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NSWC INDIAN HEAD, MD  
SSIC 5000-33a

**FINAL SITE MANAGEMENT PLAN FOR FISCAL YEAR 2019-2020  
ENVIRONMENTAL RESTORATION PROGRAM NSWC INDIAN HEAD MD**

09/01/2019  
NAVFAC WASHINGTON

Approved for public release: distribution unlimited.

FINAL

# **Site Management Plan**

Fiscal Year 2019-2020

## **Environmental Restoration Program**

### **Naval Support Facility Indian Head**

Indian Head, Maryland



Naval Facilities Engineering Command  
Washington

**September 2019**



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## EXECUTIVE SUMMARY

This Site Management Plan (SMP) was updated by NAVFAC Washington to present the activities that were conducted and those that are planned for sites at the Naval Support Facility Indian Head (NSFIH). This SMP addresses 48 Installation Restoration Program (IRP) sites, 10 Munitions Response Program (MRP) sites, and 15 Areas of Concern (AOCs) at the Main Area, as well as 10 IRP sites, 21 MRP sites, and 10 AOCs at the Stump Neck Annex. There is one additional MRP site located off the installation. Table ES-1 provides a summary of site information.

Some of the previous SMPs for NSFIH did not include the Stump Neck Annex, because the Annex was being addressed by a separate program under a Resource Conservation and Recovery Act (RCRA) Corrective Action Permit. However, upon finalization of the Federal Facilities Agreement (FFA) between the Department of the Navy and United States Environmental Protection Agency (EPA), the RCRA sites at the Stump Neck Annex were included under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) program of the Main Area.

The schedules in this SMP were prepared to include the traditional steps for addressing contaminated sites under CERCLA. Existing documentation published in connection with past investigations and studies were used to describe completed activities and recommendations for future work. This SMP should be considered a “living document” because the information and schedules that are provided will be updated periodically as the work progresses at each site and more definitive information becomes available.

For the Main Area of NSFIH, 5 IRP sites and 8 MRP sites currently are undergoing a Remedial Investigation (RI) / Feasibility Study (FS). No further action has been recommended for one MRP site. Five sites are RC and are in the Long-Term Monitoring (LTM) phase. Three sites are in the Remedial Action-Operation (RA-O) phase. Institutional Controls (ICs) are in place at the Lab Area (i.e., Sites 14, 15, 16, 49, 50, 53, 54, and 55), UXO 32, and Sites 11, 12, 17, 21, 28, 42, 47, and 57. In addition to periodic Land Use Control (LUC) inspections, these sites undergo Five-Year Reviews. No Further Action (NFA) is either required or recommended for the remaining 28 sites (IRP Sites 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 18, 19, 20, 23, 24, 25, 26, 27, 39, 40, 44, 45, 46, 48, 51, 52, and 56, and MRP Site UXO 29). Fifteen AOCs have undergone a desktop audit and one site (Site 68) is undergoing a Site Screening Process (SSP) Investigation. As a result of the desktop audit, two of the AOCs were incorporated into IRP Site 11 (currently RC in LTM phase), one became an MRP site and is in the RI/FS phase, and twelve were recommended as NFA.

For the Stump Neck Annex, four sites are active ranges and will not be addressed under the IRP. One IRP site and twelve MRP sites are in the RI/FS phase. Another two MRP sites (small arms/skeet ranges) are in the Interim Removal Action (IRA) phase. Two sites (Site 36 and 38) are in the RC/LTM phase. Both of these sites have ICs in place and undergo periodic LUC inspections and Five-Year Reviews. NFA has

been recommended for the remaining nine sites at the Annex (IRP Sites 32, 33, 34, 37, and 60, and MRP UXO 16, 17, 22, and 25). The Stump Neck Annex also includes 13 AOCs. During a desktop audit, these AOCs were categorized to remain AOCs, remain RCRA facilities, be closed with an NFA decision document, or undergo a Site Screening Process (SSP) (as defined in the FFA) or an RI/FS. Currently, one AOC is managed under RCRA and six AOCs require NFA with a decision document. Solid Waste Management Unit (SWMU 14) now is considered an IRP site and is in the RI/FS phase (but it has not been assigned an IRP site number). One AOC is considered an active range (NFA under the IR), and the remaining four AOCs are undergoing an RI/FS.

In 2017, a new AOC named Site 71 – PFAS Area of Concern was added to the program. This site includes five separate areas (two at the Main Area and three at Stump Neck Annex) where potential fire training exercises took place.

The third Five-Year Review for the installation was completed in 2018. The remedies for the Lab Area, UXO 32, and Sites 11, 12, 21, 28, and 38 were determined to be protective, while the remedies for Sites 17, 36, 42, 47, and 57 were determined to be short-term-protective. The next Five-Year Review is scheduled for completion in 2022.

With the finalization of the FFA, these areas are addressed under the CERCLA Program, and the SMP provides the schedules for these areas.

