources Survey for the Proposed Consolidation, Research, Development, Test & Evaluation Laboratory Site, Naval Surface Warfare Center, Dahlgren Laboratory, Dahlgren, Virginia	1993	X	VDHR
Kathryn Kuranda/R. Christopher Goodwin & Associates	Inventory of Standing Structures Within the Operations & Industries Area at the Dahlgren Laboratory of the Dahlgren Division, Naval Surface Warfare Center, Dahlgren, Virginia	1994	X	VDHR
Bradford Botwick & Tracy A. Cunning	Phase I Cultural Resource Survey King George County Landfill, King George County, Virginia	1994		VDHR

Table 2 (cont'd)

Cultural Resources Surveys in King George County, Virginia
Including Historic Architectural Resources

Author	Title	Date	Survey at NSF Dahlgren	Archive
Brooke V. Best, Eliza H. Edwards, Leo P. Hirrel & Patrick Jennings/R. Christopher Goodwin & Associates Inc.	Architectural Investigations of Dahlgren's Residential Area, Naval Surface Warfare Center, Dahlgren Laboratory, Dahlgren, Virginia	1994	X	VDHR
William Gardner & Kimberly Snyder	Phase I Cultural Resources Reconnaissance of Route 665 from Route 605 to Route 3, King George County, Virginia	1995		
Patricia Knock, John Hennen & Michael Klein	Dahlgren African-American Community Oral History Project, Dahlgren, Virginia	1998	X	VDHR
Lyle E. Browning	King George Industrial Park, Phase I Intensive Cultural Resources Survey, King George County, Virginia	2002		
Barbara Frederick, Brad Bauman, Catherine Dluzak & Emma Young	Governor Harry W. Nice Memorial Bridge Improvement Project: Virginia Historic Resources Survey and Identification Report, King George County, Virginia	2008		VDHR

Table 3

Cultural Resources Surveys in Westmoreland and Richmond Counties, Virginia
Including Historic Architectural Resources

Author	Title	Date	Discipline	Archive
Martha W. McCartney	Westmoreland County Historical Overview	1984	Historic Architecture/Archaeology	VDHR
Robin Ryder, Luke Boyd, Mary Ellen Bushey, Beverly J. Binns & Christopher P. Egghart	Phase 2 Evaluations of Five Archaeological Sites and Two Buildings along Route 3, Westmoreland County, Virginia	1994	Historic Architecture/Archaeology	VDHR
National Park Service	National Park Service, Cultural Landscape Inventory 2000: George Washington Birthplace Landscape, George Washington Birthplace National Monument, Westmoreland County, Virginia	2000	Historic Architecture/Archeology	VDHR
Kathryn A. Miller	Survey of Architectural Resources, Westmoreland County, Virginia	2001	Historic Architecture	VDHR
National Park Service	National Park Service, Cultural Landscape Inventory 2001: George Washington Birthplace Memorial Core, George Washington Birthplace National Monument, Westmoreland County, Virginia	2004	Historic Architecture/Archeology	VDHR
Chris Egghart, et al.	Phase I Cultural Resources Survey of Proposed Improvements to Route 3, Richmond County, Virginia	1991	Historic Architecture/Archaeology	VDHR
Scott M. Hudlow, et al.	Phase II Architectural Evaluations of Structure 79-26, Hickorythicket and Structure 79-55, Omohundro's Store, associated with Proposed Route 3 Project, Richmond and Westmoreland counties, Virginia	1992	Historic Architecture	VDHR
D.W. Sanford	Draft Phase I Survey of Proposed Industrial Park near Warsaw, Richmond County, Virginia	1993	Historic Architecture/Archaeology	VDHR

Table 4

Archaeological Surveys within Archaeological APE

Author	Title	Date	Survey at NSF Dahlgren	Archive
William Holmes, et al./ Smithsonian Institution	Archaeological Survey of the Tidewater Maryland and Virginia Area	1891		National Anthropological Archives, Smithsonian Institution, Washington, DC
Charles McNett/American University	Potomac River Archaeology Survey	1979		NSF Dahlgren
Greenhorne & O'Mara	Historic And Archaeological Resources Protection (HARP) Plan for Naval Surface Warfare Center, Dahlgren, Virginia	1991	X	VDHR
Michael L. Ryder, et al.	Environmental Assessment, Naval Ordnance Transient Simulator (NOTES) Construction, Installation and Operation, Dahlgren, Virginia	1992	X	NSF Dahlgren
Malcolm Pirnie, Inc.	Phase I Archaeological Investigation, Proposed NOTES Facility/Site 1, Dahlgren, Virginia, 1613-19-2	1992	X	NSF Dahlgren

Table 4 (cont'd)

Archaeological Surveys within Archaeological APE

Author	Title	Date	Survey at NSF Dahlgren	Archive
Mary Washington College (MWC) and Patricia Albert/NSF Dahlgren	Archaeological walkover of Pumpkin Neck (EEA), Dahlgren, Virginia	1995	X	Referenced in Klein, 1998
MWC	Archaeological walkover of Pumpkin Neck (EEA), Dahlgren, Virginia	1997	X	Referenced in Klein, 1998
Michael Klein, et al./MWC	Phase I Archaeological Survey and Phase II Evaluation, Naval Surface Warfare Center, Dahlgren Laboratory, Dahlgren, Virginia	1998	X	VDHR
The Louis Berger Group, Inc.	Environmental Assessment, Electromagnetic Research and Engineering Facility (EMREF) and Counter Explosive Test Facility (CETFAC) Naval Support Facility, Dahlgren, Dahlgren, Virginia.	2006	X	NSF Dahlgren
Stuart Fiedel, et al./ The Louis Berger Group, Inc.	Archaeological Survey of Counter Explosive Test Facility (CETFAC) Naval Support Activity South Potomac, Dahlgren, Naval Support Facility, Dahlgren, Virginia.	2006	X	NSF Dahlgren

II-9a. Archaeological Resources

No National Register-listed or -eligible archaeological resources have been identified within the Archaeological APE at NSF Dahlgren. However, 11 unevaluated archaeological sites have been recorded within or potentially within the Archaeological APE, and are on file with various agencies, including the VDHR, the MHT, NSF Dahlgren and the Naval Historical Center (NHC). These sites include six terrestrial archaeological sites and five maritime archaeological resources; the exact location of three of the unevaluated maritime archaeological resources (comprised of five Navy shipwrecks) is unknown, but a recent study depicts them potentially within the Archaeological APE (MHT, 1997). These resources are listed in Table 5.

Table 5

Archaeological Resources Within or Potentially Within the Archaeological APE

Resource Name	Resource Type	Recommendation and/or Condition of Resource	On File
44KG217 (Black Marsh 1)	Terrestrial	Recommended NRE[2]	VDHR and NSF Dahlgren
44KG218 (Black Marsh 2)	Terrestrial	Not recommended NRE[2]	VDHR and NSF Dahlgren
MWC17	Terrestrial	Unknown[3]	NSF Dahlgren
MWC18	Terrestrial	Unknown[3]	NSF Dahlgren
MWC19	Terrestrial	Unknown[3]	NSF Dahlgren
MWC34	Terrestrial	Unknown[3]	NSF Dahlgren
Colonial Beach South QF04 (Dahlgren Anchor Site)	Maritime	Anchor recovered from site by US Coast Guard in 1990[4]	MHT
STRATF QF05 [side-scan sonar anomaly]	Maritime	Unknown[4]	MHT
Christiana Keen[1]	Maritime	Burned and sunk[5]	NHC
Frances Elmor[1]	Maritime	Burned and sunk[5]	NHC
Three Boats[1]	Maritime	"Destroyed" and sunk[5]	NHC

[1] Resource located within or potentially within the Archaeological APE (MHT, 1997).
[2] NSF Dahlgren and Engineering Field Activity Chesapeake, 2006.
[3] GIS data from NSWCDD, 2008.
[4] Site file forms at MHT.
[5] MHT, 1997.

II-10a. Resources Over 50 Years Old in Virginia

To determine whether resources over 50 years old are located within the Historic Architectural APE defined by the 120 dBP noise contour in Figure 1, research was conducted at NSF Dahlgren and VDHR in December 2008. In addition, a reconnaissance survey, including digital photography, was conducted within the landside portions of the easternmost and westernmost 134 dBP noise contours shown in Figure 1 in December 2008. The survey was conducted in this area because large-gun firing and detonations have the potential to result in vibrations which may cause window panes and plaster to crack in weak buildings.

Multiple historic architectural resources are located in the Historic Architectural APE within and outside NSF Dahlgren. Resources within each area are briefly described below.

NSF Dahlgren

Historic Districts

Two historic architectural resources are located within NSF Dahlgren shown at Figure 5:

- National Register-eligible Dahlgren Residential Historic District (VDHR ID# 048-5008) (Not shown on Figure 5)

- National Register-eligible Dahlgren Naval Surface Warfare Center Historic District (VDHR ID# 048-0104) VDHR records show the boundary encompassing the entire Base with discontigous areas. Figure 5 shows the boundaries as recommended by the 1994 surveys: Residential Historic District, Main Battery Historic District, Wharf Area Historic District, Airfield Historic District

The Main Battery and Wharf Area historic districts are located within the 134 dBP noise contour. The National Register-eligible Dahlgren Residential and proposed Airfield historic districts are partially located within the 134 dBP contour.

Tables 6 to 9 provide lists of contributing and non-contributing resources within the districts according to surveys conducted by NSF Dahlgren in 1994. Select photos of resources within the districts are included in Appendix 1, Historic Districts within NSF Dahlgren.

Table 6

Proposed Residential Historic District (1994)

Building No.	Original Use	Date	Contributing	Non-Contributing
Not Applicable (N/A)	Joy Park	c. 1945	X	
N/A	Parade Ground	c, 1919	X	
60	Tool Shed	1920	X	
64	Canteen Garage	1921		X
101	Administration Building	1920	X	
105	Dormitory	1920		X
106	Dormitory	1920		X
112[1]	Mess Hall	1920		X
117	Assembly Hall	1921	X	
119	School	1921	X	
132	Water Tower	1920	X	
183	Barracks	1942	X	
184	Sewer Pump House	1942	X	
192	Dispensary	1942	X	
193	School	1942	X	
193A/B	School	1951		X
193E	School	1990		X
193F	Gymnasium	1993		X
195[2]	Gate House	1942	X	
215	BOQ	1942		X
216	Officers' Club	1942		X
217	BOQ	1942		X
220	Boiler House	1942	X	
222	BOQ	1918	X	
222A	Wood House	1919	X	
222B/C	Garage	1934	X	
240	Community Storage	1986		X
243	Community House	1940		X
246	Dispensary	1919	X	
267	Laundry	1944	X	
322	Railroad Station	1943	X	
431	Chapel	1945	X	
431A	Boiler House	1945	X	

Table 6 (cont'd)

Proposed Residential Historic District (1994)

Building No.	Original Use	Date	Contributing	Non-Contributing
501	Inspector's Quarters	1921	X	
501A	Garage	1921	X	
503	Housing	1921	X	
503A	Garage	1921	X	
506	Housing	1921	X	
506A	Garage	1921	X	
507	Housing	1921	X	
507A	Garage	1921	X	
508	Housing	1921	X	
508A	Garage	1921	X	
509	Housing	1921	X	
509A	Garage	1921	X	
510	Housing	1939	X	
512	Housing	1939	X	
513	Housing	1939	X	
514	Housing	1939	X	
516	Housing	1939	X	
518	Housing	1951		X
518A	Garage	1951		X
600	Housing	1921	X	
600B	Garage	1920	X	
601	Housing	1921	X	
601B	Garage	1920	X	
800	Housing	1939	X	
801	Housing	1939	X	
802	Housing	1919	X	
802B	Garage	1920	X	
803	Housing	1941	X	
804	Housing	1919	X	
805	Housing	1941	X	
806	Housing	1919	X	
806B	Garage	1920	X	
807	Housing	1941	X	

Table 6 (cont'd)

Proposed Residential Historic District (1994)

Building No.	Original Use	Date	Contributing	Non-Contributing
808	Housing	1919	X	
808A	Hen House	1919	X	
809	Housing	1941	X	
810	Housing	1919	X	
810B	Garage	1919	X	
811	Housing	1942	X	
812	Housing	1919	X	
812A	Garage	1919	X	
813	Housing	1942	X	
814	Housing	1919	X	
814B	Garage	1919	X	
816	Housing	1919	X	
816A	Hen House	1919	X	
818	Housing	1941	X	
820	Housing	1941	X	
822	Housing	1941	X	
824	Housing	1941	X	
909	Colored Dormitory	c. 1918	X	
1130	Storage Building	1952		X
1164	Tennis Courts	1943	X	
1166	Tennis Courts	1941	X	
1271	Golf Course	1927	X	
1278	Golf Clubhouse	1964		X
1282	Gas Station	1965		X
1294	Locker Room	1968		X
1384[3]	Gardeners Storage Building	1921		

[1]Building demolished according to NSF Dahlgren GIS data prepared in 2008.
[2]Located outside boundary of proposed district.
[3]Located within boundary of proposed district but not documented in the 1994 survey report.

Table 7

Proposed Main Battery Historic District (1994)

Building No.	Original Use	Date	Contributing	Non-Contributing
102	Bombproof	1920	X	
111	Tech Library	1920	X	
143	Toilet	1942	X	
160	Emplacements	1942	X	
161	Bombproof	1942	X	
181	Shell House	1942	X	
186	Office	1942	X	
207	Loaded Projectile Magazine	1942	X	
210	Boiler House	1942	X	
218	RDT&E Laboratory	1942		X
234	Boiler House	1920	X	
235	Shell House	1941		X
236	Case Packing House	1943	X	
239	Oil House	1920	X	
249	Lab & Air Compressor House	1920	X	
252	Ordnance Shed	1920	X	
253	Gun Emplacements	1920	X	
254[1]	Broadside Battery	1921	X	
260	High Explosive Magazine	1920	X	
270	Gun Parking Platform	1927	X	
276	Black Powder Loading House	1942	X	
277	Women's Restroom	1942	X	
306	Lookout Tower	1942	X	
310[2]	Bomb Spotting Station	1975		X
312[2]	Case Storage	1943	X	
316	Magazine	1942	X	
326	Lookout Tower	1943	X	
339	Boiler House	1960		X
364[1]	Weapons Factory	1975		X
406	Boiler House	1950		X
415	Velocity Instrument Building	1951		X

Table 7 (cont'd)

Proposed Main Battery Historic District (1994)

Building No.	Original Use	Date	Contributing	Non-Contributing
440	Oil Storage	1945	X	
441[2]	Inert Storage	1945	X	
445	Kerosene Storage	1943	X	
460	Static Loading Tower	1946		X
463	Quonset Hut	1949		X
930	Armco Hut	1952		X
931	Armco Hut	1952		X
932	Armco Hut Case Storage	1952		X
940	Armco Hut	1952		X
941	Armco Hut	1948		X
942	Fuze Conditioning Building	1951		X
943	Ammunition Assembly	1952		X
948	Black Powder Loading House	1952		X
991	Heating Plant	1952		X
998	Case Storage	1953		X
1112	Personnel Shelter	No date available		X
1113	Case Storage	1953		X
1114	Locker/Lunchroom	1953		X
1157	Tunnel-Steel Plate	1953		X
1279	Gun Racks	1953		X

[1]Building demolished according to NSWCDD GIS data prepared in 2008.
[2]Building slated for demolition according to NSWCDD.

Table 8

Proposed Wharf Area Historic District (1994)

Building No.	Original Use	Date	Contributing	Non-Contributing
100	Yardcraft Admin.	1991		X
107	Wharf House	1920	X	
177[1]	Dock	1919	X	
178[1]	Coal Pier	1919	X	
288	Yardcraft Office	1943		X
318[1]	Crane Runway	1944	X	
319	Power House	1943	X	
347	Boat Parts Building	1945	X	
430[1]	Rocket Assembly Building	1945	X	
453	Rigging Loft	1945	X	
1175[1]	Crane Runway	1943	X	
1299[1]	Engine & Parts Storage	1968		X
[1]Building demolished according to NSWCDD GIS data prepared in 2008.				

Table 9

Proposed Airfield District (1994)

Building No.	Original Use	Date	Contributing	Non-Contributing
110B	Land Plane Hangar	1921	X	
150	Land Plane Hangar 1	1941	X	
185	Garage Hangar 1	1943	X	
185T	Office	ca. 1970		X
194	Hangar 2	1942	X	
423	Acceleration Building	1945	X	
458	Machine Gun Bulk Hangar	1946		X
1174	Ground Plane and Turntable # 1	1959		X
1177	C.A.D. Firing Pads	1959		X
1277	Electric Com/Fac	1964		X
1280	Control House/Turntable #2	1964		X
1331	Misc Open Storage	1971		X
Although not shown in the table, the airfield landing strip or runway is considered to be a contributing resource to the historic district because it was designed for conducting experimental tests of aviation weapons and equipment during World War II (US Navy, January 1994).				

Resources Over 50 Years Old Within the 134 dBP Noise Contour Outside Historic Districts

Ninety-five historic architectural resources over 50 years old are located within the landside portion of the westernmost 134 dBP noise contour outside the historic districts at NSF Dahlgren. Table 10 provides a list of the historic architectural resources and select photos are found in Appendix 2, Resources Over 50 Years Old at NSF Dahlgren.

Outside NSF Dahlgren

National Register-Listed Resources

Eleven National Register-listed resources are located within or adjacent to the Historic Architectural APE outside NSF Dahlgren in Virginia. Table 11 identifies the 11 resources in Virginia which is keyed to Figure 6, Previously Identified Resources Within Historic Architectural APE. It should be noted that none of these resources are located within the 134 dBP noise contours.

National Register-Eligible Resources

Approximately 325 resources outside NSF Dahlgren have been surveyed within the Historic Architectural APE according to information provided by VDHR. Approximately 320 are located within the 120 dBP noise contour and five are located in the vicinity of the 134 dBP noise contour. Eight of the approximately 320 resources within the 120 dBP have been determined National Register-eligible. These resources are listed in Table 12 which is also keyed to Figure 6.

Surveyed Resources over 50 Years Old within 134 dBP Noise Contours

Reconnaissance surveys were conducted outside NSF Dahlgren within the landside portions of easternmost and westernmost 134 dBP noise contours. No resources over 50 years old were identified in the easternmost contour which coincides with Stratford Harbour, a residential development established in the 1960s briefly described in Section II-13a of this document.

The majority of the westernmost contour consists of the recently established Mt. Moriah-on-the-Potomac residential development briefly described in Section II-13a. However, two resources over 50 years old were identified in the westernmost 134 dBP contour and may have been previously surveyed according to VDHR. The resources, 9277 Spy Hill Road and 9445 Tetoum Road, consist of farmsteads with several buildings surrounded by cultivated fields and forested land. The fields and forest land are situated within the 134 dBP noise contour while the buildings are located south of the noise contour boundary. Table 13 lists these historic architectural resources and is keyed to Figure 7, Surveyed Resources Over 50 Years Old Within the 134 dBP Noise Contour. Select photos and aerial views are found in Appendix 3, Surveyed Resources Over 50 Years Old Within the 134 dBP Noise Contour.