TABLE ES-1  
**INSTALLATION RESTORATION PROGRAM SITES AND SWMUs**  
**MAIN AREA AND STUMP NECK ANNEX**  
**NSFIH, INDIAN HEAD, MARYLAND**  
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IR Site ID	SWMU or AOC ID	MRP UXO ID	Name	Main Area (MA) / Stump Neck (SN)	Relative Risk	FFA Group	Status	Comments
<b>INSTALLATION RESTORATION (IR) SITES</b>								
1			Thorium Spill	MA	Low	SSA	NFA	
2			Waste Crank Case Oil Applied to Torrence Road	MA	Low	SSA	NFA	
3			Nitroglycerin Explosion, Nitration Building Area	MA	Low	SSA	NFA	
4			Lloyd Road Oil Spill Sites	MA	Low	SSA	NFA	
5			X-Ray Building 731	MA	Medium	SSA	NFA	
6			Building 1349, Hypo Spill	MA	High	RI/FS	NFA	IRA resulted in NFA ROD
7			Building 682, HMX Spill	MA	Medium	SSA	NFA	
8			Building 766, Mercury Deposits	MA	High	SSA	NFA	IRA resulted in NFA DD
9			Patterson Avenue, Oil Spill	MA	Low	SSA	NFA	
10		9	Single-base Propellant Grains Spill	MA	Low	SSA	RI/FS	Included in MRP
11			Caffee Road Landfill	MA	High	RI/FS	RC / LTM	
12			Town Gut Landfill	MA	High	RI/FS	RC / LTM	
13			Paint Solvents Disposal Ground	MA	High	RI/FS	NFA	
14			Waste Acid Disposal Pit	MA	High	SSA	NFA	IC's - Lab Area
15			Mercury Deposits in Manhole, Fluorine Lab	MA	High	RI/FS	NFA	IC's - Lab Area
16			Laboratory Chemical Disposal	MA	High	RI/FS	NFA	IC's - Lab Area
17			Disposed Metal Parts Along Shoreline	MA	High	RI/FS	RA-O	
18			Hog Island	MA	Low	SSA	NFA	
19			Catch Basins at Chip Collection Houses	MA	Low	SSA	NFA	IRA resulted in NFA DD
20			Single-base Powder Facilities	MA	Low	SSA	NFA	
21			Bronson Road Landfill	MA	High	RI/FS	RC / LTM	
22		6	NG Slums Burning Site	MA	Low	SSA	RI/FS	Included in MRP
23			Hydraulic Oil Spill Discharges From Extrusion Plant	MA	Low	SSA	NFA	
24			Abandoned Drain Lines	MA	Medium	SSA	NFA	
25			Hypo Discharge X-Ray Building No. 2	MA	High	RI/FS	NFA	
26			Thermal Destructor 2	MA	Low	SSA	NFA	
27			Thermal Destructor 1	MA	Low	SSA	NFA	IRA resulted in NFA DD
28		8	Original Burning Ground	MA	High Medium	SSA	RC/LTM	NFA for soil. ICs and LTM for GW
29		11	The Valley	MA	Low	SSA	RI/FS	Included in MRP
30	22	10	Stump Neck Impact Area	SN	NE	SSA	RI/FS	Included in MRP
31	23	7	Old Demolition Range	SN	NE	SSA	NFA	Active Range
32	11		Suspected Tool Burial Site	SN	NE	SSA	NFA	
33	7		Scrap Metal Pit	SN	NE	SSA	NFA	
34	8		Tool Burial Site	SN	NE	SSA	NFA	
35	9	12	Torpedo Burial Site	SN	NE	SSA	RI/FS	Included in MRP
36	10		Closed Landfill	SN	NE	SSA	RC / LTM	
37	24	3	Causeway	SN	NE	SSA	NFA	No evidence of waste
38	1		Rum Point Landfill	SN	Medium	SSA	RC/LTM	NFA for soil. ICs and LTM for GW
39			Silver Release to Sediments	MA	High	RI/FS	NFA	
40			Palladium Catalyst in Sediments	MA	Low	RI/FS	NFA	
41		32	Scrap Yard	MA	High	RI/FS	NFA	Included in MRP. ICs for soil. GW re-assigned as IR Site 70.
42			Olsen Road Landfill	MA	High	RI/FS	RC / LTM	
43			Toluene Disposal Site	MA	Low	RI/FS	RI/FS	
44			Soak Out Area	MA	Medium	RI/FS	NFA	
45			Abandoned Drums	MA	Medium	RI/FS	NFA	
46			Cadmium Sandblast Grit	MA	Low	RI/FS	NFA	
47			Mercuric Nitrate Disposal Area	MA	High	RI/FS	RA-O	
48			Nitroglycerin Plant Disposal Area	MA	Low	RI/FS	NFA	
49			Chemical Disposal Pit	MA	High	RI/FS	NFA	IC's - Lab Area
50			Building 103, Crawl Space	MA	High	RI/FS	NFA	IC's - Lab Area
51			Building 101, Dry Well	MA	NE		NFA	
52			Building 102, Dry Well	MA	NE		NFA	
53			Mercury Contamination of the Sewage System	MA	High	RI/FS	NFA	IC's - Lab Area
54			Building 101	MA	High	RI/FS	NFA	IC's - Lab Area
55			Building 102	MA	High	RI/FS	NFA	IC's - Lab Area
56			IW87 - Lead Contamination	MA	Low	RI/FS	NFA	
57			TCE Building 292 Area	MA	High	RI/FS	RA-O	
58	2		Range 3 Burn Point	SN	High	SSA	NFA	Active Range
59	3		Chicamuxen Creek's Edge Site A	SN	High	SSA	NFA	Active Range
60	4		Chicamuxen Creek's Edge Site B	SN	Medium	SSA	NFA	
61	5		Range 6	SN	Medium	SSA	NFA	Active Range
62	6	1	Air Blast Pond	SN	Medium	SSA	RI/FS	Included in MRP
63	25	2	Area 8	SN	Medium	SSA	RI/FS	Included in MRP
64	26	4	IED (+SN SWMU 19)	SN	Medium	SSA	RI/FS	Included in MRP