Table 10

Historic Architectural Resources over 50 Years Old at NSF Dahlgren
Within 134 dBP Noise Contour

Building Number	Name	Date	Location
Mainside			
103	Control Center	1942	PRTR Terminal Range – Mainside
158	Gambo Creek Bridge/ Tisdale Road	1940	PRTR Terminal Range – Mainside
188	Office Building RD&TE	1942	PRTR Terminal Range – Mainside
261	Gun Emplacements	1921	PRTR Terminal Range – Mainside
262	Gun Emplacement	1944	PRTR Terminal Range – Mainside
384	Men's Rest Room	1944	PRTR Terminal Range – Mainside
387	Butts	1945	PRTR Terminal Range – Mainside
469	General Warehouse	1949	PRTR Terminal Range – Mainside
934	Field Velocity Building	1952	PRTR Terminal Range – Mainside
1100	Administrative Storage	1953	PRTR Terminal Range – Mainside
1111	Personnel Shelter-Lunch Room	1953	PRTR Terminal Range – Mainside
1125	Target Shop Facilities	1955	PRTR Terminal Range – Mainside
997	Radar Building	1953	PRTR Main Range – Mainside
1158	Missile Launcher Emplacement	1953	PRTR Main Range – Mainside
1178	Experimental Test Facility	1960	PRTR Main Range - Mainside
154	Covered Range	1942	PRTR AA Fuze Range – Mainside
196	Combined Research Lab	1942	PRTR AA Fuze Range – Mainside
370	Ordnance Road Test Facility	1945	PRTR AA Fuze Range – Mainside
370A	Ammunition Preparation Building	1945	PRTR AA Fuze Range – Mainside
370B	Boiler House	1945	PRTR AA Fuze Range – Mainside
371	Ordnance R&D Test Facility	1945	PRTR AA Fuze Range – Mainside

Table 10 (cont'd)

Historic Architectural Resources over 50 Years Old at NSF Dahlgren
Within 134 dBP Noise Contour

Building Number	Name	Date	Location
Mainside (cont'd)			
409	Magazine	1948	PRTR AA Fuze Range – Mainside
452	Ordnance RD Test Facility	1945	PRTR AA Fuze Range – Mainside
489	Energetic Materials Facility	1949	PRTR AA Fuze Range – Mainside
1119	Personnel Instruction Shelter	1953	PRTR AA Fuze Range – Mainside
152	Applied Material Technology, Survival	1944	Mission Area – Mainside (north of AA Fuze Range)
153	Storage Building	1942	Mission Area – Mainside (north of AA Fuze Range)
283	Office-Gun Test Building	1943	Mission Area – Mainside (north of AA Fuze Range)
299	Ordnance RD Test Facility	1942	Mission Area – Mainside (north of AA Fuze Range)
933	RDT&E Storage Building	1952	Mission Area – Mainside (north of AA Fuze Range)
1138	Oil Storage Building	1956	Mission Area – Mainside (north of AA Fuze Range)
108	ROICC/Telecom Office	1936	Industrial Complex – Mainside
113	Ordnance Test Facility	1927	Industrial Complex – Mainside
114	Flammables Storehouse	1919	Industrial Complex – Mainside
115	Powerhouse	1921	Industrial Complex – Mainside
120M	Public Works Maintenance Shop	1943	Industrial Complex – Mainside
121	Technical Building	1920	Industrial Complex – Mainside

Table 10 (cont'd)

Historic Architectural Resources over 50 Years Old at NSF Dahlgren
Within 134 dBP Noise Contour

Building Number	Name	Date	Location
Mainside (cont'd)			
125	Supply Administration Office	1945	Industrial Complex – Mainside
134	Safety and Environmental Building	1942	Industrial Complex – Mainside
155	Public Works/Maintenance Shop and Car Wash	1941	Industrial Complex – Mainside
155A	Public Works Maintenance Shop	1941	Industrial Complex – Mainside
182	Public Works Department Headquarters	1941	Industrial Complex – Mainside
190	Fuze Design Branch	1942	Industrial Complex – Mainside
206	Boiler House	1941	Industrial Complex – Mainside
242	Lumber Storage Shed	1942	Industrial Complex – Mainside
248	Powerhouse	1941	Industrial Complex – Mainside
274	Ground Level Water Storage Tank	1930	Industrial Complex – Mainside
334	Public Works Equipment Garage	1943	Industrial Complex – Mainside
337	Safety/Environmental Public Access	1944	Industrial Complex – Mainside
338	Public Works/Maintenance Shop	1943	Industrial Complex – Mainside
342	Scale House	1944	Industrial Complex – Mainside
357	Gas Cylinder Storage Building	1944	Industrial Complex – Mainside
465	Storage Building	1947	Industrial Complex – Mainside
480	General Warehouse	1948	Industrial Complex – Mainside
481	Metal Trades Shop	1944	Industrial Complex – Mainside
499	Flammables Storehouse	1958	Industrial Complex – Mainside
935	General Warehouse	1951	Industrial Complex – Mainside

Table 10 (cont'd)

Historic Architectural Resources over 50 Years Old at NSF Dahlgren
Within 134 dBP Noise Contour

Building Number	Name	Date	Location
	Mainside (cont'd)		
936	Loading Platform	1952	Industrial Complex – Mainside
1121	Public Works Heavy Duty Equipment Maintenance Repair Shop	1954	Industrial Complex-Mainside
116	Exp Branch-Data Red Group	1921	Mission Area (north of Industrial Complex)
492	Processing Building	1949	Mission Area – Mainside (north of Industrial Complex)
198	Gun System	1942	PRTR Machine Gun Range and environs – Mainside
199	High Altitude Test Lab	1943	PRTR Machine Gun Range and environs – Mainside
200	Armament Engineering Lab	1942	PRTR Machine Gun Range and environs – Mainside
202	Biological Warfare/Chemical Warfare Lab	1942	PRTR Machine Gun Range and environs – Mainside
296	Protection Wall	1942	PRTR Machine Gun Range and environs – Mainside
297	Tunnel-Pits	1942	PRTR Machine Gun Range – Mainside, and environs
384	Men's Rest Room	1944	PRTR Machine Gun Range and environs – Mainside,
438	Biological Warfare/Chemical Warfare Experimental Building	1945	PRTR Machine Gun Range and environs – Mainside
120B	Supply Storehouse	1920	Magazine Area No. 1
123	Magazine	1921	Magazine Area No. 1
124	General Warehouse Navy	1921	Magazine Area No. 1
278	Explosive Safety Research	1943	Magazine Area No. 1
348	Igloo Magazine, A/B/C	1944	Magazine Area No. 1
349	Igloo Magazine, A/B/C	1944	Magazine Area No. 1

Table 10 (cont'd)

Historic Architectural Resources over 50 Years Old at NSF Dahlgren
Within 134 dBP Noise Contour

Building Number	Name	Date	Location
Mainside (cont'd)			
350	Igloo Magazine, A/B/C	1944	Magazine Area No. 1
351	Igloo Magazine, A/B/C	1944	Magazine Area No. 1
354	Igloo Magazine, A/B/C	1944	Magazine Area No. 1
355	Igloo Magazine, A/B/C	1944	Magazine Area No. 1
356	Igloo Magazine, A/B/C	1944	Magazine Area No. 1
426	Controlled Temperature Building	1945	Magazine Area No. 1
426A	Natural Resource Office	1945	Magazine Area No. 1
1272	Small Craft Fueling Station	1941	Wharf (outside district)
411	Fire Station	1950	Command Support Complex
Explosives Experimental Area			
1103	3000 Rocket Launcher	1956	EEA
1105	Bombproof Compartments	1953	EEA
1140	Ramp at Dock	1951	EEA
9407	RDT&E Storage	1944	EEA
9409	AMO Explosive/Toxic	1944	EEA
9415	Pier Small Boat Landing	1944	EEA
9416	Garage	1945	EEA
9417	Hoisting Tower	1944	EEA
9423	Deep Well No. 11	1959	EEA
9450	100-Foot Tower Drop	1957	EEA
9420	Firing Shelter – Churchill	1956	Churchill Range – EEA
9421	Personnel Shelter – Harris	1958	Harris Range – EEA

Table 11

National Register-Listed Properties Outside NSF Dahlgren
Within the Historic Architectural APE in Virginia

Resource Number*	Resource Name	Location	Description
10	Bushfield	Nomini Bay, Westmoreland County, VA	Early-18th-century home once owned by George Washington's brother; renovated in 1919 in the Colonial Revival style by architect Waddy Butler Wood.
11	Spring Grove	Nomini Bay, Westmoreland County, VA	Federal-style estate is an outstanding example of early-19th century architecture in rural Virginia.
12	Armstead T. Johnson High School	Montross, Westmoreland County, VA	High school constructed in 1937 specifically for African American students during the era of segregation; funded by Works Progress Administration (WPA) and donations from community.
13	Stratford Hall (also a National Historic Landmark)	Stratford, Westmoreland County, VA	Built in the 1730s by the Lee family, this is a notable example of an early Georgian-style home. It was the birthplace of General Robert E. Lee, Commander of the Confederate armies, and the home of two signers of the Declaration of Independence, Richard Henry and Francis Lightfoot Lee.
14	Westmoreland State Park Historic District	Westmoreland State Park, Westmoreland County, VA	One of six planned state parks conceived by the Commonwealth of Virginia during the 1920s-30s, the park was jointly developed between 1933-43 by the Civilian Conservation Corps, the National Park Service, and Virginia Commission on Conservation and Development. Park consists of a beach, cliffs, wetlands, ravines, and heavily forested areas; includes cabins, campgrounds and recreational areas.
15	Ingleside	Oak Grove Westmoreland County, VA	Built as Washington Academy in 1834; Classical Revival-style building was based on the Virginia Capitol in Richmond.
16	Blenheim	Oak Grove, Westmoreland County, VA	Colonial-style home built by William Augustine Washington, George Washington's half-brother, in 1780.
17	Roxbury	Oak Grove, Westmoreland County, VA	Built in 1861, this home's mid-Victorian style is more commonly found in the north.
18	Wirtland	Oak Grove, Westmoreland County, VA	Built in 1850 by Dr. William Wirt, Jr., this home is one of the few examples of domestic Gothic Revival-style architecture in Westmoreland County.
19	St. Peter's Episcopal Church	Oak Grove, Westmoreland County, VA	Built in 1849, this church is a rare example of the Gothic Revival style; Washington, Monroe, and Lee families worshipped at the church.
20	Bell House	Colonial Beach, Westmoreland County, VA	Shingle-style house erected ca. 1883 when Colonial Beach emerged as a popular waterfront resort; acquired by family of Alexander Graham Bell in 1886.

* Resources are keyed to Figure 6.

Table 12

National Register-Eligible Properties Outside NSF Dahlgren
Within the Historic Architectural APE in Virginia

Resource Number*	Resource Name	Location	Description
29	Hague House	Hague, Westmoreland County, VA	Built during the late-18th century by John and Joseph Hague, this one-and-a-half story, four-bay wood-frame residence was transformed into the rear ell of a newly-constructed two-story residence around 1900.
30	Washington & Lee Agricultural High School	Montross, Westmoreland County, VA	Built ca. 1930, this is a one-and-a-half story, brick, Cape Cod-style school building.
31	Montross Town Hall (Bank of Montross) *DEMOLISHED IN 2001*[1]	Montross, Westmoreland County, VA	Built in 1925 by Edward G. "Peck" Heflin, this one-and-a-half story brick, Classical Revival-style house had a flat roof and arched windows. It served as the second location of the Bank of Montross, established in 1908, and later the Montross Town Hall; demolished in 2001.
32	Panorama (Hummel Vineyards)[2]	Montross, Westmoreland County, VA	Built in 1932 in the Georgian style by the last private owners of Stratford Hall Plantation (home of Robert E. Lee), the bricks of this three-story house are thought to have been made at Stratford Hall.
33	Endurance (Himes House)[3]	Colonial Beach, Westmoreland County, VA	Built in 1906 in the Queen Anne style based upon Sears, Roebuck, & Co. pattern, this two-story, three-bay, side-passage, double-pile house is located in an area known as "The Point," laid out around the turn of the 20th century by the Colonial Beach Improvement Company.
34	Bank of Westmoreland (Colonial Beach Town Hall)[3]	Colonial Beach, Westmoreland County, VA	Built in 1904 by the Mumford Company of Cape Charles, VA, this one-story, three-bay, side-passage commercial bank building is located in downtown Colonial Beach; converted to function as Bank of Westmoreland in 1907; currently functions as Town Hall of Colonial Beach.
35	Colonial Beach Historic District[4]	Colonial Beach, Westmoreland County, VA	District encompasses a 56-acre portion of Colonial Beach, a resort town on the Potomac River; primarily includes vernacular residential and commercial buildings constructed between 1900-20.
36	Greg House	Colonial Beach, Westmoreland County, VA	Built ca. 1925, this one-and-a-half story, three-bay, center-passage, double-pile bungalow, sits atop a promontory overlooking the Potomac River.

* Resources are keyed to Figure 6.
[1] Reamy, Brenda, Town Manager, Town of Montross, Virginia, pers. comm., December 15, 2008.
[2]Nominated to the National Register in 2008; National Register listing pending.
[3]Contributes to the National Register-eligible Colonial Beach Historic District.
[4]*The Town of Colonial Beach Comprehensive Plan, 2009-2029* indicates that a preliminary historic district is proposed within the Point and older sections of the Central Area of Colonial Beach. The preliminary district encompasses the majority of the Colonial Beach peninsula, and includes the 56-acre Colonial Beach Historic District which was determined National Register eligible by VDHR in 2001. The 2009 plan indicates that research and documentation must occur within the preliminary historic district to develop precise district boundaries for a National Register nomination form. Upon completion, the form would be submitted to VDHR for review, approval, and eventual listing in the National Register. Following listing of the district in the National Register, the 2009 plan indicates that town officials should also consider its designation as a local historic district which would be subject to local zoning ordinances and design review procedures (Town of Colonial Beach, 2009).

Table 13

Historic Architectural Resources over 50 Years Old Outside NSF Dahlgren
Within the 134 dBP Noise Contour

Address	Estimated Construction Date	Description
9277 Spy Hill Road King George, VA 22485-4747	ca. 1900s-2000s	Roughly 500-acre farmstead surrounded by cultivated and rolling fields; consists of a ca. 1970[1] one-and-a-half story frame Colonial-type residence; two early 20th-century frame barns; two early 20th-century frame sheds; two modern agricultural storage buildings; three modern sheds; and a modern trellis.
9445 Tetotum Road c/o P.O. Box 144 Tappahannock, VA 22560	ca. 1890-2000s	Roughly 96-acre farmstead surrounded by cultivated fields and forested land; consists of a ca. 1890[1] one-and-a-half story frame residence; a metal shed; and a frame barn.

[1]King George County Commissioner of Revenue, December 18, 2008.

II-10b. Historic Architectural Resources in Maryland

National Register-Listed Resources

Nine National Register-listed resources are located within or adjacent to the Historic Architectural APE in Maryland. Table 14 identifies the resources, which is keyed to Figure 6, Previously Identified Resources Within Historic Architectural APE. It should be noted that none of these resources are located within the 134 dBP noise contours.

National Register-Eligible Resources

Eight National Register-eligible resources are located within the Historic Architectural APE in Maryland. These resources are listed in Table 15, which is keyed to Figure 6. It should be noted that none of these resources are located within the 134 dBP noise contours.

Table 14

National Register-Listed Resources Outside NSF Dahlgren
Within the Historic Architectural APE in Maryland

Resource Number	Resource Name	Location	Description
1	Waverly	Waverly Point Road Newburg Charles County, MD	Federal-style brick home built between 1782 and 1823
2	Sarum	Budds Creek Road (Maryland State Route 234) Newport Charles County, MD	"Virginia-style" home, built ca. 1680; oldest documented structure in Charles County.
3	Christ Episcopal Church	**Church:** 25390 Maddox Road Chaptico St. Mary's County, MD **Parish Hall:** 37497 Zach Fowler Road Chaptico St. Mary's County, MD	Congregation was established in 1640; Colonial-style brick church was constructed in 1736 and is one of the oldest in continual use in the United States.
4	Deep Falls	Deep Falls Road Chaptico St. Mary's County, MD	Built in 1745 by the Thomas family.
5	Bachelor's Hope	Manor School Road Chaptico St. Mary's County, MD	Two-story, three-bay brick dwelling constructed in the 18th century.
6	Ocean Hall	Bushwood Road Bushwood St. Mary's County, MD	Built before 1670, Ocean Hall is the oldest surviving home in Maryland.
7	St. Clement's Island Historic District	St. Clement's Island St. Mary's County, MD	Small, deserted island in the Potomac River, which marks the location of the first landing of the English settlers of Maryland and the first Catholic mass held in the New World.
8	The River View	Burch Road St. Mary's County, MD	Built in the early 18th century by the Gardiner family, this property is notable for its smokehouse, shed, and log quarter – the largest grouping of such buildings in St. Mary's County.
9	St. Francis Xavier Church and Newtown Manor Historic District	Newtown Neck Road (Maryland State Route 243) Leonardtown St. Mary's County, MD	Constructed in 1767, these buildings, including a frame church, brick manor house, and the surrounding 700-ac farm comprise an example of a self-contained Jesuit community.

Table 15

National Register-Eligible Resources Outside NSF Dahlgren
Within the Historic Architectural APE in Maryland

Resource Number	Resource Name	Location	Description
21	Governor Harry W. Nice Memorial Bridge (Bridge 8039)	US Route 301 over the Potomac River Newburg Charles County, MD	This 1.7-mi-long bridge was built between 1939 and 1940 as part of Maryland's Primary Bridge Program which was initiated in the 1930s to provide access to previously isolated areas in Maryland; the only known example of a metal cantilever bridge in Maryland.
22	Marshall's Rest (Clifton Potomac Property)	11985 Edgehill Road Newburg Charles County, MD	Built in 1847, this home is a representative example of a mid-19th-century farmhouse with Federal-style influences.
23	John H. Reeder Property (Jones Property)	11450 Edgehill Road Newburg Charles County, MD	Built ca. 1865, this property is a good example of a mid-19th-century I-house with associated outbuildings, including barns, spring house, and smokehouse, all of which have retained integrity.
24	Bridge 1808	Maddox Road (Maryland State Route 238) over Burroughs Run Vicinity of Maddox St. Mary's County, MD	Bridge was built in 1929 by the State Roads Commission as part of the St. Mary's County road expansion; survives as a significant example of a single-span closed concrete-arch bridge with pierced concrete parapets.
25	Bridge CH-0016	Rock Point Road over Ditchley Prong Vicinity of the Village of Wayside Charles County, MD	Built in the 1920s, this single concrete beam- span bridge with concrete parapets is a representative example of its type, and has retained a high degree of integrity.
26	Small Structure No. 18049XO	Maryland State Route 520 over Branch of Whites Neck Creek Bushwood St. Mary's County, MD	Built in the 1930s-40s, bridge is an example of a concrete slab structure with concrete pier abutments, wing walls, and balustrade which has retained integrity.
27	Chaptico Historic District	Chaptico St. Mary's County, MD	This cluster of 18th-, 19th-, and early-20th century religious, commercial, and residential buildings form a rare surviving village center which originated in the 18th century in St. Mary's County.
28	Locust Grove	25434 Hurry Road Chaptico St. Mary's County, MD	Built ca. 1850, this home is a good example of well-preserved 19th-century domestic architecture. The interior features rare examples of Greek Revival-style woodwork and faux graining.

II-11. Project Rehabilitations/Alterations/Removals/Demolitions

Not applicable

II-12. Project Ground Disturbance

Not applicable

II-13. Project Description

The project area description is provided below.

13a) Existing Land Use

The following section describes current land use within the Historic Architectural APE in Virginia. The Historic Architectural APE includes a portion of King George County, in which NSWCDD is located, as well as most of neighboring Westmoreland County along the Potomac River to the southeast, and a small section of Richmond County to the south. The Historic Architectural APE also includes portions of Charles and St. Mary's counties in Maryland. However, land use within the Maryland portion of the Historic Architectural APE is not addressed in this document.

NSF Dahlgren

NSF Dahlgren occupies approximately 4,320 acres in King George County, Virginia. The facility is home to several tenant agencies, the largest of which NSWCDD. Other tenants include:

- Center for Surface Warfare Systems (CSWS);
- Joint Warfare Analysis Center;
- Aegis Training and Readiness Center/Center for Surface Combat Systems;
- AEGIS Ballistic Missile Defense Field Activity;
- Navy Air and Missile Defense Command; and
- 20th Space Control Squadron Detachment One.

NSF Dahlgren consists of two discrete areas separated by Upper Machodoc Creek: the 2,680-acre Mainside north of the creek, and the 1,640-acre EEA on Pumpkin Neck, to the south. Physical connection between the two areas is through off-base public roads and boat access across the Upper Machodoc Creek.

Mainside

Almost all existing development at NSF Dahlgren is found on Mainside. Mainside land uses include:

- *Ordnance/RDT&E*, which is the primary land use on NSF Dahlgren. Operations within this land use may include the use of explosive ordnance, and explosive ordnance is stored there. All of the PRTR land ranges and some of the Mission Area are encompassed within the *Ordnance/RDT&E* land use. Existing development within these ranges is mostly industrial in character.
- *RDT&E* land use encompasses laboratory-based RDT&E; no explosives are used in this area. Part of the Mission Area is within this area. The type of development is mostly that typical of suburban office parks, with large administrative and research facilities surrounded by parking lots and landscape features.
- *Open Space* encompasses the northwestern part of the installation, where natural special interest areas, such as Gambo Creek, are located.
- *Airfield Operations* land use includes existing runways and taxiways, hard stand areas, and the designated Clear Zone to the northwest. This land use is part of the Mission Area. Of the airfield's three existing runways, one (16/34) is restricted to daytime visual-flight-rules helicopter use only; the other two are inactive. Landing strips have been built near the Potomac River's shore on the EEA's Churchill Range and on Mainside's Terminal Range to accommodate unmanned aerial vehicle operations because the existing runways are outside the installation's special use airspace, and military unmanned aerial vehicles can only operate within controlled special use airspace.
- *Sailor and Family Support* land use includes facilities that support military personnel and their dependents: family housing and unaccompanied housing, as well as an elementary school, health clinic, fitness center, and Morale, Welfare, and Recreation facilities.
- *Base Support* land use includes administrative facilities.
- *Training Support* land use includes facilities used to train Navy personnel.
- *Utilities* land use includes installation utility support facilities.

Range Complexes

Two range complexes (see Figures 1 and 2) are associated with NSWCDD: the PRTR and the EEA Complexes. Each range is briefly described below.

The PRTR Complex extends mostly over water but also has a land component along the eastern edge of Mainside. The PRTR Complex land ranges from north to south are the:

- Missile Test Range
- Terminal Range
- Main Range
- Anti-Aircraft (AA) Fuze Range
- Machine Gun Range

The Missile Test Range is used to conduct overland test and evaluation of vehicles and special weapon components against targets. It includes suspended targets, a grazing pad, and portable facilities and analysis equipment. The Terminal Range supports RDT&E and production testing

of weapon systems, components, and other ordnance material, specifically experimental items. Its isolated location allows for tests requiring large quantities of explosives, high chamber pressures, ballistic evaluation of armor plate, and penetration tests of projectiles. The Main Range is used for systems integration and testing, and houses major caliber gun systems, including 39 gun emplacements. The AA Fuze Range provides a naval environment for guns and ammunition components testing, with a large "safety zone" for fuze testing near the shoreline. It houses a number of mounted weapons systems and test stands. The Machine Gun Range consists of four indoor and two indoor/outdoor firing bays and an outdoor test area with multiple gun emplacements.

The EEA Complex is located south of Mainside on Pumpkin Neck on the south side of Upper Machodoc Creek. The area is heavily forested, and development consists mostly of small support buildings, test facilities, and magazines. The EEA Complex supports performance, lethality, safety, and insensitive munitions testing to ensure that munitions fire when they should and do not fire inadvertently. Tests are performed on full-scale weapon systems and components containing explosives, propellants, and inert materials. The EEA Complex also supports RDT&E of lasers, electromagnetic fields, and chemical/biological simulants.

A Naval Ordnance Transient Electromagnetic Simulator facility and two ranges, Churchill and Harris, are located within the EEA Complex. The Churchill Range is used for destructive testing of items of up to 1,000 pounds (lbs) net explosive weight (NEW). Range infrastructure is in place to facilitate fast cook-off; slow cook-off; bullet impact; arena testing; and blast testing; as well as specialized testing as required. Resource Conservation Recovery Act -permitted open burn/open detonation units are also located on the Churchill Range. The Harris Range is used for destructive testing of items of up to 600 lbs NEW. Infrastructure is in place to facilitate slow cook-off; fragment impact; arena; and other specialized testing as required. In addition, the Harris Range supports equipment and infrastructure to conduct restrained 40-foot drop testing and full-spectrum shipboard shock testing on both explosive and non-explosive items.

County Land Use

The three Virginia counties located within the Historical Architectural APE are predominantly rural in character, with agricultural and forested land comprising the most common land uses. According to surveys prepared in the late 1990s and early 2000s, 91 percent of King George County and 82 percent of Westmoreland County were either forested or dedicated to agricultural uses (King George County, June 2006; Westmoreland County Planning Commission, 1999). Similar data for Richmond County was not available, but it is notable that in 2007, the three major employers in the county were a saw manufacturer and two lumber companies (Virginia Economic Development Partnership, 2007).

Still, the trend over the past few decades has been toward a loss of farm and forest land to single-family residential development to accommodate a growing population. For example, the number of housing units increased 38 percent in King George County and 12 percent in Westmoreland County between 2000 and 2010 (US Census Bureau, 2011).

In the three counties, residential development is low-density and widely spread out. However, each county features clusters of relatively denser residential and commercial uses, generally located along the main thoroughfares or near employment centers. These denser areas are suburban in character in contrast to nearby rural areas. Both residential and forested or agricultural land uses occur along the shores of the Potomac River and adjacent bays and estuaries, which are particularly popular with retirees and second-home owners. Forested land, fields, and parkland alternate with loosely-woven communities and denser villages or subdivisions. The Town of Colonial Beach in Westmoreland County is the only substantial town within the Historic Architectural APE.

The following is a summary description of existing land uses within the Historical Architectural APE by county.

King George County

The area of King George County located within the Historic Architectural APE is located in the eastern portion of the county, along the Potomac River Waterfront and the Westmoreland County border.

Rosier Creek, north of Colonial Beach, separates King George County from Westmoreland County to the south. To the north of Rosier Creek is the Governor Harry W. Nice Memorial Bridge, which carries traffic along US Route 301 over the Potomac River between the Town of Dahlgren and the Town of Newburg, Charles County, Maryland. Between the creek and the bridge, most of the shoreline is occupied by NSF Dahlgren, with a few residential lots between the southern boundary of the installation and the county line. The area that surrounds NSF Dahlgren is the most intensely developed portion of King George County, with 14 percent of the county's population and approximately 1,100 housing units. It includes the Town of Dahlgren wedged between Williams Creek and NSF Dahlgren. Dahlgren has a commercial core along Route 206 (Dahlgren Road) and Route 614 (Potomac Drive). The commercial core is surrounded by residential uses. Outside of Dahlgren, the area has two large residential subdivisions known as Bayberry and Monmouth North. It also has the largest office park in the county (the Dahlgren Technology Center) and the largest concentration of commercial development (including a strip shopping center, several fast food and other restaurants, and the majority of the county's gas stations) (King George County, June 2006).

The county's shoreline north of NSF Dahlgren is characterized by widely spread-out residential lots and three public parks. The 154-acre Barnsfield Park is located north of the Governor Harry W. Nice Memorial Bridge. As King George County's primary active recreational resource, the park features nature trails, picnic areas, playground, and beach fishing. The 10-acre Dahlgren Wayside Park is located at the foot of the bridge, and houses the Potomac Gateway Welcome Center, which provides touring information to Virginia visitors. The 2,579-acre Caledon State Park is located northeast of Dahlgren Wayside Park and is a designated National Natural Landmark. Among other recreational options, it offers visitors the opportunity to view bald eagles, which are common in this area. Preservation of the eagle's habitat is an important focus of the park as a natural resources area (King George County, June 2006).

Agricultural uses and residential development predominate south of NSF Dahlgren's southernmost parcel, the EEA Complex, within the westernmost 134 dBP noise contour. The area largely consists of late 19th/early 20th-century farmsteads and trailer homes that are rapidly giving way to extensive residential development. A substantial development, Mt. Moriah-on-the-Potomac, consists of recently constructed ample homes. The northern portion of this development abuts the southern EEA Complex boundary.

The Historic Architectural APE also includes an area of King George County southwest of NSF Dahlgren roughly shaped like an inverted triangle. Upper Machodoc Creek forms the base of the triangle to the north, and its apex is located west of the Town of Rollins Fork to the south. The land within this triangle is predominately characterized by forest and agricultural uses. Low-density residential development in this area occurs in Tetotum, near the Westmoreland County border, and to the west of Tetotum along Round Hill Road (King George County, June 2006).

Westmoreland County

The majority of the Historic Architectural APE is located in the northern section of Westmoreland County, along the shores of the Potomac River. This county, like the others, is characterized by a mix of forests and agricultural land. Much of the county's upland areas lack access to public water and sewer services, so they have remained sparsely developed (Westmoreland County Planning Commission et.al., 1999). However, Westmoreland County also contains the largest concentrations of residential development in the Historic Architectural APE.

Westmoreland County's shoreline consists primarily of undeveloped stretches, interrupted by clusters of residential development. The undeveloped areas have two large riverside parks: Westmoreland State Park and the George Washington Birthplace National Monument, located east and west of Popes Creek, respectively. The National Register-listed Westmoreland State Park, a 1,299-acre facility extending about 1.5 miles along the river, offers opportunities for hiking, camping, fishing, boating, and swimming. The 622-acre George Washington Birthplace National Monument, managed by the National Park Service, has approximately 1 mile of waterfront.

Areas of waterside residential concentration include the Yeocomico estuary (Kinsale) near the western border of the Historic Architectural APE; Coles Point and Glebe Harbor on Lower Machodoc Creek; the area surrounding Mattox Creek and Monroe Bay, near Colonial Beach, including the villages of Monroe Hall and Oak Grove; and the Currioman Bay/Stratford Harbour area in the central part of the county's waterfront.

The Stratford Harbour area is situated within the easternmost 134 dBP noise contour, overlooking the Potomac River. The area was initially laid out for development by American Central Corporation, a subsidiary of International Paper Company, during the late 1960s. American Central Corporation was a Lansing, Michigan-based developer of leisure-time property. It was acquired by International Paper during a period in the late 1960s when many major American corporations became involved in real estate development (*TIME*, 1969). Original plans for Stratford Harbour included an airstrip for small private planes and shopping

area, but these were never erected. However, Lake Independence, a 100-acre lake, was created in the center of the development by damming a local waterway. Originally there were over 1,400 parcels designated as saleable lots. Many of the lots were sold for recreational purposes as they were too small to develop, and owners would come to the area on the weekends to use the swimming pool, beaches and marina. American Central Corporation eventually went bankrupt. In 1971, Stratford Hall Property Owners Association was incorporated in Virginia to oversee management of the community. Over time, roughly 450 lots have been developed with primary and secondary residences in a variety of architectural styles, including late 20th and early 21st-century versions of Georgian, Colonial, Modern and suburban-type homes. The community is anchored by a club house built in the neo-Georgian style, similar to nearby Stratford Hall, a National Historic Landmark, and was dedicated in 1970. The building is surrounded by a pool, tennis court and picnic area. A beach and marina are also located within the community on the banks of the Potomac River (Stratford Hall Property Owners Association, 2006).

Two incorporated towns are located within the Historic Architectural APE in Westmoreland County: Colonial Beach and Montross. Colonial Beach was founded as a waterside resort in the 19th century and experienced a marked decline in the 1960s-70s. In more recent decades, it has regained popularity as a waterfront community and beach resort; its year-round population of 3,250 swells to 10,000 or more in the summer (Town of Colonial Beach, 2010). Colonial Beach extends along a four-mile stretch of the Potomac River, on a small peninsula separating the river from Monroe Bay. For this reason, potential future growth is mostly confined to the northwest in an area known as Potomac Beach. In 2009, 70 percent of the town was developed and 30 percent vacant. The predominant land use is single-family residential on small lots (0.25 acres or less), although more recent residences tend to be built on larger lots, and the proportion of year-round residences relative to vacation homes has been rising. Commercial uses occur mainly in three locations: the downtown/beachfront area; Colonial Avenue; and Route 205. Community uses (e.g., schools, churches) are mostly found within the Central Area (just south of Colonial Avenue) (Town of Colonial Beach, 2009).

The Town of Colonial Beach Comprehensive Plan, 2009-2029 indicates that a preliminary historic district is proposed within the Point and older sections of the Central Area of Colonial Beach. The preliminary district encompasses the majority of the Colonial Beach peninsula, and includes the Colonial Beach Historic District which was determined National Register eligible by VDHR in 2001. The 2009 plan indicates that research and documentation must occur within the preliminary historic district to develop precise district boundaries for a National Register nomination form. Upon completion, the form would be submitted to VDHR for review, approval, and eventual listing in the National Register. Following listing of the district in the National Register, the 2009 plan indicates that town officials should also consider its designation as a local historic district which would be subject to local zoning ordinances and design review procedures (Town of Colonial Beach, 2009).

Montross is located in the center of Westmoreland County to the east of the Richmond County border. Montross has a number of suburban-style residences, and serves as a retail destination for both its residents and those living in the surrounding agricultural areas. A few smaller residential areas, such as Oak Grove (located near the George Washington Birthplace National Monument), are targeted as secondary growth areas for future development, but Colonial Beach, Potomac

Beach and Montross remain the county's primary population centers (Westmoreland County Planning Commission, et.al., 1999).

Richmond County

A small, triangular-shaped portion of northern Richmond County is located within the Historic Architectural APE. It is surrounded by Westmoreland County between the Rappahannock River to the west and Montross to the east. Aside from some very low-density residential development west of Montross along Snyder Road, this portion of Richmond County consists almost entirely of wooded areas and agricultural land.

13b) Recent Modifications to Landscape

Recent modifications to the landscape primarily concerns the terrestrial portion of the Archaeological APE featured in Figure 1. It includes the EEA Complex of NSWCDD and a 300-foot wide buffer zone along the southern boundary of the complex between Upper Machodoc Creek and the Potomac River. Since World War II, the EEA Complex has been primarily used for storing, testing, and disposing of ordnance and explosives (US Navy, August 1992). Development within the EEA Complex consists of a small network of roads, a pier along Upper Machodoc Creek, test ranges, and a small number of structures related to activities at NSWCDD. Development in the 300-foot wide buffer south of the EEA Complex includes a small number of homes close to the river, and a several cleared fields surrounded by woodlands.

Within the EEA Complex, the roadways and footprints of the two test ranges (Harris Range and Churchill Range) are visible on the most current Dahlgren, VA-MD USGS Quadrangle (Figure 1). Development not depicted on the USGS Quadrangle includes a pier on Upper Machodoc Creek in the northeast portion of the EEA Complex; the Naval Ordnance Transient Electromagnetic Simulator facility, constructed after 1992 south of an unnamed road in the south-central portion of the EEA Complex; and the Counter Explosive Test Facility in the vicinity of Black Marsh Creek in the southeast portion of the EEA Complex.

13c) Project Rehabilitations/Alterations/Demolitions

Not applicable – no rehabilitation/construction/demolition will occur.

13d) Project Description

Proposed Action

The US Navy, a federal agency, proposes to expand NSWCDD's RDT&E activities within the PRTR and EEA complexes, the Mission Area (Figures 2 and 3), and in the special-use airspace. These capabilities include outdoor activities that require the use of:

- Ordnance
- Electromagnetic (EM) energy
- Lasers

- Chemical and biological (chem/bio) simulants

The purpose of the Proposed Action is to enable NSWCDD to meet current and future mission-related warfare and force protection requirements by providing RDT&E of surface ship combat systems, ordnance, lasers and directed energy systems, force level warfare, and homeland and force protection. The need for the proposed action is to enable the Navy and other stakeholders to successfully meet current and future national and global defense challenges by developing a robust capability to carry out assigned RDT&E activities on ranges complexes, in the Mission Area, and in special use airspace.

Under the Proposed Action, the number of firings, detonations, events, and hours of range use that would take place annually would increase above recent levels for all activities except large-caliber gun firing, as described in the following sections. The alternatives being evaluated in the Draft Environmental Impact Statement (DEIS) – the No Action Alternative, Alternative 1, and Alternative 2 – reflect different numbers of annual firings, detonations, and events for each activity.

The No Action Alternative includes the number of firings, detonations, and events typical of the years from 1993 (1995 for ordnance) through 2009. Alternative 1 includes annual increases of 325 percent in small-arms firing, 5 percent in detonations, 20 percent in EM energy events, 108 percent in laser events, 400 percent in chem/bio events, and 16 percent in PRTR hours of use above recent levels. Alternative 2 includes annual increases of 400 percent in small-arms firing, 21 percent in detonations, 39 percent in EM energy events, 142 percent in laser events, 483 percent in chem/bio events, and 33 percent in PRTR hours of use above recent levels, or approximately an annual average 16 percent increase above Alternative 1 levels of all activities. Under Alternative 2, the Preferred Alternative, NSWCDD would gain the greatest flexibility to adapt to program changes in the future. The alternatives are summarized in Table 16.

Table 16

NSWCDD Outdoor RDT&E Activities - DEIS Alternatives

RDT&E Activity	No Action Alternative Activity Magnitude	No Action Alternative Average Annual Activity Levels	Alternative 1 Average Annual Activity Levels	Alternative 2 (Preferred Alternative) Average Annual Activity Levels
Guns/ Projectiles	>20 mm to 8" caliber gun/ projectile	4,700 projectiles	4,700 projectiles	4,700 projectiles
Small-Arms	≤20 mm caliber gun/bullet	6,000 bullets	25,500 bullets	30,000 bullets
Detonations	≤0.01 lbs to 1,000 lbs NEW	190 detonations	200 detonations	230 detonations
EM Energy	300 kHz to 300 GHz frequency 10 W to 500 MW average power	490 events	590 events	680 events
Lasers	500 nm to 11 µm wavelength 1 mW to 100 kW maximum power	60 events 100 kW maximum power	125 events 500 kW maximum power	145 events 500 kW maximum power
Chemical & Biological Defense	≤20 gals of simulant/event	12 events Chemical simulants only	60 events Chemical and biological simulants used separately	70 events Chemical and biological simulants used separately and together
PRTR Use	750 hours annually	750 hours	870 hours	1,000 hours

These RDT&E activities included under the alternatives are described below.