**TABLE ES-1**  
**INSTALLATION RESTORATION PROGRAM SITES AND SWMUs**  
**MAIN AREA AND STUMP NECK ANNEX**  
**NSFIH, INDIAN HEAD, MARYLAND**  
**PAGE 2 OF 2**

IR Site ID	SWMU or AOC ID	MRP UXO ID	Name	Main Area (MA) / Stump Neck (SN)	Relative Risk	FFA Group	Status	Comments
65	27	5	IOD	SN	Medium	SSA	RI/FS	Included in MRP
66			Turkey Run Disposal Area	MA	Medium	SSA	RI/FS	
67			Hog-Out Facility	MA	Medium	RI/FS	RI/FS	
68			Former Building 259 Contamination	MA	Low	SSA	SSI	Formerly AOC 31
69			Building 1018 - Oxidizer Process Building	MA	Medium	SSA	RI/FS	
70			Groundwater Contamination Along Water Works Way	MA	Medium	RI/FS	RI/FS	
71			PFAS Area of Concern	MA/SN	NE	NA	SSI	
<b>AOCs / SWMUs</b>								
	6		Used Battery Accumulation Area (Bldg. 766)	MA	NE	AOC	NFA	
	12		Waste Oil Storage Site	SN	NE	AOC	NFA	
	13		Pink Water Treatment Tank	SN	NE	AOC	RCRA	
	14		Photographic Lab Septic Tank System	SN	NE	AOC	RI/FS	SWMU 14 now an IR Site
	15		Spent Photographic Solution Storage	SN	NE	AOC	NFA	
	16		Thermal Treatment Tank	SN	NE	AOC	NFA	Active Range
	17		Bldg. 2015 – Chem Lab Accumulation Area	SN	NE	AOC	NFA	
	18		Waste Pile	SN	NE	AOC	NFA	
	19	4	Disposal Area #1	SN	NE	AOC	RI/FS	Included in MRP with Site 64
	20	20	Safety Thermal Treatment Point	MA	Medium	AOC	RI/FS	Re-assigned as UXO 20
	20	15	Disposal Area #2	SN	NE	AOC	RI/FS	Investigate with Stump Neck SWMU 28, Included in MRP
	21		Caffee Road Decontamination Burn Point	MA	NE	AOC	LTM	Investigate with Site 11
	21		Drum Storage Area	SN	NE	AOC	NFA	
	27		Waste Oil Storage Area (Goddard Power Plant)	MA	Low	AOC	NFA	
	28	15	Old Skeet and Trap Range	SN	NE	AOC	IRA	Included in MRP
	29	17	Small Arms Range (Pistol Range)	SN	NE	AOC	NFA	Included in MRP
	30		Bldg. 2015 Dry Well	SN	NE	AOC	NFA	SWMU 30
	38		Caffee Road Waste Oil Storage Area	MA	Low	AOC	LTM	Investigate with Site 11
	69		Temp Accumulation Dumpster for Explosive Scrap	MA	Low	AOC	NFA	
	70		Temp Accum Areas for Drummed Explosive Scrap	MA	Low	AOC	NFA	
	72		Oil/Water Separators	MA	Low	AOC	NFA	
	74		Unlined Overland Drainage Ditches	MA	Low	AOC	NFA	
	4,5		Underground Storage Tanks (Bldg. 290 and 525)	MA	NE	AOC	NFA	
	40-46		Wastewater Collection/Treatment Tanks (Moser Plant)	MA	Low	AOC	NFA	
	47-51		Spent Acid Storage/Treatment Tanks (Moser Plant)	MA	Low	AOC	NFA	
	64-66		Waste Water Storage Tanks (Bldg. 1596)	MA	Low	AOC	NFA	
	AOC G		Sand Blasting Sand Storage Area	MA	Low	AOC	NFA	
	AOC H		Drum at Fuel Storage Area	MA	Low	AOC	NFA	
<b>ADDITIONAL MRP SITES</b>								
		13	FDR Skeet Range	MA	Low	NA	RI/FS	
		14	Marine Rifle Range	SN	Low	NA	IRA	
		16	Rum Point Skeet Range	SN	Low	NA	NFA	
		18	Battle Range Firing	SN	NE	NA	RI/FS	Water Area Munitions Site
		19	Igniter Area	MA	NE	NA	RI/FS	Water Area Munitions Site
		21	Test Area 1	SN	Low	NA	RI/FS	
		22	Test Area 2	SN	Low	NA	NFA	
		23	Torpedo Casing Disposal Area	SN	Low	NA	RI/FS	
		25	Roach Road Rifle Range	SN	Low	NA	NFA	
		26	The Valley Impact Area	SN	Medium	NA	RI/FS	
		27	Sonar Training Area	SN	NE	NA	RI/FS	Water Area Munitions Site
		28	EOD School Demo Area	SN	Medium	NA	RI/FS	
		29	Southwestern Pistol Range	MA	Low	NA	NFA	
		30	Gate 3 Burning Ground	MA	Medium	NA	RI/FS	
		31	Pope's Creek	--	NE	NA	RI/FS	Water Area Munitions Site
		33	Water Impact Area	MA	NE	NA	RI/FS	Water Area Munitions Site