Ordnance Activities

- **Large-caliber Guns/Projectiles**. The guns included in the all alternatives are large-caliber weapons that can fire either live (explosive) or inert (non-explosive) projectiles. The guns range in size from more than 20 millimeters (mm) up to 8" caliber, although the largest gun normally fired is the 155 mm howitzer (the 8" gun is only fired occasionally to launch non-explosive canisters of electronic components of new projectiles to test how well they can withstand high gravitational forces). The gun fired most frequently is the 5" gun. Each projectile fired from a gun counts as one of the 4,700 projectiles fired annually on average in particularly active years. In most years, the average number of projectiles fired is considerably less than 4,700 projectiles; in some years, the number fired annually exceeds 4,700. Most projectiles are fired into the river range, but some projectiles fired on the Missile Test Range and Terminal Range are aimed at gun butts on land, rather than targets in the river. Under Alternative 1 and the Preferred Alternative the number of large-gun projectiles would not change, but long-range guns would fire into a target area from 32,000 to 35,000 yards in the PRTR up to 10 days a year, which is more frequently than over the last 15 years.

- **Small-Arms Activities**. NSWCDD's small-arms (≤20 mm) tests usually employ machine guns firing mostly inert bullets with small propellant charges, which produce lower noise levels that affect a smaller area than the noise resulting from firing large-caliber guns. Approximately ten percent of the bullets are fired into the river range. Each bullet fired counts as one of the bullets fired annually. Under Alternative 1 smalls arms use outdoors would increase from 6,000 to 25,500, while under the Preferred Alternative it would increase to 30,000 bullets fired annually.

- **Detonations**. Most ordnance detonations take place on the EEA's Churchill and Harris Ranges, but a few take place on the Explosive Ordnance Disposal training area of the Missile Test Range. Non-fragmenting ordnance detonated on the Explosive Ordnance Disposal training area includes detonators but no other explosives. The amount of explosives used in the ordnance that is detonated on the EEA can vary from less than 0.01 lbs up to 1,000 lbs NEW. Each detonation that takes place on the EEA is counted towards the total annual detonations. Under Alternative 1 the annual number of detonations would increase from 190 to 200, and under the Preferred Alternative it would increase to 230.

Electromagnetic (EM) Activities

EM energy and its application for military use is a major area of RDT&E at NSWCDD. Use of EM technology promises to be one of the most important areas for advancing the ability to communicate, detect objects or substances, protect against enemy weapons, and destroy enemy targets with levels of speed, accuracy, and safety not possible with conventional guns and missiles. NSWCDD is in the process of moving directed energy from indoor laboratory science to outdoor development, test, and evaluation. The PRTR provides a unique test capability not found elsewhere within the Department of Defense (DoD): an instrumented maritime range with a high-power microwave propagation source close to the water, allowing study of the effects of maritime conditions on high-power microwave tests using non-lethal harbor scenarios, open-water boat swarms, and counter-drug interdictions.

Activities employing higher-power EM energy are evaluated in the alternatives. EM energy emitters operate in the frequency range of 300 kilohertz (kHz) (or 300,000 cycles per second) to more than 300 gigahertz (GHz) (or 300 billion cycles per second) at powers ranging from 10 watts (W) to more than 500 megawatts (MW) (or 500,000,000 watts) (average power). Under Alternative 1, EM operations would increase annually from 490 to 590 events. Under the Preferred Alternative, these operations would increase annually to 680 events. An event consists of all the tests that take place under one Standard Operating Procedure (SOP) on one day. If two groups of tests are conducted on the same day under separate SOPs, then each group counts as a separate event.

High Energy (HE) Laser Activities

The high-energy (HE) lasers that are operated at NSWCDD covered under the No Action Alternative emit focused (lased) light ranging in power from 1 mW (Class 3) to 100 kW (Class 4) in a wavelength range from 500 nm to 11 μm. Class 1 and Class 2 lasers, which are usually eye-safe, are not included in the Proposed Action because they have negligible environmental impacts.

High-power lasers or HE laser RDT&E will focus on directing increasing levels of power at various types of targets. Before lasers can effectively be used as a weapon to replace guns on ships, they must be able to perform in the marine environment. Little is known about how lasers perform in the marine environment. This problem becomes significantly more pronounced during inclement weather such as fog and rain. Therefore, this will be an important area of testing as different types of lasers, using different frequencies and power levels, will be fired in various weather conditions. Firings occur across Upper Machodoc Creek between the Electromagnetic Research and Engineering Facility building north of the Machine Gun Range within the PRTR Complex, and the Counter Explosive Test Facility building at the EEA Complex. Firings also originate at land ranges within the PRTR Complex across the creek to the EEA Complex.

A laser event is defined as consisting of the tests that take place under one SOP on one day. Under Alternative 1, laser operations would increase annually from 60 to 125 events with a maximum power of 500 kW. Under the Preferred Alternative, these operations would increase annually to 145 events also with a maximum power of 500 kW.

Chemical/Biological Simulant Activities

As new chem/bio detectors, decontaminants, and collective protection systems are developed and existing ones upgraded under the DoD's Chemical and Biological Defense Program, they will need to be operated in maritime conditions and aboard vessels over water. NSWCDD, as the primary Navy laboratory for this program, is the most cost-effective site for such activities. Activities would also take place on land ranges and the Mission Area.

Testing detectors in an outdoor marine/estuarine environment is essential. Stand-off detectors such as the Joint Service Lightweight Stand-off Chemical Agent Detector remotely detect chemical-agent vapors some distance from the source using a scanner, a detector, and an electronics module to process and communicate information. These sensors detect infrared radiation, recognized as temperature differences – such as the temperature difference between a vapor cloud and the surrounding air. When the background air being sensed includes the area where water and sky meet (the water-sky interface), the infrared sensor may lose sensitivity, making it more difficult to distinguish a harmful vapor. Water vapor and fog from the marine/estuarine environment present a challenge for chemical sensors, which must be overcome. Passive infrared sensors such as the Joint Service Lightweight Stand-off Chemical Agent Detector do not emit infrared radiation. Point detector sensors, typically tested by first attaching the sensor (a badge, a patch or a small unit) to a surface or to the inside or outside of a protective suit; then challenging the sensors with a cloud of simulant at various concentrations; and, finally, observing whether the sensors detect the simulant would also be used.

Chemical and biological simulants may be tested on ranges previously used – the PRTR, EEA, and Main Range – as well as other land ranges, the Mission Area, and parts of the MDZ, where they have not been tested in the past. Future activities using chemical and biological simulants outdoors on the land and water range complexes and the Mission Area would increase from the current No Action baseline of 12 events annually using chemical simulants. Under Alternative 1

there would be up to 60 events annually of either chemical or biological simulants released for each event, but chemical and biological simulants would not be mixed. Under the Preferred Alternative the number of events would increase to up to 70 events annually and outdoor tests could include mixtures of chemical and biological simulants.

PRTR Use

When NSWCDD is using the PRTR for mission activities, public access to the part of the range in use is restricted. Currently, only access to the part of MDZ or upper lower danger zone (LDZ) in use is restricted. The types of activities conducted on the upper danger zone (UDZ) and mid-to-lower LDZ do not require that public access to these danger zones be restricted. Access to the MDZ or part of the MDZ or LDZ currently is restricted an average of 750 hours a year, based on the hours that range control boats are deployed. This would increase to 870 hours annually under Alternative 1 and to 1,000 hours annually under the Preferred Alternative.

NSWCDD usually conducts outdoor RDT&E operations Monday through Friday between 8 am and 5 pm. Operations outside these times are infrequent. Occasional ordnance being subjected to slow cookoff tests within the EEA Complex may detonate at night or on weekends, as the outcome of these tests cannot be determined in advance – it is the reason for the testing.

In the future, because of the growing need to test EM equipment, HE lasers, and chemical/biological sensors in foggy, rainy, or nighttime conditions, some testing would take place at night and on weekends. This would enable tests to be conducted when conditions match realistic operational requirements.

13d) Effects of the Proposed Action

Effects on Archeological Resources

Under the Proposed Action increased EM energy, laser, and chem/bio defense activities are not expected to affect previously identified or potential archaeological resources within the Archaeological APE because these activities would not affect resources underground or underwater in the river.

There would be no increase in the number of target areas for large-caliber projectiles fired, and therefore, there would be no change from existing conditions. Under the Preferred Alternative there would be an increase in small arms (those of calibers 20 mm or less) with the number of bullets increasing from 6,000 to 30,000 annually. The majority of the rounds would be fired on land, typically into butts or backstops, while typically ten percent would be fired into the river within 1,000 ft of shore. As the bullets on land would be fired into set targets, this action would not impact known or unknown archaeological resources. Similarly, the firing of rounds into the river should not impact known or unknown archaeological resources due to the small size of the rounds and the rapid deceleration of the rounds as they enter the water.

The increase in the number of annual detonations at the Churchill and Harris ranges within the EEA Range Complex from 190 to 230 annually under the Preferred Alternative has the potential to directly or indirectly impact the ranges and the area immediately surrounding the ranges. A study conducted for military safety testing within the EEA noted that ground impacts from a buried detonation of up to 1,000 lbs net explosive weight (the largest detonation that takes place

on the EEA) would cause ground motion that could impact structures less than 300 ft away. As there are no previously identified sites within these locations on file with the VDHR or NSF Dahlgren, there would be no impacts to known resources from the proposed actions. The archaeological potential for unknown resources to be present within these two ranges is none-to-low, as a result of past subsurface disturbances. The Churchill and Harris ranges have been subjected to extensive subsurface disturbance as the result of aircraft bombing from 1944 to 1957 and detonations since World War II.

Finally, an increase in the number of annual hours of use of the PRTR is proposed – from 750 hours to 870 hours. For more than 90 years, activities within the PRTR Complex have included the firing of inert and live projectiles from the PRTR land ranges into the Potomac River. Currently, inert projectiles consist of a steel case filled with material such as concrete, replicating the weight of live projectiles. Live ordnance utilized have included naval gun projectiles, small explosives (i.e., grenades), aircraft bombs, and small rockets, which are set to explode in the air above the water or upon impact with the water. However, it should be noted that due to the nature of testing, some projectiles remain unexploded. Remnants of the inert and live projectiles are propelled into the river bottom, where they are buried below the surface.

Five unevaluated maritime resources have been identified within or possibly within the PRTR portion of the Archaeological APE. One of these resources – the anchor of the Colonial Beach South QF04-Dahlgren Anchor Site – has been removed to another location, while three others were either wholly or partially destroyed before they came to rest on the river bottom (shipwrecks of the Christiana Keen, Frances Elmor, and Three Boats). The remaining resource, known via a side-scan sonar anomaly identified in 2006, is situated along the river bottom at the northeastern end of the Archaeological APE. In addition, there is the potential for unknown resources to be located within the Archaeological APE. However, the prior nine decades of gun-testing in this area have likely heavily disturbed the river bottom. Therefore, while the previously described activities may cause indirect impacts to previously identified and unknown resources within the Archaeological APE, in accordance with Section 106, they are not expected to have an adverse effect on archaeological resources within it.

Therefore, the proposed activities are not expected to cause indirect impacts to previously identified and unknown resources within the Archaeological APE, in accordance with Section 106, they are not expected to have an adverse effect on archaeological resources within it.

Effects on Historic Architectural Resources

Most outdoor RDT&E activities associated with the Proposed Actions are not anticipated to affect resources within the Historic Architectural APE. These activities and the reasons for no effect are:

- EM Energy Activities. As EM energy activities are guided by stringent safety standards, the activities of emitters are unlikely to affect the built environment.
- Laser Activities. Because HE laser activities are guided by stringent safety standards, laser activities are unlikely to affect the built environment.

- Chemical and Biological Defense Activities. Chemical and biological sensor tests employ low toxicity simulants rather than actual agents, in accordance with federal laws. The low concentrations of already low-impact simulants used would not affect buildings.
- Small-Arms Activities. The increase in firing of small arms would generate additional noise in the vicinity of the installation, including the Proposed Main Battery Historic District at NSF Dahlgren Mainside, the site of the Main Range. However, small-arms testing would not cause vibrations to buildings and, therefore there would be no impact to buildings in the vicinity of the installation.
- PRTR Use. Increased use of the river would have no effect on buildings. The increased use would be to support non-ordnance activities, including EM energy, lasers, and chem/bio sensor tests.

Impacts from large-caliber gun firing and explosive detonation RDT&E activities may affect resources in the Historic Architectural APE. As described in Section II-8, the Historic Architectural APE is based upon peak-noise contours associated with multiple gun/projectile firings and detonations that would not occur simultaneously, but were combined together to form the worst-case scenario under each alternative.

Four peak-noise contours are shown on Figure 1: the 120-dBP noise contour, which circumscribes a wide area and three 134-dBP noise contours around smaller, more-focused areas. The easternmost 134-dBP contour partially occurs on land and in target areas in the Potomac River, and is associated with gun/projectile activities. The central contour occurs in target areas in the Potomac River, and is associated with gun/projectile activities. The westernmost contour partially occurs on land and in target areas in the Potomac River, and is associated with both gun/projectile activities at Mainside and detonations on the EEA.

Impulse noise and vibration associated with large-gun firing and detonations has the potential to cause minor damage to structures when it reaches levels of 134 dBP. Within the land-based portions of the easternmost and westernmost 134-dBP contours, such noises may result in vibrations that have the potential to cause window panes and plaster to crack in structurally-compromised buildings.

There are no previously identified and evaluated National Register-listed or National Register-eligible resources located within the land-based portions of the easternmost and westernmost 134-dBP noise contours associated with worst-case scenario gun/projectile firings or detonations outside NSF Dahlgren.

Within NSF Dahlgren the four historic districts described in Section II-10 are within the 134-dBP peak-noise contour and may be affected by worst-case scenario gun/projectile firings conducted within the PRTR Complex ranges at Mainside, as shown on Figure 5. There are no previously identified and evaluated National Register-listed or National Register-eligible resources located within the land-based portion of the westernmost 134-dBP noise contour at NSF Dahlgren associated with the worst-case scenario of detonations at the EEA.

Although the four historic districts would be indirectly affected by the large-gun firing under all alternatives, the key event which drives the shape of the 134-dBP contour – the firing of an 8" gun with live projectiles from the Main Range – has not actually taken place in almost a decade. It was used only for worst case noise modeling purposes. If a gun requiring a firing charge

similar to the 8" gun were to be fired in the future (there are no plans), weak buildings within the 134-dBP contour in the one National Register-eligible district and the three proposed districts may be subject to vibrations which could crack plaster and windows. Such actions would not diminish the integrity of the one eligible and three proposed districts provided that NSWCDD personnel undertake repairs as required.

Furthermore, the level of gun/projectile activities under all alternatives would remain constant for the foreseeable future. For this reason, it is unlikely that weak buildings within the one eligible district and three proposed districts would suffer further vibration damage beyond what they have in the past.

Therefore, in accordance with Section 106 and NEPA, worst-case scenario gun/projectile firings would have no adverse effect, with conditions, on either the National Register-eligible Dahlgren Residential Historic District or the three proposed historic districts at NSF Dahlgren, part or all of the areas of which fall within the 134-dBP contour. Such conditions would require NSWCDD personnel to undertake repairs to plaster walls and glass windows that may be cracked by vibrations associated with worst-case scenario gun/projectile firings.

Based upon the no adverse effect conclusion for areas falling within the 134-dBP contour, there are also no adverse effects expected within the 120-dBP contours. However, such noise may result in vibrations which have the potential to rattle loose window panes and cause concern on the part of property owners. NSWCDD selected six historic architectural resources within the 120-dBP contour of the Historic Architectural APE to conduct noise and vibration monitoring during the firing of live projectiles from the 5"/62 gun on the PRTR Complex's AA Fuze Range in November 2009. Measured peak noise levels ranged from 89 to 129 dBP. Vibration levels ranged from non-detectable to slightly above 0.5 inches per second (in/sec). Vibration levels of 2.0 in/sec are regarded as the threshold at which minor structural damage may begin to occur. However, 0.5 in/sec has been conservatively identified as a potential level at which glass and plaster may crack in poorly maintained buildings and structures.

Although the six resources were not damaged during gun/projectile firings, live projectiles from the 5"/62-caliber gun resulted in indirect noise and vibration effects. Therefore, it is anticipated that the other identified resources would be indirectly affected by worst-case scenario gun/projectile firings and detonations in a similar manner to impacts caused by firing live projectiles from the 5"/62 gun.

It is unlikely that vibrations that may result from the large-gun firing or the detonations would diminish the integrity of the resources within and adjacent to the 120-dBP contour. Because of their age and their having remained intact through the period when 12", 14", and 16" guns were being fired (the 16" gun, for example, required a very large quantity of explosives to fire – the firing charge – and fired projectiles that contained 150 lbs of explosives vs. 9 lbs in the 5"/62 projectiles fired during noise measurements at historic structures), these resources have been subjected to much greater vibrations over time and would not likely suffer damage. There would be no increase in large-gun firing under any of the alternatives. Furthermore, the current NSWCDD Noise Management Process ensures that noise and vibrations anticipated as a result of gun/projectile firing and detonations are kept to reasonable levels.

Therefore, in accordance with Section 106 and NEPA, worst-case scenario gun/projectile firings and detonations would have no adverse effect on the 19 resources in Virginia within and adjacent to the 120-dBP contour.

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Appendix 1

Historic Districts on Naval Support Facility Dahlgren, Virginia

Photo 1: View of the Parade Ground, a contributing resource to the National Register-eligible Dahlgren Residential Historic District, located within the Residential/Recreation Complex – Mainside.

Photo 2: View of Building 101, Administration Building, a contributing resource to the National Register-eligible Dahlgren Residential Historic District.

Photo 3: View of Building 501, Inspector's Quarters, a contributing resource to the National Register-eligible Dahlgren Residential Historic District.

Photo 4: View of Building 503, a contributing resource to the National Register-eligible Residential Historic District.

Photo 5: View of Buildings 802, 804 and 806 along Welch Road. These residences are contributing resources to the National Register-eligible Dahlgren Residential Historic District.

Photo 6: View of Building 102, Bombproof, a contributing resource to the proposed National Register-eligible Main Battery Historic District, located within the Main Range – Mainside, part of the Potomac River Test Range Complex. The Main Range is one of the ranges where gun/projectile tests are carried out.

Photo 7: View of Building 111, Tech Library (left) and Building 218, RDT&E Laboratory (right), located within the proposed National Register-eligible Main Battery Historic District. Building 111 is contributing and Building 218 is non-contributing.