AOC - Area of Concern  
IC - Institutional Control  
ID - Identification  
IR - Installation Restoration [Program]  
IRA - Interim Removal Action (or Removal Action)  
LTM - Long Term Monitoring  
MRP - Munitions Response Program  
NA - Not Applicable  
NE - Not Evaluated  
NFA - No Further Action

RA - Remedial Action  
RA-O - Remedial Action-Operation  
RC - Response Complete  
RCRA - Resource Conservation and Recovery Act  
RD - Remedial Design  
RI/FS - Remedial Investigation/Feasibility Study  
SSA - Site Screening Assessment  
SSI - Site Screening Investigation  
SSP - Site Screening Process  
SWMU - Solid Waste Management Unit

## **1.0 INTRODUCTION**

NAVFAC Washington prepared this Site Management Plan (SMP) for the Naval Support Facility Indian Head (NSFIH), Maryland. The purpose of this SMP is to provide site-specific background information, present the activities that are currently being conducted or are planned at NSFIH during Fiscal Years 2019 through 2020, and project the long-term progress of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) program at the NSFIH in accordance with the Department of Navy (Navy) Installation Restoration Program (IRP) and Munitions Response Program (MRP) (collectively the Navy Environmental Restoration Program [ERP]).

### **1.1 DESCRIPTION OF THE INSTALLATION**

NSFIH is located in Charles County, Maryland, 30 miles south of Washington, D.C. NSFIH has been active since 1890 and assumed its current name in 2005. Historical names of the facility (site) include the following: Naval District Washington-Indian Head (NDWIH); Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC); Naval Ordnance Station (NOS); Naval Propellant Plant; Naval Powder Factory; and Naval Proving Grounds. The site collectively measures 3,500 acres and is positioned along the Potomac River at the confluence of Mattawoman Creek, as shown on Figure 1-1. The Main Area, on the Cornwallis Neck Peninsula, is approximately 2,500 acres. The Stump Neck Annex, separated from the Main Area by Mattawoman Creek, is approximately 1,000 acres. Included as part of the Main Area are Marsh Island and Thoroughfare Island located in Mattawoman Creek. The Bullitt Neck Annex measures approximately 50 acres and is bounded by Mattawoman Creek to the north, east, and west and private property to the south. The two islands and Bullitt Neck Annex are not on the National Priorities List (NPL) with the Main Installation and Stump Neck Annex.

Operations are primarily located at the Main Area. The main tenant is IHDIV-NSWC. Their principal missions on the Main Area of the facility are as follows:

- Provide services in energetics for all warfare centers through engineering, fleet and operational support, manufacturing technology, limited production, and industrial base support.
- Provide research, development, testing, and evaluation of energetic materials, ordnance devices and components, and other related ordnance engineering standards including chemicals, propellants and their propulsion systems, explosives, pyrotechnics, warheads, and simulators.
- Provide support to all warfare centers, military departments, and the ordnance industry for special weapons, explosive safety, and ordnance environmental issues.

The Stump Neck Annex of NSFIH is occupied primarily by tenant commands. Until recently, the Stump Neck Annex was occupied by two tenant commands, the Naval School Explosive Ordnance Disposal (NAVSCOLEOD) and Naval Explosive Ordnance Disposal Technology Division (NAVEODTECHDIV). The mission of NAVSCOLEOD was the training of active military personnel in performing explosive ordnance disposal (EOD) operations. In 1998, most operations at NAVSCOLEOD were relocated to Pensacola, Florida. Currently, NAVEODTECHDIV is the primary tenant command at the Stump Neck Annex. Their missions are as follows:

- Provide EOD technology and logistics management.
- Develop war-essential elements of intelligence, equipment, and procedures to counter munitions, both United States and foreign, as required to support Department of Defense (DOD) components and the peacetime security needs of other agencies.

## **1.2 ENVIRONMENTAL HISTORY**

Environmental studies at NSFIH and all other Navy facilities are conducted under the Navy IRP. The IRP was authorized by the Chief of Naval Operations under Instruction OPNAVINST 5090.1 dated May 2, 1983. Funding to pay for these environmental studies is allocated for Navy sites under the Environmental Restoration, Navy (ERN) Account.

The IRP parallels CERCLA (see Figure 1-2). Under CERCLA, abandoned waste sites that potentially contained hazardous constituents undergo several phases of environmental study that would ultimately determine the need for a remedy and, if necessary, the selection and implementation of the remedy for the site. The phases of investigation include the Preliminary Assessment (PA) / Site Inspection (SI), Remedial Investigation (RI) / Feasibility Study (FS), Record of Decision (ROD), and Remedial Design (RD) / Remedial Action (RA). CERCLA also provides for removal actions if a site poses an immediate threat to human health or the environment.

The NSFIH IRP includes a total list of 71 sites (see Table 1-1). Sites numbered 1 through 29, 39 through 57, and 66 through 70 are located on the Main Area of the facility. Sites numbered 30 through 38 and 58 through 65 are located on the Stump Neck Annex. Site 71 includes five AOCs located on both the Main Area and Stump Neck Annex. SWMU 14 has become an IRP site, but has not been assigned an IRP site number.

Between 1990 and 2001, the sites at the Stump Neck Annex were managed under a Resource Conservation and Recovery Act (RCRA) Corrective Action Permit that provided for a process similar to CERCLA for site investigation and remediation. However, in 1998 the United States Environmental Protection Agency (EPA) Region 3 made the determination that the Stump Neck Annex was included with

NSFIH under the NPL. With this determination, and as a result of the finalization of the Federal Facilities Agreement (FFA) between the Navy and EPA, the RCRA sites at the Stump Neck Annex are now included under the CERCLA program of the Main Area. Section 1.2.1 below describes the environmental history of the IRP at the Main Area of the facility. Section 1.2.2 describes the environmental history of the Stump Neck Annex sites. Table 1-1 lists all IRP sites, MRP sites, and AOCs at the Main Area and the Stump Neck Annex.

### **1.2.1 NSFIH Main Area**

#### **1.2.1.1 Initial Assessment Study (IAS) (Sites 1-29)**

The first IRP objective is the collection and evaluation of data and historical evidence of hazardous constituents that might have contaminated the facility or that pose an imminent health hazard on or off the facility. The Navy completed an IAS of NSFIH in May 1983 (NEESA, 1983). The IAS is equivalent to the PA in the CERCLA process. The IAS examined a total of 38 potentially contaminated sites. Sites numbered 1 through 29 are located on the Main Area of the facility. Sites numbered 30 through 38 are located on the Stump Neck Annex. The 29 identified Main Area sites are listed below. Stump Neck Sites 30 through 38 are discussed in Section 1.2.2.

- Site 1 Thorium Spill
- Site 2 Waste Crankcase Oil Applied to Torrence Road
- Site 3 Nitroglycerin Explosion, Nitration Building Area
- Site 4 Lloyd Road Oil Spill
- Site 5 X-Ray Building, Building 731
- Site 6 Hypo Spill, Radiographic Facility Accelerator
- Site 7 HMX Spill, Slurry Mix Building
- Site 8 Mercury Deposits, Building 766
- Site 9 Patterson Avenue Oil Spill
- Site 10 Single-Base Propellant Grains Spill Area
- Site 11 Caffee Road Landfill
- Site 12 Town Gut Landfill
- Site 13 Paint Solvents Disposal Area
- Site 14 Waste Acid Disposal Pit
- Site 15 Mercury Deposits in Manhole, Fluorine Lab
- Site 16 Laboratory Chemical Disposal
- Site 17 Disposed Metal Parts along Shoreline
- Site 18 Hog Island
- Site 19 Catch Basins at Chip Collection Houses
- Site 20 Single Base Powder Facilities

- Site 21 Bronson Road Landfill
- Site 22 NG Slums Burning Site
- Site 23 Hydraulic Oil Discharges from Extrusion Plant
- Site 24 Abandoned Drain Lines
- Site 25 Hypo Discharges from X-Ray Building No. 2
- Site 26 Thermal Destructor 2
- Site 27 Thermal Destructor 1
- Site 28 Original Burning Ground
- Site 29 The Valley

Of the 38 sites, the IAS recommended further study at Sites 5, 8, and 12 based on the available historical information. Because historical operations at Sites 6 and 25 were similar to those at Site 5, the IAS also recommended additional study at these two sites if further investigation of Site 5 indicated a problem.

The Navy completed a Confirmation Study at NSFIIH in September 1985. The Confirmation Study was designed to evaluate the presence or absence of contamination at Sites 5, 8, and 12. The results of the study are documented in the *Naval Assessment for the Control of Installation Pollutants (NACIP) Confirmation Study, Naval Ordnance Station, Indian Head, Maryland* (CH2M HILL, 1985). Sites 5 and 8 were determined to have extensive levels of silver and mercury, respectively. Contamination in the pond adjacent to Site 12, however, was not found to be attributable to the landfill and is suspected to be the result of contamination from farther upstream.

The Navy completed removal actions at Sites 5 and 8 and continued investigations at Site 12. The removal actions involved the excavation of contaminated soil to prevent further transport and migration of the contamination and risks to ecologically sensitive receptors. At Site 5, the Navy removed silver-contaminated soil from one swale on the site in 1992 and additional contaminated soil from another swale on the site in 1995. The soil from the first excavation was encapsulated and placed in the base of a large earthen explosion barrier expansion (the soil represents less than 4 percent of the total volume of the expansion). The soil from the second excavation was used to reclaim a gravel borrow pit on the Stump Neck Annex at NSFIIH. At Site 8, the Navy removed mercury-contaminated soil in 1984 and 1995. The soil removed in 1984 was disposed offsite, and soil removed in 1995 was disposed by encapsulating it in the earthen berm of Building 606 and covering it with a 1-foot thick layer of clay.