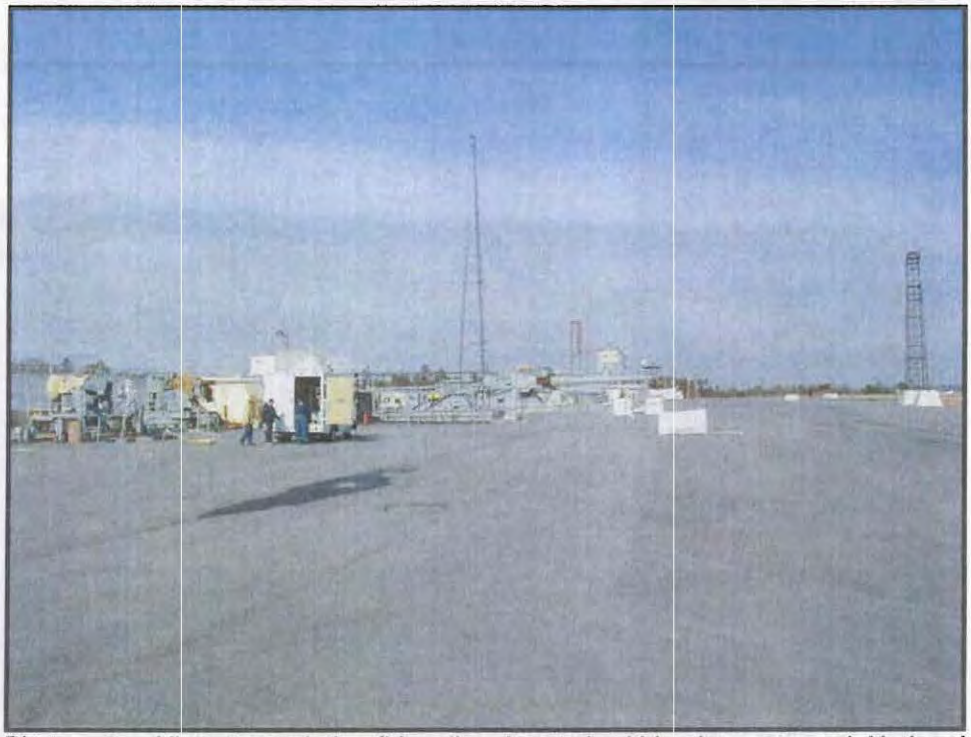


Photo 8: View toward the firing line located within the proposed National Register-eligible Main Battery Historic District. Gun/projectile tests are carried out at this location, which is part of the Potomac River Test Range Complex.

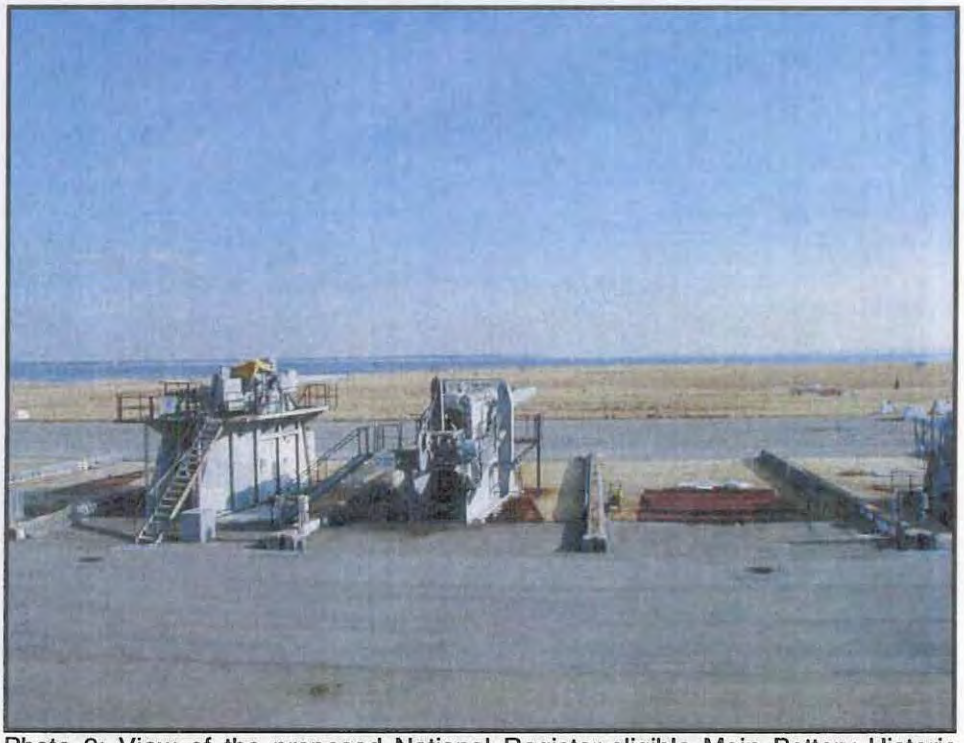


Photo 9: View of the proposed National Register-eligible Main Battery Historic District, Potomac River Test Range Complex, looking down the Potomac River. Gun/projectile tests are fired toward the river from this location.

Photo 10: View of the proposed National Register-eligible Wharf Historic District. Note the concrete pads which originally formed part of Structure 1175, Crane Runway. Note that Crane Runway has since been demolished and the piers visible in this photo are not original.

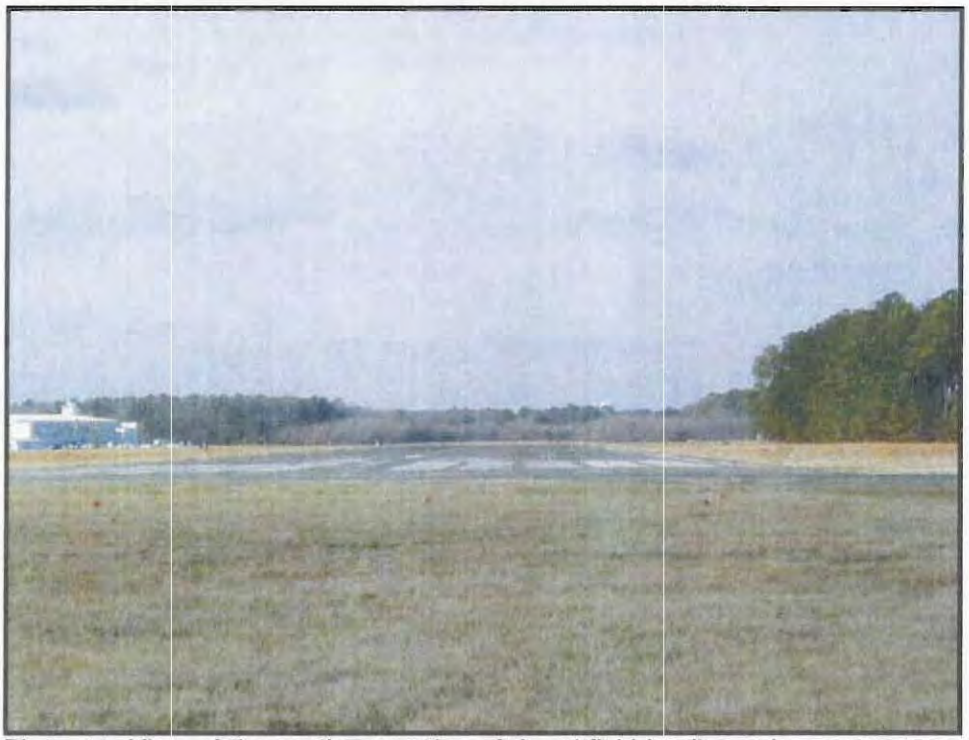


Photo 11: View of the southern portion of the airfield landing strip, or runway, a contributing resource in the proposed National Register-eligible Airfield Historic District. Note that the southern portion of the runway is the only segment of the district located within the 134 dBP noise contour.

Appendix 2

Resources Over 50 Years Old on Naval Support Facility Dahlgren, Virginia

Photo 1: View toward the Potomac River from the Terminal Range – Mainside, Potomac River Test Range Complex. Note that the Terminal Range is one of the ranges where gun/ projectile tests occur. These tests are fired toward the river from this location.

Photo 2: View of Structure 262, Gun Emplacement, located in the Terminal Range – Mainside, Potomac River Test Range Complex.

Photo 3: View of Building 1111, Personnel Shelter-Lunch Room, located in the Terminal Range – Mainside, Potomac River Test Range Complex.

Photo 4: View of Building 370, Ordnance Road Test Facility, located in the Anti-Aircraft (AA) Fuze Range – Mainside, Potomac River Test Range Complex. Note that the AA Fuze Range is one of the ranges where gun/projectile tests occur.

Photo 5: View of Building 371, Ordnance R&D Test Facility, located in the AA Fuze Range – Mainside, Potomac River Test Range Complex.

Photo 6: View of Structure 409, Magazine, located in the AA Fuze Range – Mainside, Potomac River Test Range Complex.

Photo 7: View of Building 152, Applied Material Technology, Survival, located in the Mission Area – Mainside.

Photo 8: View of Building 108, ROICC/Telecom Office, located in the Industrial Complex – Mainside.

Photo 9: View of Building 114, Flammables Storehouse, located in the Industrial Complex – Mainside.

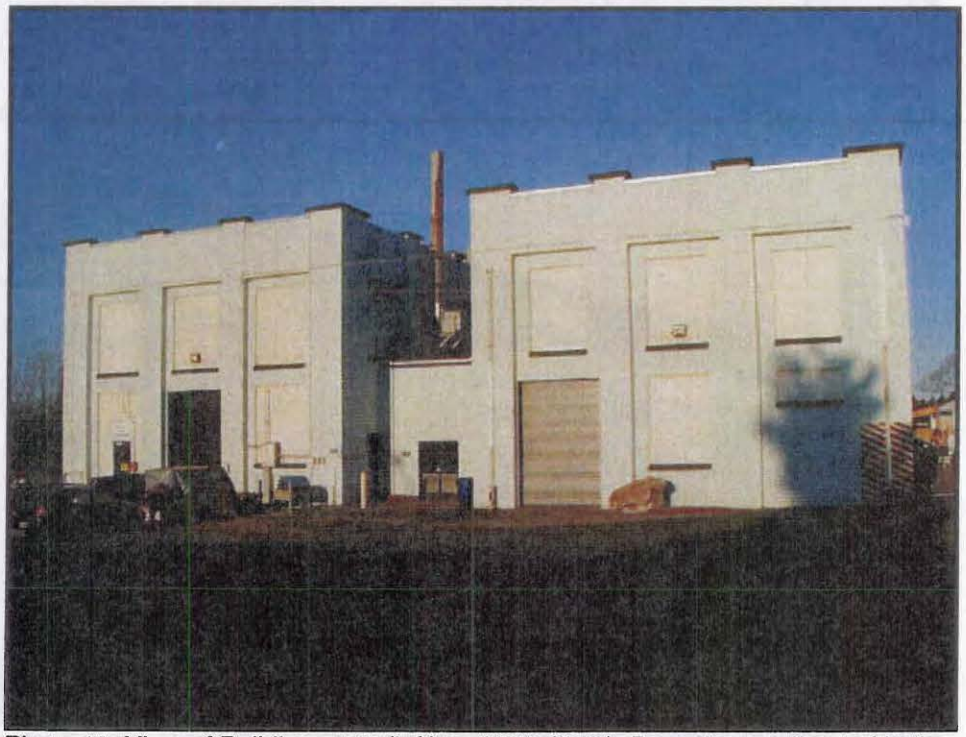


Photo 10: View of Buildings 115 (left) and 248 (right), Powerhouse, located in the Industrial Complex – Mainside.

Photo 11: View of Building 121, Technical Building, located in the Industrial Complex – Mainside.

Photo 12: View of Building 125, Supply Administration Office, located in the Industrial Complex – Mainside.

Photo 13: View of Building 134, Safety and Environmental Building, located in the Industrial Complex – Mainside.

Photo 14: View of Building 190, Fuze Design Branch, located in the Industrial Complex – Mainside.

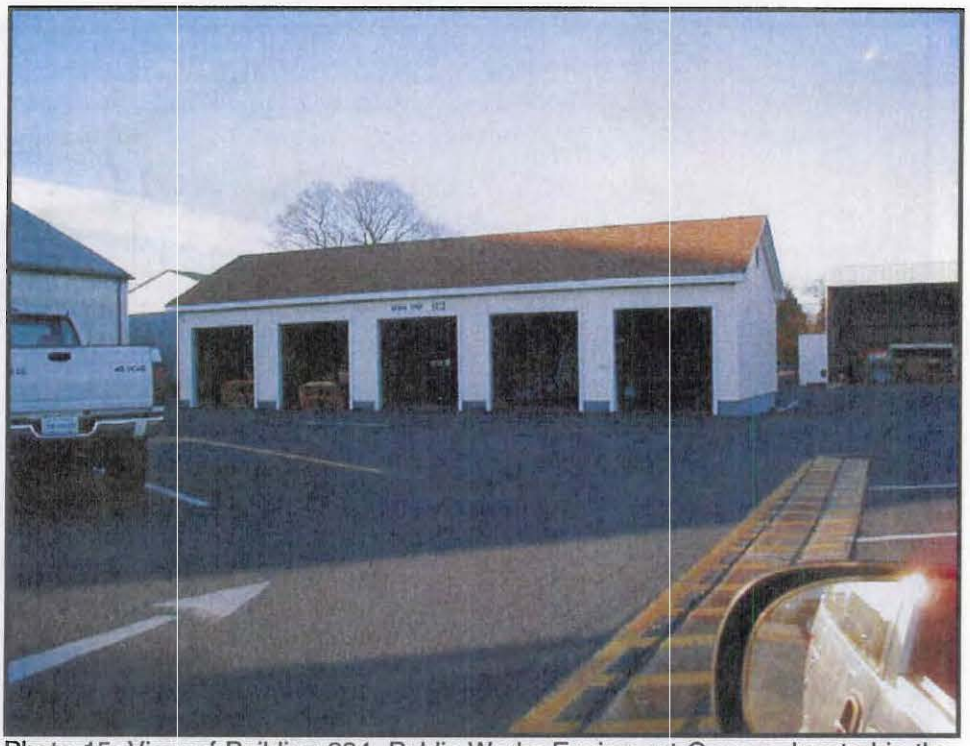


Photo 15: View of Building 334, Public Works Equipment Garage, located in the Industrial Complex – Mainside.

Photo 16: View of Building 480, General Warehouse, located in the Industrial Complex – Mainside.

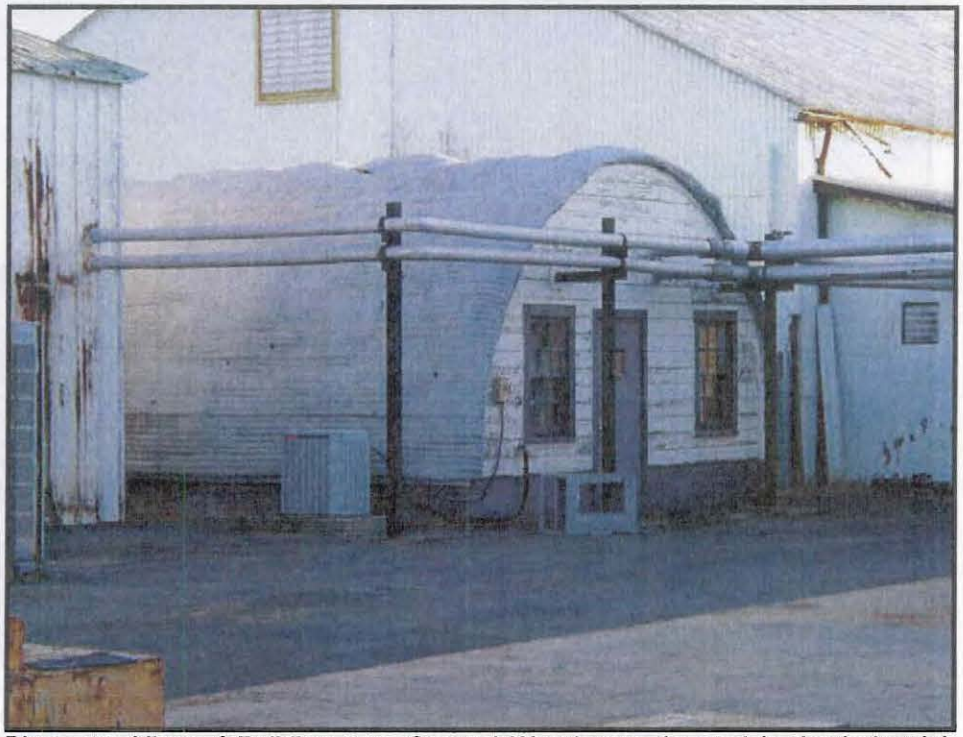


Photo 17: View of Building 935, General Warehouse, located in the Industrial Complex – Mainside.

Photo 18: View of Building 116, Exp Branch – Data Red Group, located in the Mission Area – Mainside.

Photo 19: View of Building 492, Processing Building, located in the Mission Area – Mainside.

Photo 20: View of Building 198, Gun System, located in the PRTR Machine Gun Range – Mainside.

Photo 21: View of Building 199, High Altitude Test Lab, located in the Machine Gun Range – Mainside, Potomac River Test Range Complex.

Photo 22: View of Building 202, Biological Warfare/Chemical Warfare Lab, located in the vicinity of the Machine Gun Range – Mainside, Potomac River Test Range Complex.

Photo 23: View of Structure 296, Protection Wall, located in the Machine Gun Range – Mainside, Potomac River Test Range Complex.

Photo 24: View of Structure 297, Tunnel-Pits, located in the Machine Gun Range – Mainside, Potomac River Test Range Complex.

Photo 25: View of Building 438, Biological Warfare/Chemical Warfare Building, located in the Machine Gun Range – Mainside, Potomac River Test Range Complex.

Photo 26: View of Building 120B, Supply Storehouse, located in the vicinity of Magazine Area One – Mainside.

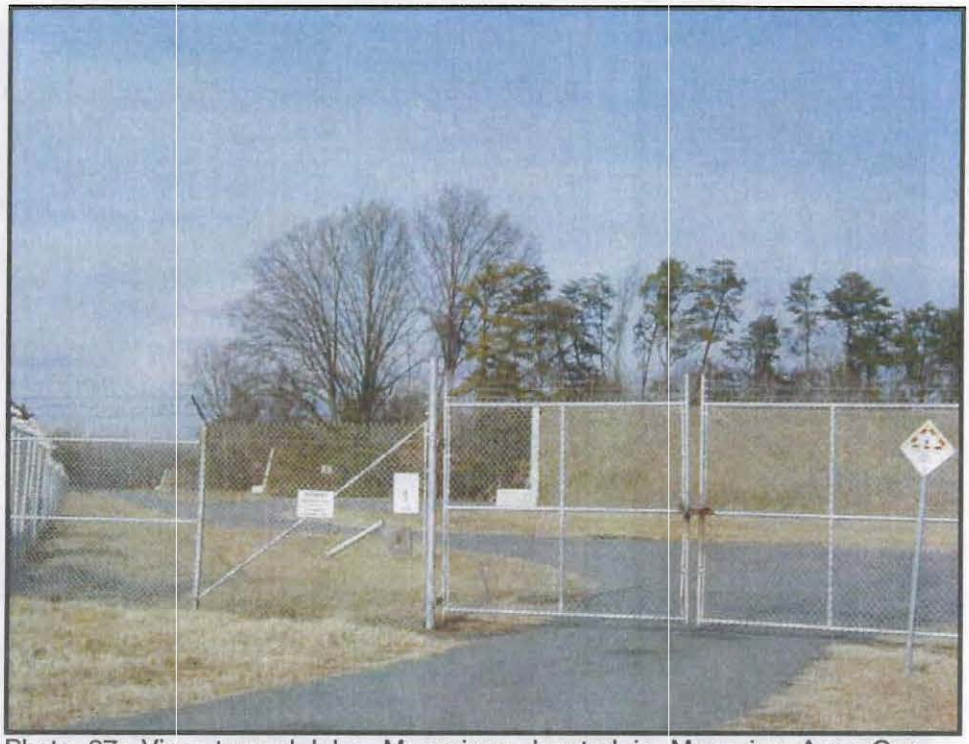


Photo 27: View toward Igloo Magazines, located in Magazine Area One – Mainside.