For Site 12, the Navy conducted a 5-year biomonitoring program, which demonstrated that contamination was not migrating from the landfill to the adjacent pond. An RI was completed in 1999. The RI recommended the preparation of an FS to evaluate methods for mitigating environmental risks and to address regulatory concerns connected with landfill closure requirements. The FS for Site 12 was completed in January 2001. Subsequently, a Proposed Plan and fact sheet were published for the installation of a 2-foot thick soil cover over the Town Gut Landfill, and a public meeting was held on January

23, 2001. The final design for the remediation of Site 12 was completed in February 2002, and construction was completed in August 2003. A ROD was completed and signed in September 2004.

In 1996, after further review of the original 29 IAS sites of the Main Area, the Navy, EPA, and the Maryland Department of the Environment (MDE) decided that Sites 6, 11, 13, 14, 15, 16, 17, 21, 25, and 28 should undergo RIs because of the potentially higher risks associated with these sites. RIs for all of these sites have since been completed. No further action (NFA) was recommended for Sites 2, 3, 4, 5, 7, 9, 13, 18, 20, 23, 24, 25, and 26. Sites 11, 12, 21, 28, and 42 are considered "Response Complete (RC)" and are in the long-term monitoring (LTM) phase. Sites 14, 15, and 16 are part of the Lab Area (along with Sites 49, 50, 53, 54, and 55) and are considered RC, with Institutional Controls (ICs; or land use controls [LUCs]), in place at the sites. Sites 10, 22, and 29 have been moved to the MRP. The remainder of the original 29 IAS sites entered the Site Screening Process (SSP) (as described in the FFA), which provided for a second evaluation following additional sampling if warranted to confirm the presence or absence of contamination at the sites and the need for further action. In 2010, Site 6 achieved "Site Closeout (SC)" with an NFA ROD following an interim removal action (IRA) (a non-time-critical removal action [NTCRA] in this case). In 2012, Site 19 and Site 27 achieved SC with an NFA Decision Document following an IRA. In 2013, Site 8 achieved SC with an NFA Decision Document following an IRA. Site 21 achieved RC in 2013 and is currently in the LTM phase. Sites 17 is in the RA-O phase following remedial action implementation in 2015. A ROD was signed in 2014 for Site 28 following a successful IRA. Finally, in 2016, Site 1 achieved site closeout and an NFA Decision Document was signed.

#### **1.2.1.2 Supplemental PA (Sites 39-55)**

The Navy completed a Supplemental PA Report for NSFIIH in January 1992. The PA was an addendum to the IAS and examined an additional 17 sites located on the Main Area. The 17 additional sites are listed below. All but Sites 51 and 52 were recommended for further action (e.g., additional investigation, contaminant removal, etc.).

- Site 39 Silver Release to Sediments
- Site 40 Palladium Catalyst in Sediment
- Site 41 Scrap Yard
- Site 42 Olsen Road Landfill
- Site 43 Toluene Disposal
- Site 44 Soak-Out Area
- Site 45 Abandoned Drums
- Site 46 Cadmium Sandblast Grit
- Site 47 Mercuric Nitrate Disposal Area
- Site 48 NG Plant Disposal Area
- Site 49 Chemical Disposal Pit

Site 50 Building 103 Crawl Space  
Site 51 Building 101 Dry Well  
Site 52 Building 102 Dry Well  
Site 53 Mercury Contamination of the Sewage System  
Site 54 Building 101  
Site 55 Building 102

As a follow-up to the Supplemental PA, the Navy conducted an SI on Sites 39 through 50 and Sites 53 through 55 in two phases. SI Phase I focused on Site 42, Olsen Road Landfill, and SI Phase II focused on the remainder of the sites. Based on the results of the SI, all the sites were recommended for further study to determine the nature and extent of contamination and to identify the appropriate remedial action, if any.

The Navy completed work plans for the RI of these sites in 1997. RI Reports for Sites 41, 42, and 44 were completed in 1999. At Site 41, the RI recommended an FS to evaluate methods for mitigating human health and environmental risks posed by the contaminated surface soil at the site. The FS for Site 41 was completed in January 2001. Subsequently, a Proposed Plan and fact sheet were published for removing contaminated soil and removing polychlorinated biphenyl (PCB) contamination from the surface of the concrete slab within the Scrap Yard (Site 41), and a public meeting was held on February 20, 2001. The final design for the remediation of Site 41 was completed in mid-2002, and construction began in November 2002. Due to discovery of munitions items, Site 41 was transferred to the MRP as UXO 32 in March 2004. The remedial action was completed under removal action authority via an IRA. Following completion of the IRA, a UXO 32 ROD was signed in 2014 with a remedy of LUCs for soil. Groundwater at UXO 32 is being addressed under the Site 70 RI. At Site 42, the RI recommended an FS to evaluate methods to address regulatory concerns connected with landfill closure requirements. Additional field investigations were conducted during January and February 2002 to better define the extent of the landfill and to assess the possibility that groundwater contamination may have migrated downgradient from the landfill. Consequently, the FS was completed in June 2002. Later, a Proposed Plan and fact sheet were published for the installation of an impermeable landfill cap, and a public meeting was held on July 7, 2005. The final design for remediation of Site 42 was completed in March 2005, and construction was completed in May 2006. Site 42 is considered RC and is in the LTM phase. The RI for Site 44 recommended NFA, so no FS was prepared. A Proposed Plan and fact sheet for No Action were published, and a public meeting was held on February 20, 2001. The NFA ROD for Site 44 was signed in September 2002. At Site 49, the chemical disposal pit was removed in May 2001. Sites 49, 50, 53, 54, and 55 are considered part of the Lab Area (along with Sites 14, 15, and 16). These sites are considered RC and have LUCs in place at the sites. A ROD to address groundwater contamination at Site 47 was signed in 2013 and the Remedial Action has been completed. That site is currently in the RA-O phase.