Photo 28: View of Building 9407, RDT&E Storage, located in the Explosives Experimental Area.

Photo 29: View of Building 9409, AMO Explosive Toxic, located in the Explosives Experimental Area.

Photo 30: View of Structure 9415, Pier-Small Boat Landing, located in the Explosives Experimental Area., looking toward Mainside.

Photo 31: View of Building 9416, Garage, located in the Explosives Experimental Area.

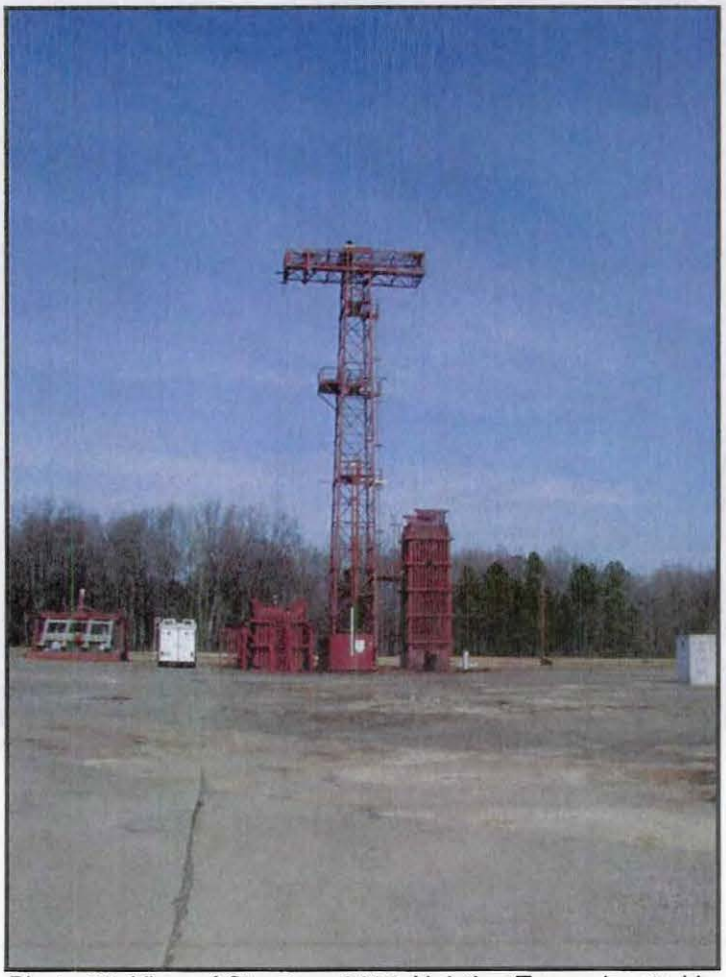


Photo 32: View of Structure 9417, Hoisting Tower, located in the Explosives Experimental Area.

Photo 33: View of Building 9420, Firing Shelter located in the Churchill Range – Explosives Experimental Area. This range is one of two ranges on the EEA where detonations occur.

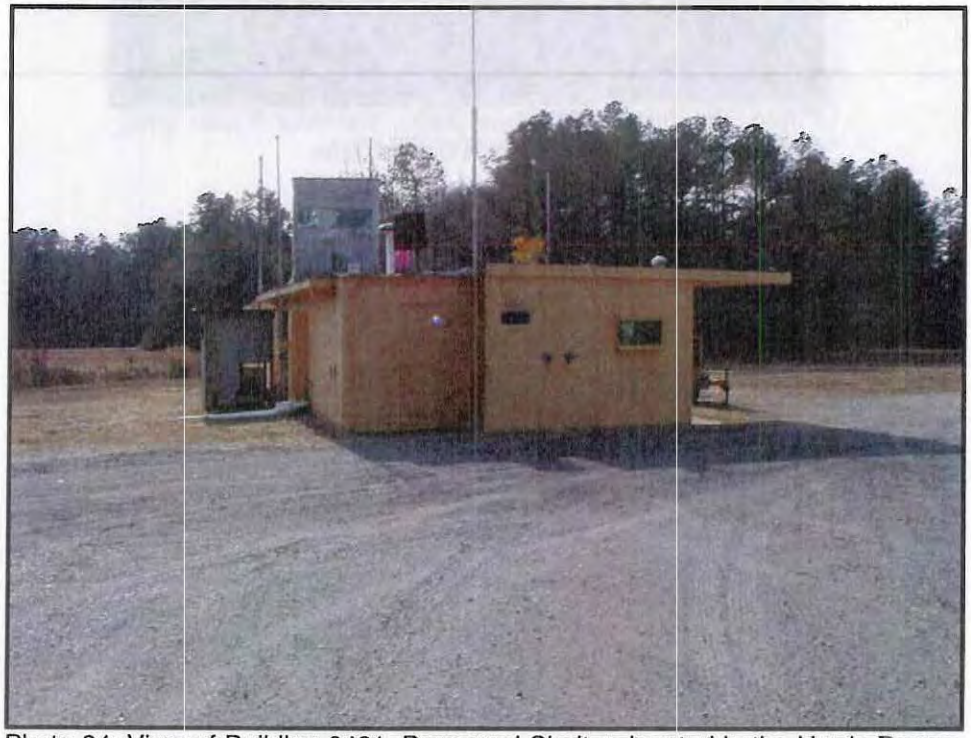


Photo 34: View of Building 9421, Personnel Shelter, located in the Harris Range – Explosives Experimental Area. Detonations also occur within this range.

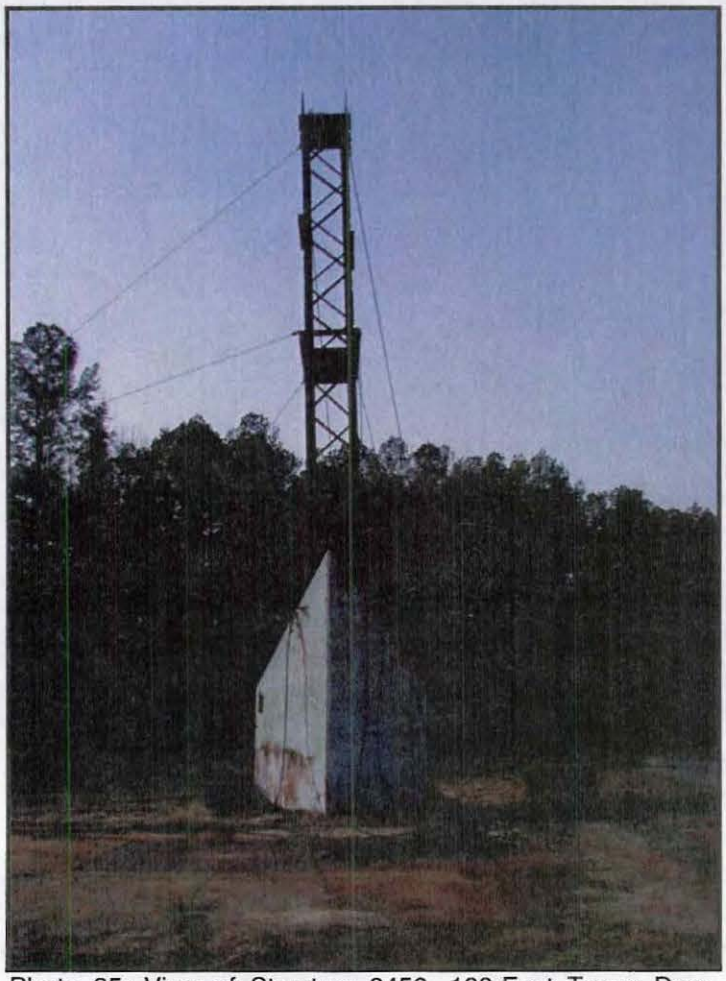


Photo 35: View of Structure 9450, 100-Foot Tower Drop, located in the Explosives Experimental Area.

Appendix 3

Surveyed Resources Over 50 Years Old Within the 134 dBP Peak Noise Contour

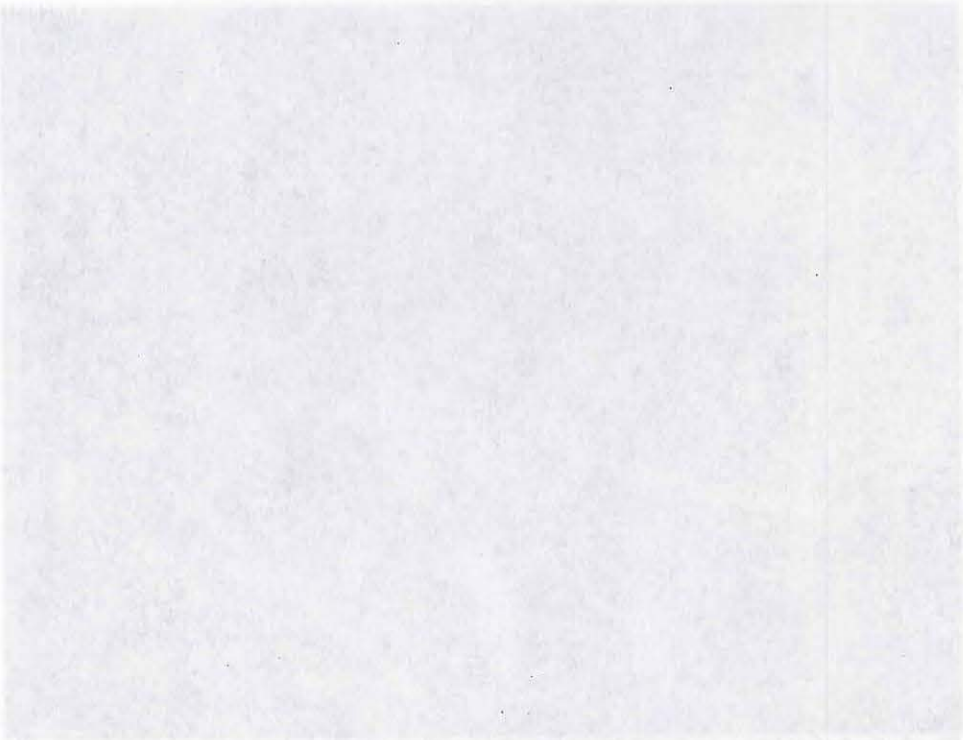
Photo 1: View looking toward north façade of residence at 9277 Spy Hill Road. Colonial-type residence was erected in 1973.

Photo 2: View looking south toward outbuildings at 9277 Spy Hill Road. Note two historic frame buildings (foreground and background) and two modern buildings in the background.

Photo 3: View looking west toward sheds located south of residence at 9277 Spy Hill Road.

Photo 4: View looking north toward typical cultivated field at 9277 Spy Hill Road. Tree line and chain link fence in background mark boundary with NSWCDD Explosives Experimental Area Range Complex at NSF Dahlgren.

Photo 5: Aerial View of 9445 Tetotum Road. Note the ca. 1890 residence (toward bottom of photo) and two outbuildings.



Historic Architectural and Archaeological Areas of Potential Effect

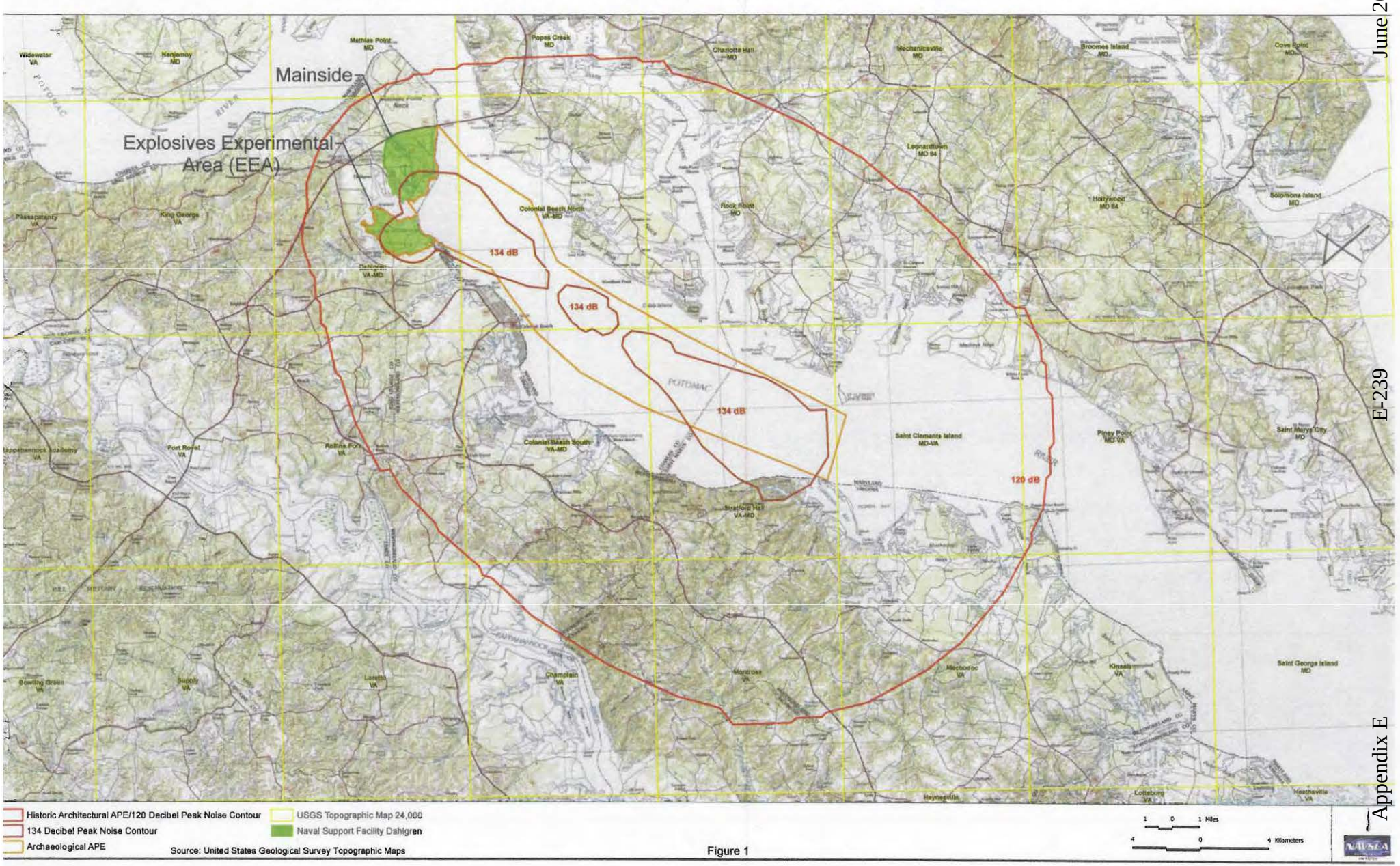
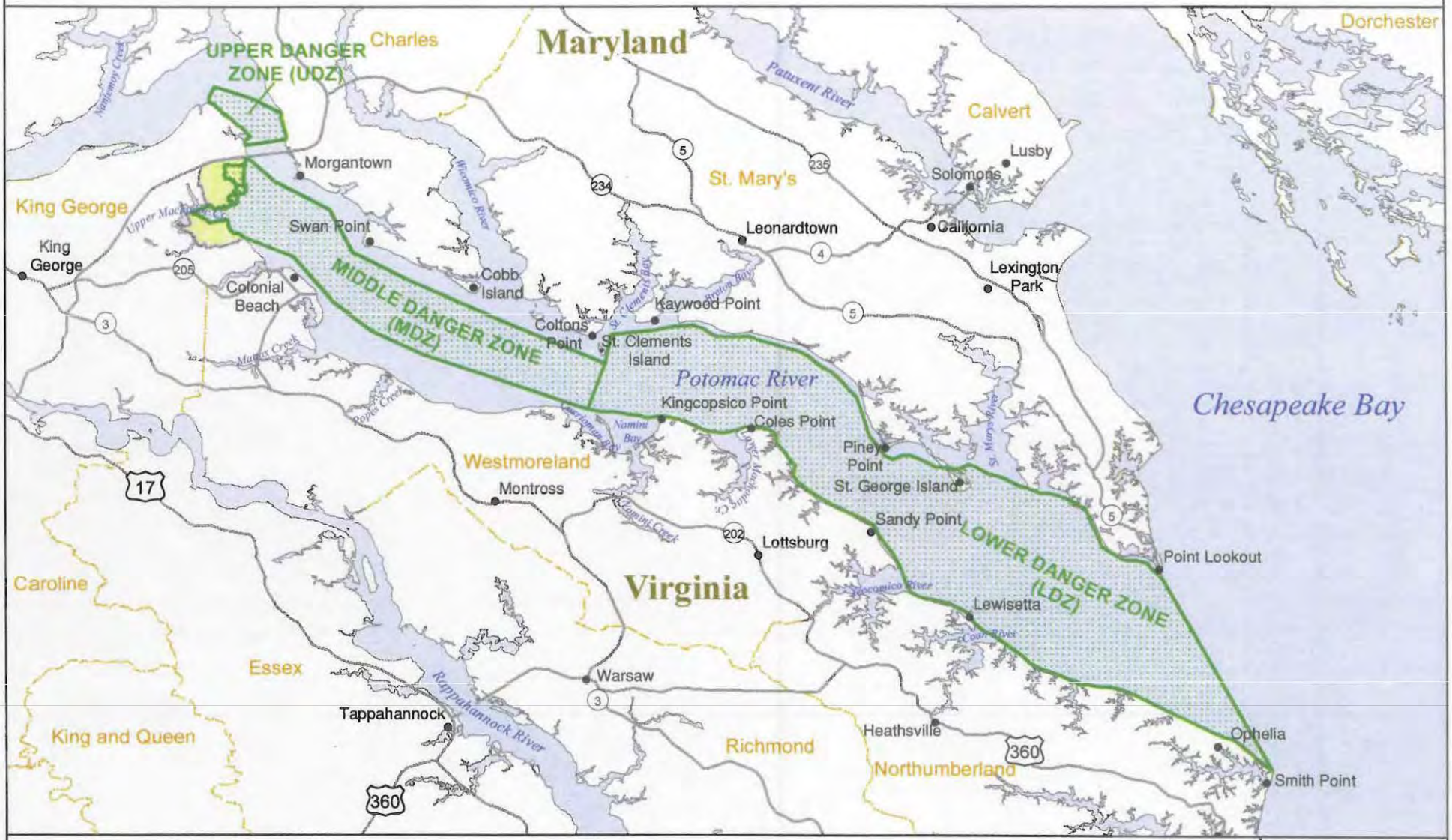


Figure 1

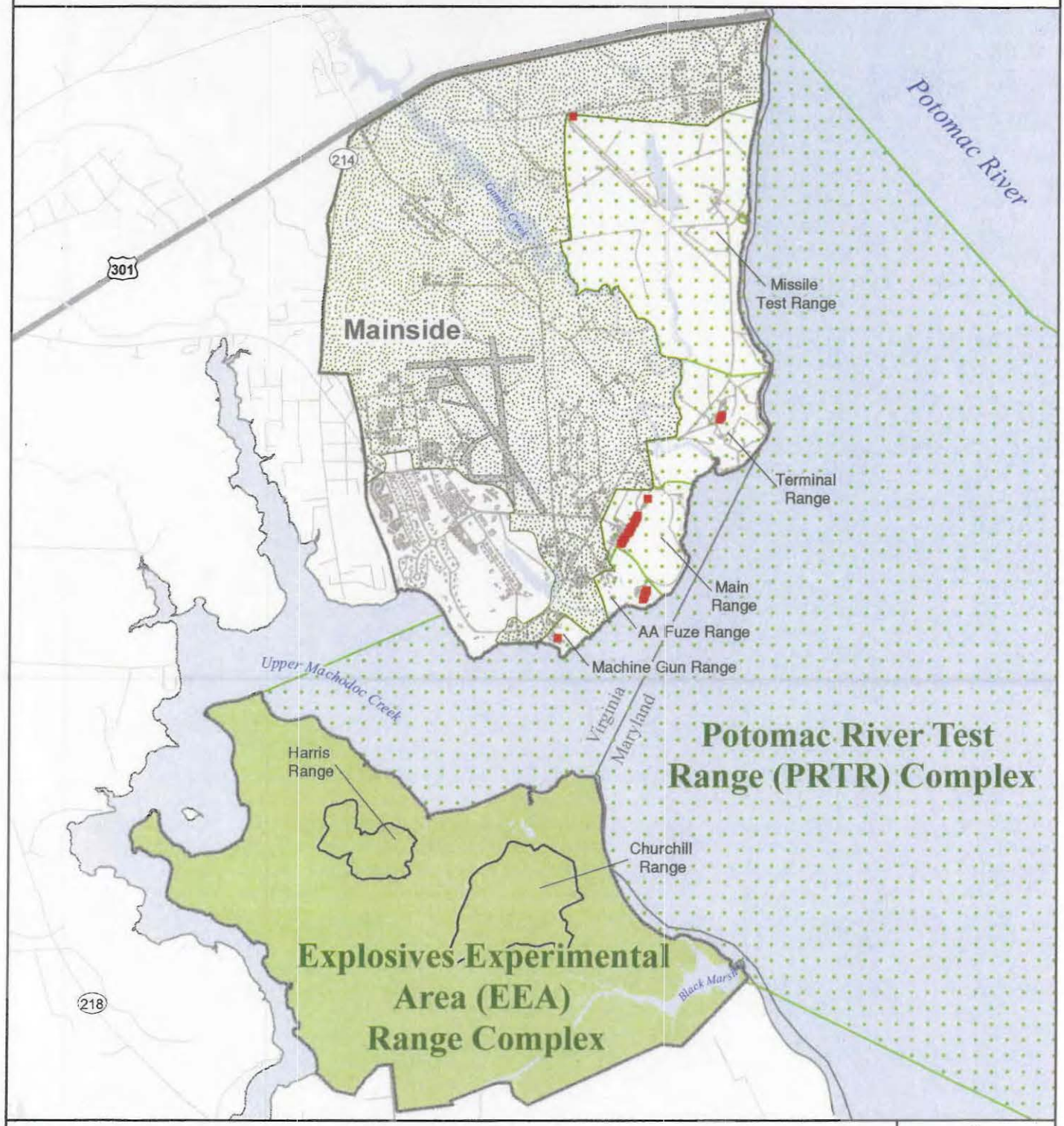
Potomac River Test Range Complex



Source: NSWCDD GIS (2008 - 2011); Danger Zones defined in 33 CFR § 334.230.

Figure 2

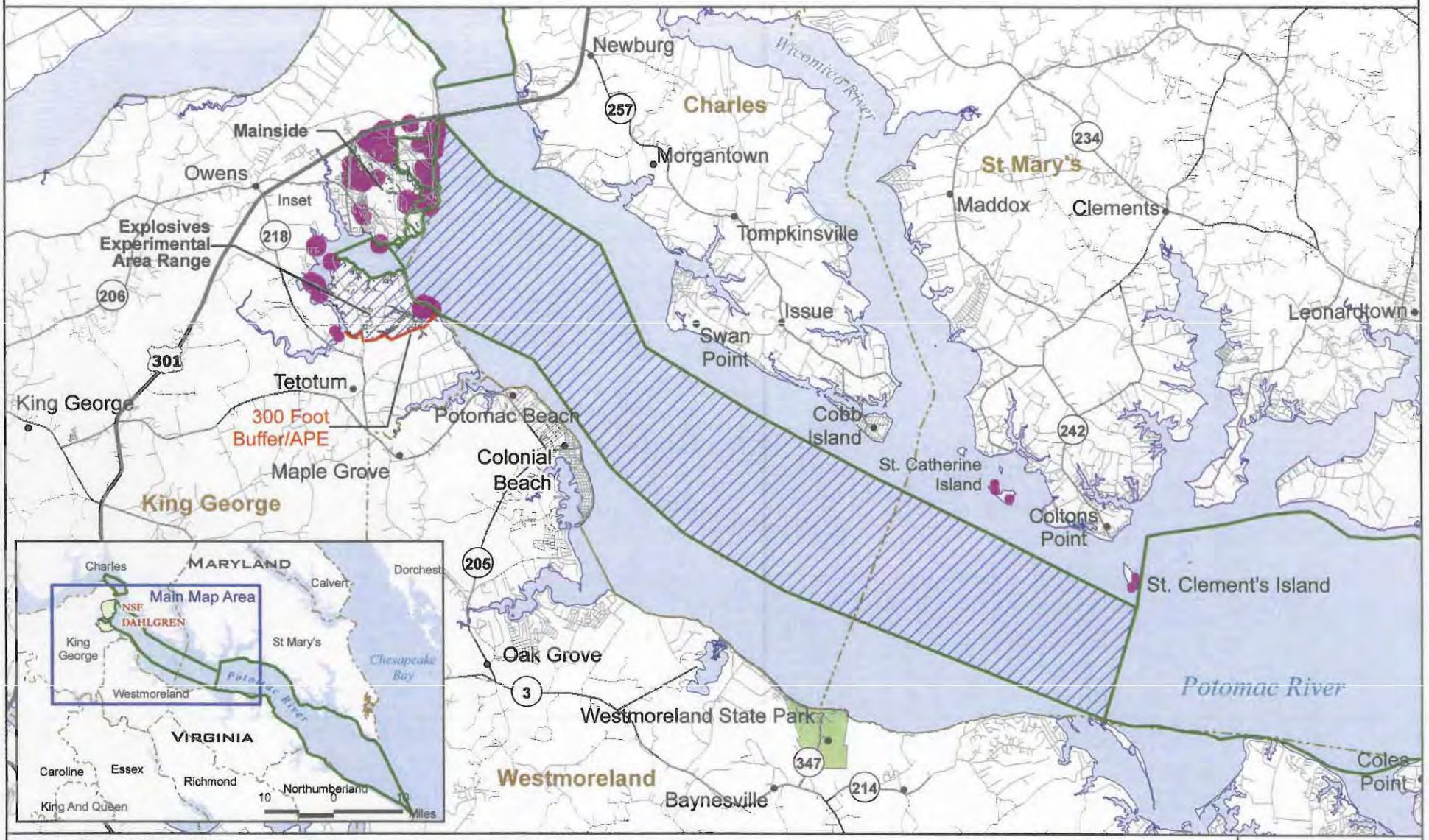
Range Complexes and Mission Areas



Source: NSWCDD GIS (2008 - 2011)

Figure 3

Terrestrial Archeological Resources Within or in the Vicinity of the Area of Potential Effect



Archaeological Area of Potential Effect

300 Foot Buffer / APE

Potomac River Test Range NSF Dahlgren

Approximate Location of Previously Identified Terrestrial Archaeological Resource

County Boundary

3 0 3 Miles

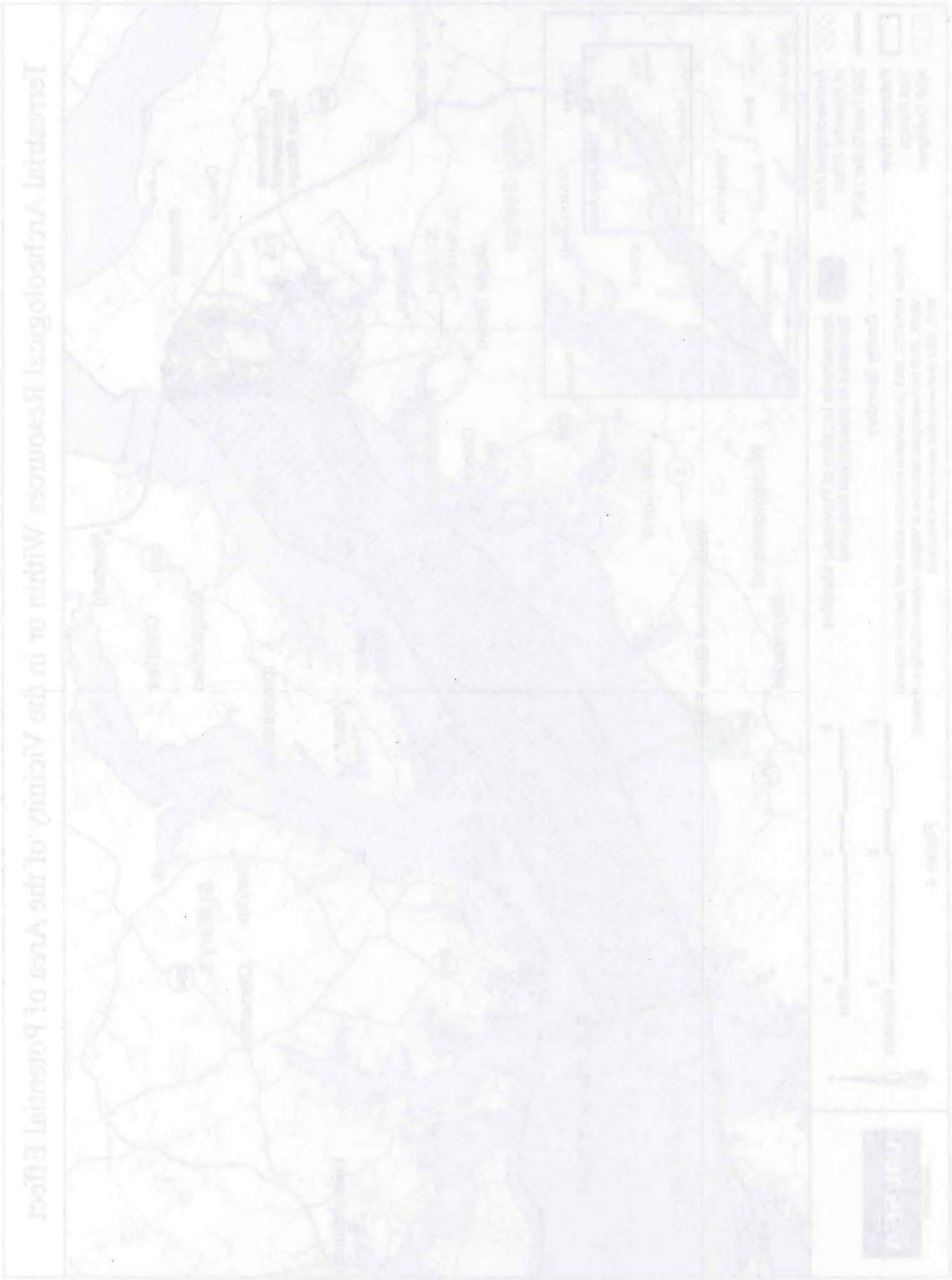
5 0 5 Kilometers

N

Sources: NSWCDD, 2008 (archeological resources within NSF Dahlgren property)
VDHR, 2008 (archaeological resources in Virginia, outside of Dahlgren Property)
MHT, 2008 (archaeological resources in Maryland)