SSP investigations, which recommended NFA, were conducted at Sites 51 and 52 during January and February 2002. Site 43 is undergoing an RI/FS. RIs have been completed for the remainder of the 1992 PA sites, and Sites 39, 40, 45, 46, and 48 were recommended for NFA.

#### **1.2.1.3 Additional Sites (56, 57, 66, 67, 68, 69, and 70)**

Since the 1992 PA, seven additional sites have been discovered on the Main Area of NSFIH.

Site 56 Lead Contamination from Industrial Wastewater Outfall (IW) 87

Site 57 Building 292 TCE Contamination

Site 66 Turkey Run Disposal Area

Site 67 Hog-Out Facility

Site 68 Former Building 259 Contamination

Site 69 Building 1018

Site 70 Groundwater Contamination Along Waterworks Way

Based on site sampling, the Navy performed Engineering Evaluations/Cost Analyses (EE/CAs) in 1994 and 1997, respectively, to evaluate the removal action options at Site 56 and Site 57. The Navy conducted a removal action at Site 56 in 1996 that involved the removal of lead-contaminated sediments at outfall IW-87 and from approximately 750 feet of outfall pipe. The sediment was properly disposed offsite. The pipe was then relined to prevent potential lead-contaminated shallow groundwater from infiltrating the pipe, which could deposit lead downgradient of the site. In 1998, the Navy completed a removal action at Site 57 to address infiltration of trichloroethene (TCE) contaminated groundwater into a storm sewer leading to outfall IW-80. Approximately 700 feet of storm sewer were lined to inhibit the accelerated migration of TCE. The Navy completed the RI at Site 57 in July 2000. During August 2001, a field investigation was conducted at Site 57 to collect field data to aid in the evaluation of remedial alternatives during the preparation of an FS. In May 2003, an HRC (hydrogen release compound) pilot study was performed at the site. Previously, a pilot-scale soil vapor extraction (SVE) study was conducted in 1997 to determine if SVE was an appropriate method for removing TCE from the site. The study is mentioned in the RI Report of July 2000 (Section 4.2.3, page 4-5) and states on page 4-6 that "Therefore, it was concluded that the subsurface conditions at Site 57, as experienced during this pilot study, are not well suited to the application of the SVE technology." The results of the study are contained in the Findings Report Pilot-Scale Soil Vapor Extraction Study (B&R Environmental, 1997b). An EE/CA was finalized in August 2005, and an IRA to address soil contamination at the site was completed in July 2006. The FS was also completed in July 2006. The ROD to move to the RD/RA-O phase at Site 57 was signed in September 2007. A Proton Reduction Technology (PRT) system was installed at the site in May 2015 to enhance monitored natural attenuation (MNA) of groundwater. Site 57 is currently in the RA-O phase and is considered to have its Remedy in Place. Optimization of the remedy began in 2017 in an effort to reduce the amount of time to reach site remediation goals. Site 66 was identified as an unregulated dump site in 2004, and after an SSP was completed, a Site



Investigation began in February 2007 (based on the results of the SSP sampling, it was decided to change the status from an SSP to a Site Investigation). The Site Investigation Report was completed in November 2008. Site 66 is currently in the RI/FS phase. Groundwater contamination was verified at Site 67 in 2006 and has been the subject of various pilot studies, including in situ groundwater treatment and MNA, under the Environmental Security Technology Certification Program. Site 67 is currently in the RI/FS phase. Site 68 (formerly AOC 31) was identified during pre-decontamination sampling efforts for Building 259 in January 2011 (elevated metals and energetics in soil). Site 68 underwent an SSP Investigation in 2013 and likely will be addressed by a non-time-critical removal action rather than an RI/FS. Site 69 was identified during pre-demolition sampling efforts for Building 1018 in January 2011 (elevated perchlorate in soil). Site 69 is currently in the RI/FS phase after undergoing the SSP in 2013. Site 70 is a result of groundwater contamination found upgradient of the Scrap Yard (Site 41/UXO 32) during the historical investigations and IRA at UXO 32. Site 70 is currently in the RI/FS phase.

#### **1.2.1.4 Areas of Concern**

Sixteen AOCs are being evaluated under the IRP in the Main Area. Fifteen AOCs originally were identified as RCRA solid waste management units (SWMUs), and they are currently inactive. These AOCs have undergone a desktop audit, which involves a thorough review and evaluation of all existing or easily obtainable documentation on the identified areas. Based on this evaluation, the Navy, EPA Region 3, and MDE decided which AOCs should proceed to the SSP and which AOCs will require no action and can be closed out. A summary of the results of the desktop audit appears in Table 1-2. Notations have been added to the table to indicate changes made on decisions to address the SWMUs since the desktop audit was conducted.