Figure 4

NAVSEA WARFARE CENTERS DAHLGREN



Historic District Locations

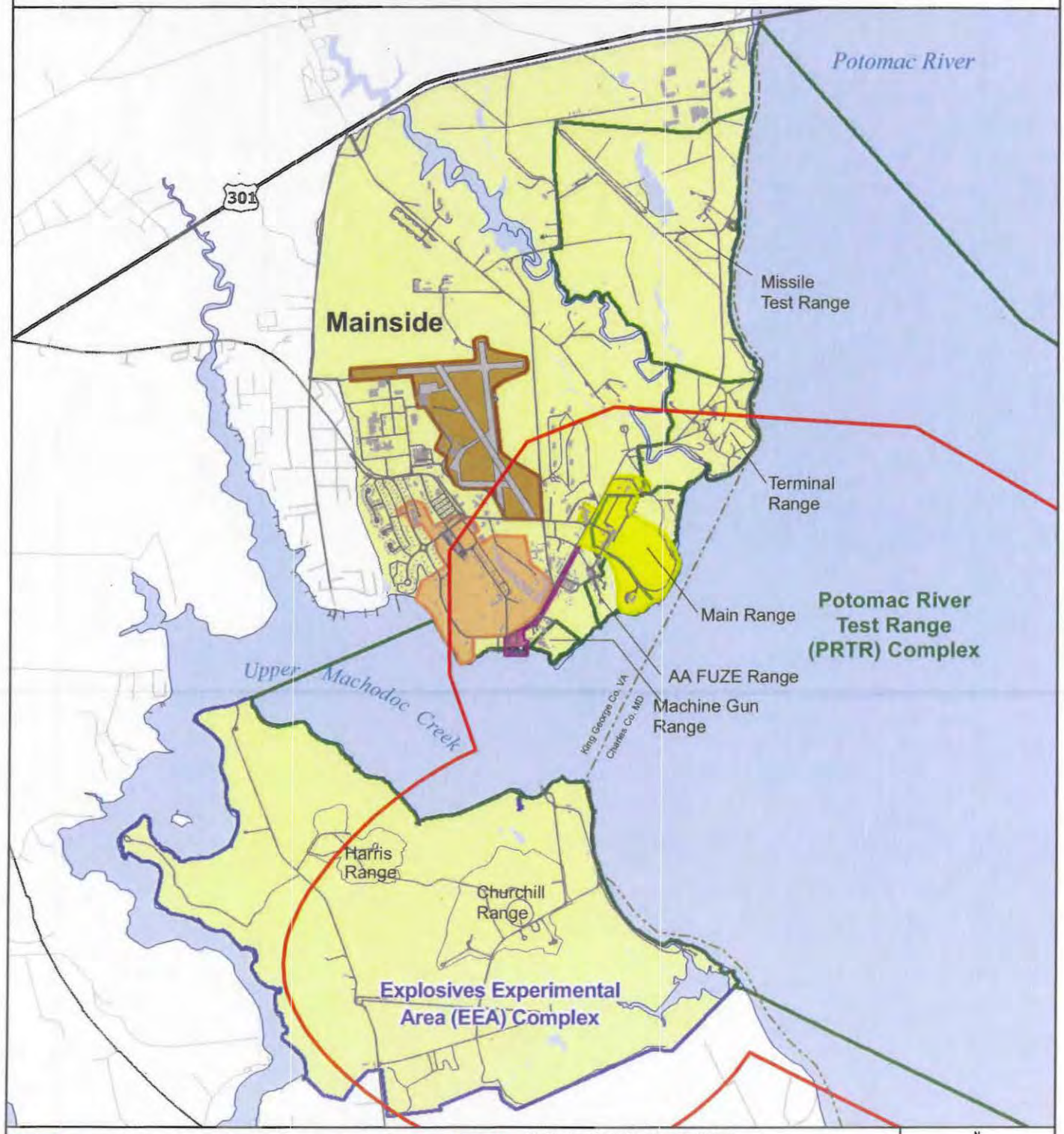


Figure 5

Identified Resources Within Historic Architectural Area of Potential Effect

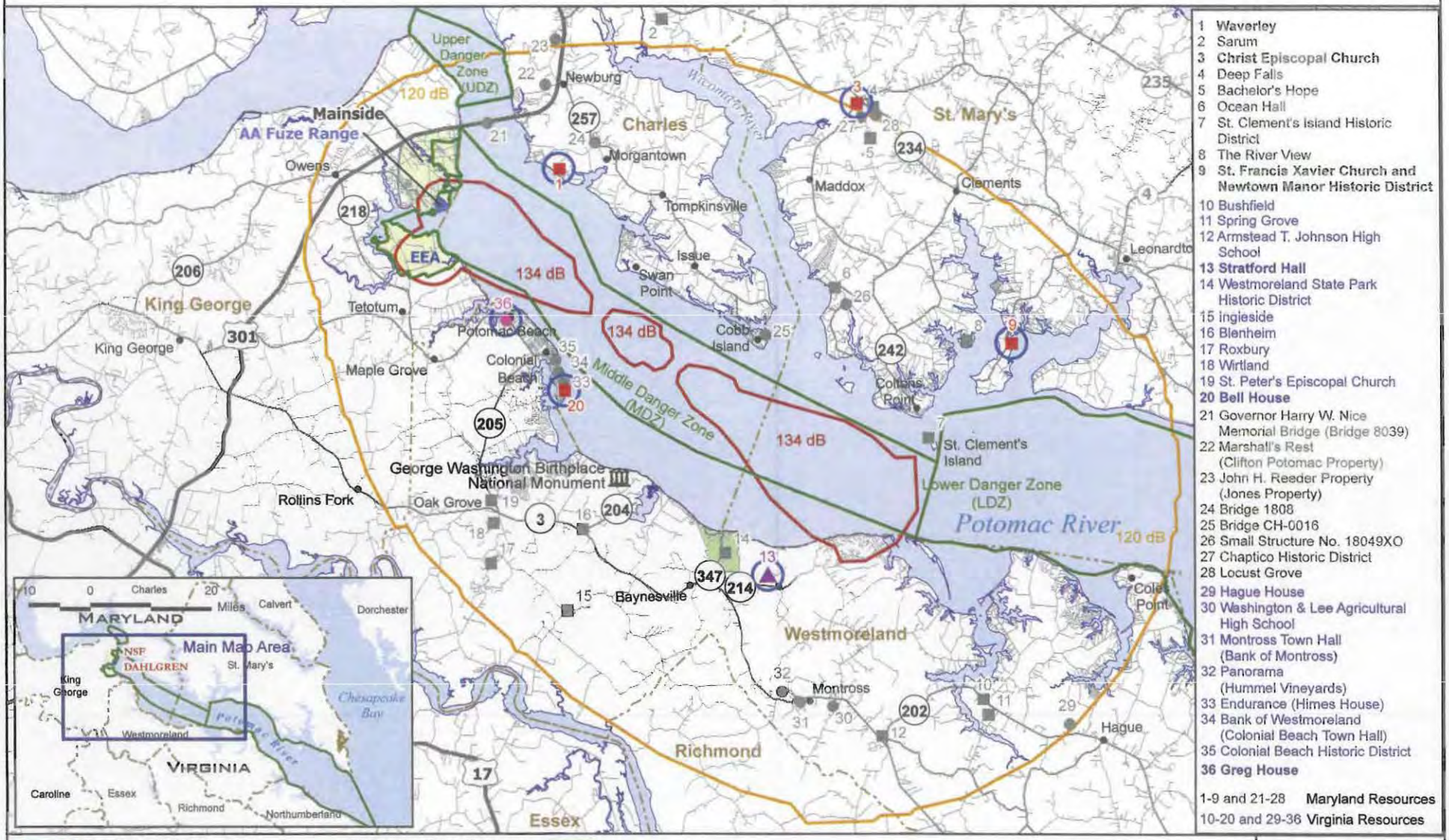


Figure 6

Surveyed Resources Over 50 Years Old Within the 134 dBP Noise Contour

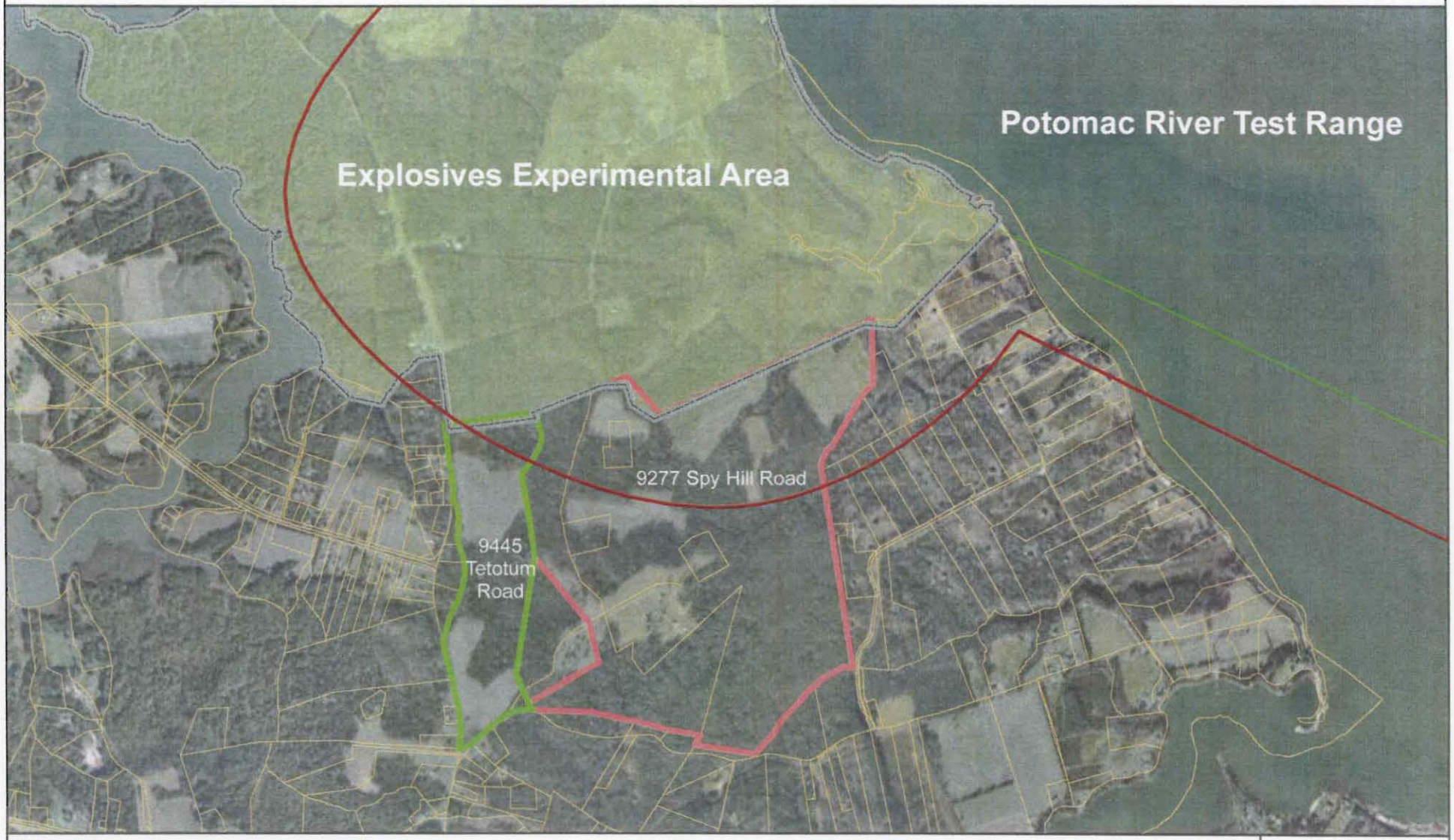
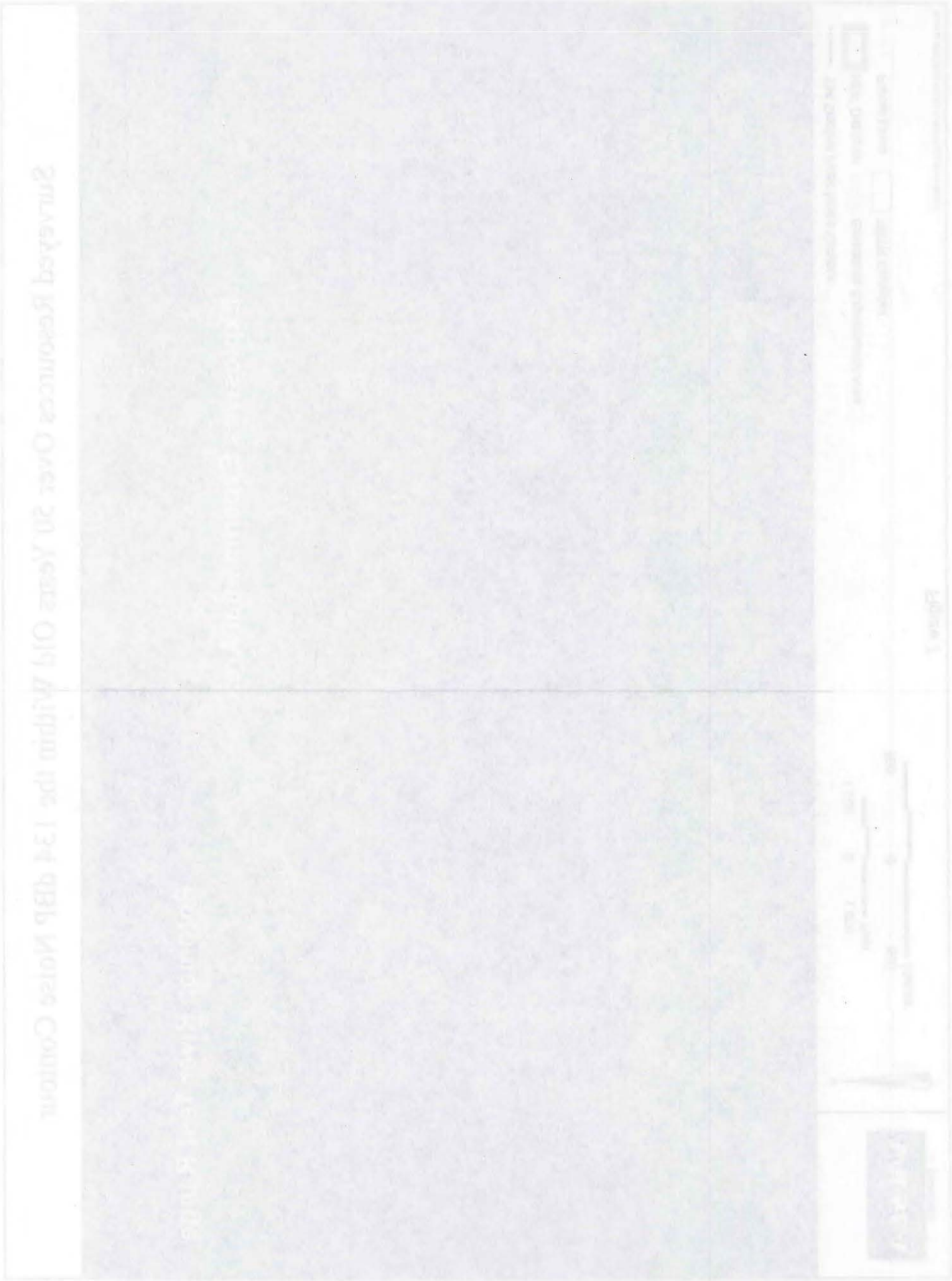


Figure 7



Land Use - Mainside

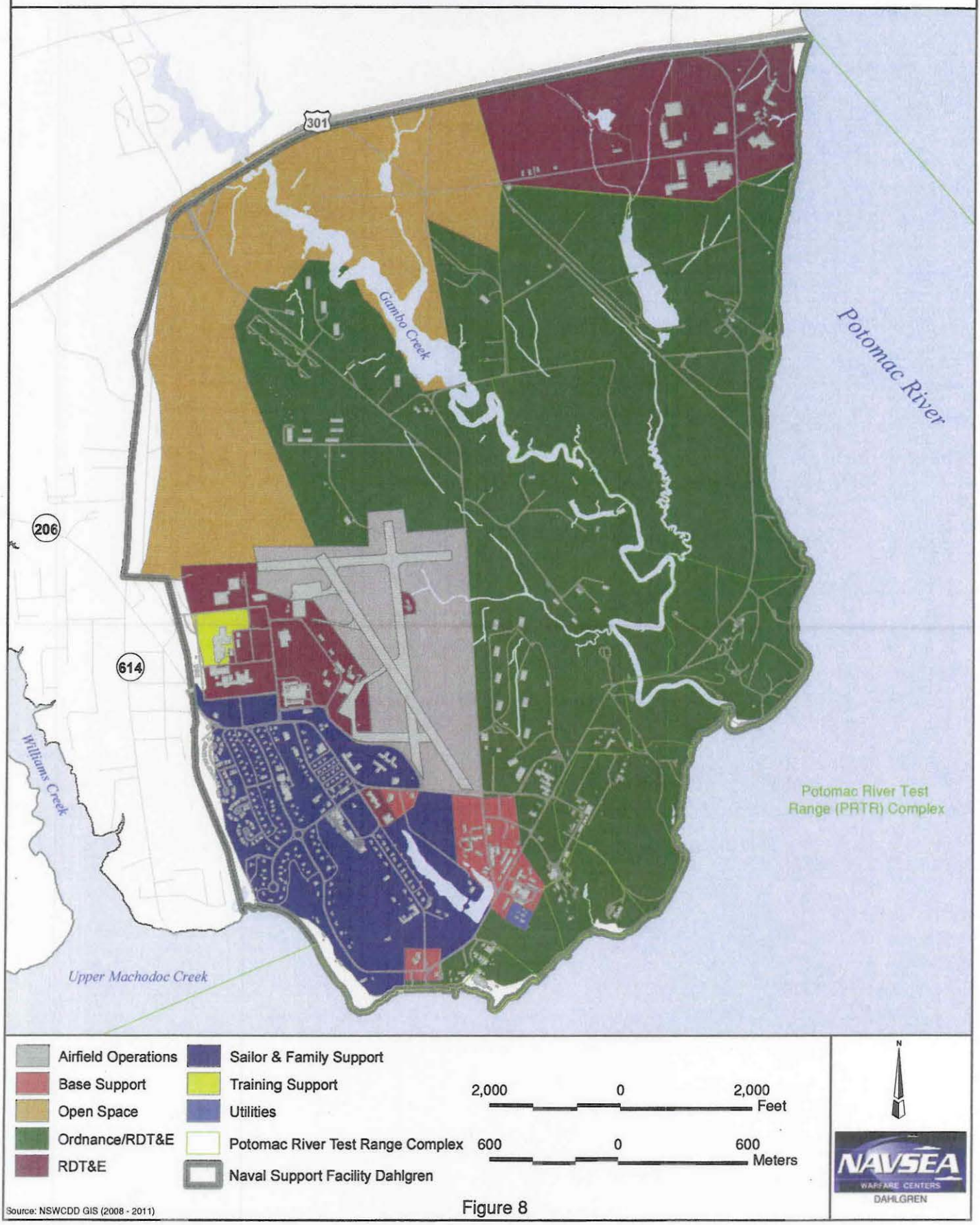


Figure 8

Section 106 Consulting Parties
Environmental Impact Statement
Naval Surface Warfare Center, Dahlgren Site
Outdoor Research, Development, Test and Evaluation Activities
Dahlgren, Virginia

Native American Tribal Contacts – Virginia SHPO

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Virginia Council on Indians
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ENCLOSURE (2)

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PatriciaM@csmd.edu

County Governments – Virginia

Regional Planning Commission

Mr. Jerry Davis
Executive Director
Northern Neck Planning District Commission
The Regional Center
457 Main Street
PO Box 1600
Warsaw, Virginia 22572

Phone: 804-333-1900
Fax: 804-333-5274
E-mail: jdavis@nnpdc17.state.va.us

King George County, Virginia

King George County Planning Commission (works with Board of Supervisors)

Ms. Jessica Herrink
Mr. William A. Robie, Jr.
King George County Planning Commission - Dahlgren
King George County
10459 Courthouse Drive
King George, Virginia 22485-3865

Phone: 540-775-9181
Fax: 540-775-5248

Westmoreland County, Virginia

Westmoreland County Planning Department

Mr. Gary Ziegler
Director, Planning & Community Development
Westmoreland County
PO Box 1000
Montross, Virginia 22520

Phone: 804-493-0120
Fax: 804-493-0604
E-mail: landuse@westmoreland-county.org

Westmoreland County Planning Commission

Mr. Robert McDermott
Chair
Westmoreland County Planning Commission
c/o 1824 Federal Farm Road
Montross, Virginia 22520

Phone: 804-493-1955

Northumberland County, Virginia

Northumberland County Building and Zoning Department

Mr. W.M. Knight
Building Official, Director of Code Compliance
PO Box 129
Heathsville, Virginia 22473

Phone: 804-580-8910 or 804-580-7921
Fax: 804-580-8082
E-mail: bknight@co.northumberland.va.us

Mr. Wellington H. Shirley, Jr.
Zoning Administrator
Building Official, Director of Code Compliance
PO Box 129
Heathsville, Virginia 22473

Phone: 804-580-8910 or 804-580-7921
Fax: 804-580-8082
E-mail: wshirley@co.northumberland.va.us

Northumberland County Planning Commission

Northumberland County Planning Commission
c/o E. Luttrell Tadlock
PO Box 129
Heathsville, Virginia 22473

Phone: 804-580-8910 or 804-580-7921
Fax: 804-580-8082

Richmond County, Virginia

Richmond County Administrative Office

Mr. Michael Sisson
Environmental Compliance Officer
Richmond County Administrative Office
101 Court Circle
P.O. Box 1000
Warsaw, Virginia 22572

Phone: 804-333-3415
Fax: 804-333-3408
E-mail: msisson@co.richmond.va.us

Richmond County Planning Office

Mr. Christopher H. Jett
Director of Planning
101 Court Circle
P. O. Box 1000
Warsaw,Virginia 22572

Phone: 804-333-3415
E-mail: cjett@co.richmond.va.us

County Governments - Maryland

Charles County, Maryland

Charles County Department of Planning and Growth Management

Ms. Cathy Hardy
Community Planning Program Manager
Charles County Department of Planning and Growth Management
PO Box 2150
La Plata, Maryland 20646

Phone: 301-396-5815
E-mail: hardyc@charlescounty.org

Charles County Planning Commission

Mr. Raymond Detig
Chairman
Charles County Planning Commission
PO Box 2150
La Plata, Maryland 20646

Phone: 301-645-0550 or 301-870-3000

St. Mary's County, Maryland

St. Mary's County Historic Preservation Commission

Harold Willard, Chairman
St. Mary's County Historic Preservation Commission
22131 Point Lookout Road
Leonardtown, Maryland 20650
(Member: 3/30/03 to 6/30/08)

Phone: 301-475-5077
Fax: 301-475-3526
E-mail: hwillard@md.metrocast.net

St. Mary's County Department of Land Use and Growth Management

Ms. Teri Wilson
Planner II – Historic Preservation
St. Mary's County Department of Land Use and Growth Management
PO Box 653
23115 Leonard Hill Drive
Leonardtown, Maryland 20650

Phone: 301-475-4200, X1549
E-mail: teresa.wilson@co.saint-marys.md.us

St. Mary's County Planning Commission

Mr. Stephen T. Reeves
Chair
St. Mary's County Planning Commission
PO Box 653
23115 Leonard Hill Drive
Leonardtown, Maryland 20650

Phone: 301-475-4200, X1321

Naval Organizations

Naval Historical Center
Washington Navy Yard
805 Kidder Breese Street, SE
Washington, DC 20374-5060

Phone: 202-433-2331

Underwater Archaeology Branch
Building 1, 2nd Floor

Phone: 202-433-9784/9787

Publicly Accessible National Historic Landmark

Westmoreland County, Virginia

Stratford Hall Plantation*

Paul C. Reber
Executive Director
Stratford Hall Plantation
483 Great House Road
Stratford, Virginia 22558

Phone: (804) 493-8038
E-mail: preber@stratfordhall.org

*Also National Register Listed

Bell House

Ms. Anne Bolin
Innkeeper
Bell House Bed & Breakfast
821 Irving Avenue
Colonial Beach, Virginia 22443

Phone: 804-224-7000
E-mail: annebolin@thebellhouse.com

Armstead Tasker Johnson High School Museum

Armstead Tasker Johnson High School Museum
18849 King's Highway
Montross, Virginia 22520

Phone: 804-493-7070

St. Peter's Episcopal Church

St Peter's Episcopal Church
Rev. Dr. Prentice Kinser III
PO Box 177
Montross, Virginia 22520

Phone: 804-493-8285

Westmoreland State Park Historic District

Mr. William L. Jacobs
Park Manager
Westmoreland State Park
1650 State Park Road
Montross, Virginia 22520

Phone: 804-493-8821

Publicly Accessible National Register-Listed Properties

St Mary's County, Maryland

St. Clements Island Historic District

Ms. Debra Pence
Museum Division Manager
St. Mary's County Museum Division
c/o St. Clement's Island Museum
38370 Point Breeze Road
Colton's Point, Maryland 20626

Phone: 301-769-3235
E-mail: debra.pence@stmarysmd.com

Christ Episcopal Church

The Reverend William Jessee Neat
Rector
Christ Episcopal Church
37497 Zach Fowler Road
Chaptico, Maryland 20621

Phone: 301-884-3451

Publicly Accessible National Monument

Westmoreland County, Virginia

George Washington Birthplace National Monument

Mr. Vidal Martinez
Superintendent
George Washington Birthplace National Monument
National Park Service
1732 Popes Creek Road
Washington's Birthplace, Virginia 22443-5115

Phone: 804-224-1732
Fax: 804-224-2142

Section 106 Consulting Parties
Environmental Impact Statement
Outdoor Research, Development, Test & Evaluation Activities
Dahlgren, VA

1. Virginia State Historic Preservation Officer (SHPO)

   Ms. Kathleen Kilpatrick
   Commonwealth of Virginia
   Department of Historic Resources
   2801 Kensington Avenue
   Richmond, Virginia 23221

2. Maryland SHPO

   Ms. Elizabeth Cole
   Administrator, Project Review and Compliance
   Maryland Historical Trust
   100 Community Place
   Crownsville, Maryland 21032

3. Ms. Cathy Hardy
   Community Planning Program Manager
   Charles County Government - PGM
   La Plata, MD 20646

4. Mr. David Rose
   Planchek, Inc.
   6C Industrial Park Drive
   Waldorf, MD 20602

5. Mr. Paul C. Reber
   Executive Director
   Stratford Hall
   483 Great House Road
   Stratford, VA 22558

Enclosure (3)