A new AOC named Site 71 – PFAS Area of Concern was added in 2017. Site 71 includes two AOCs on the Main Area and three AOCs on the Stump Neck Annex that were potentially used for fire training exercises.

#### **1.2.2 Stump Neck Annex**

In November 1980, NSFIH submitted a RCRA Part A permit application to the EPA for designation of specific Stump Neck operations as hazardous waste management facilities with interim status. On October 6, 1981, EPA advised Naval Explosive Ordnance Technology Center (now NAVEODTECHDIV) that, pursuant to Section 3005 of RCRA regulations, the application did not demonstrate that the facility was required to have a permit under Section 3005 of the Act, and the application was returned. However, the EPA did issue an identification number (EPA I.D. No. MD4170090001), and the state of Maryland subsequently issued an interim permit (No. A223A).

The 1983 IAS identified nine sites (Sites 30 through 38) at Stump Neck Annex.

- Site 30 Stump Neck Impact Area
- Site 31 Old Demolition Range
- Site 32 Suspected Tool Burial Site
- Site 33 Scrap Metal Pit
- Site 34 Tool Burial Site
- Site 35 Torpedo Burial Site
- Site 36 Closed Landfill
- Site 37 Causeway
- Site 38 Rum Point Landfill

Sites 36 and 38 were addressed as SSAs and continued under the SSP. The SSP provided for a second evaluation, including some additional sampling, to confirm the presence or absence of contamination at the sites and the need for further action. Final SSP Reports for both sites were completed in 2008. In 2011, Site 36 entered the "Remedial Action (RA)" phase. Debris removal was completed in 2014 and the site is now in the RC/LTM phase. The RA at Site 38 was completed in 2017 and the site is currently in the RC/LTM phase. Sites 30 and 35 have been included in the MRP. Site 31 is an active range. The SSP fieldwork was completed at Site 37 in June 2011, and an NFA (i.e., No Action) Decision Document was signed in November 2011. NFA also has been recommended for Sites 32, 33, and 34.

Because the facility was identified as a RCRA operating facility, the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA authorized EPA to require corrective action for releases of hazardous waste or hazardous constituents from SWMUs and other AOCs. The first phase of the corrective action program, as established by EPA, is to conduct a RCRA Facility Assessment (RFA). The RFA includes a preliminary review of all available relevant documents, and a Visual Site Inspection (VSI). The EPA Office of RCRA Programs conducted a RCRA SWMU Investigation of the NAVEODTECHDIV at the NSF IH and issued a final RFA in April 1990. The RFA identified the following 24 SWMUs at the Stump Neck Annex (some of which were already identified in the IAS as indicated below parenthetically):

- |        |                                     |
|--------|-------------------------------------|
| SWMU 1 | Rum Point Landfill (Site 38)        |
| SWMU 2 | Range 3 Burn Point                  |
| SWMU 3 | Chicamuxen Creek's Edge Dump Site A |
| SWMU 4 | Chicamuxen Creek's Edge Dump Site B |
| SWMU 5 | Range 6                             |
| SWMU 6 | Air Blast Pond                      |
| SWMU 7 | Scrap Metal Pit (Site 33)           |
| SWMU 8 | Tool Burial Site (Site 34)          |
| SWMU 9 | Torpedo Burial Site (Site 35)       |

SWMU 10	Closed Landfill (Site 36)
SWMU 11	Suspected Tool Burial Site (Site 32)
SWMU 12	Waste Oil Storage Site
SWMU 13	Pink Water Treatment Tank
SWMU 14	Photographic Lab Septic Tank System
SWMU 15	Spent Photographic Solution Storage
SWMU 16	Thermal Treatment Tank
SWMU 17	Building 2015 – Chemistry Lab Accumulation Area
SWMU 18	Waste Pile
SWMU 19	Disposal Area No. 1
SWMU 20	Disposal Area No. 2
SWMU 21	Drum Storage Area
SWMU 22	Stump Neck Impact Area (Site 30)
SWMU 23	Old Demolition Range (Site 31)
SWMU 24	Causeway (Site 37)

In December 1990, EPA issued a RCRA Permit for Corrective Action (effective January 24, 1991 and expiring on January 23, 2001). Of the 24 SWMUs, the following six SWMUs were required by permit conditions to undergo further investigation. SWMU 1 had previously been designated as Site 38 during the IAS. SWMUs 2 through 6 were assigned IRP site numbers 58 through 62. The permit required Verification Investigations (VIs) at Sites 38, 60, and 62 and RCRA Facility Investigations (RFIs) at Sites 58, 59, and 61. A draft report for these investigations was completed in January 1998. More recently, Site 62 was moved to the MRP. Sites 58, 59, 60, and 61 have been designated as active ranges and will not be addressed under the IRP.

As indicated above, SWMU 10 (i.e., Site 36) entered the RA phase in 2011 and is undergoing LTM. A ROD for SWMU 1 (i.e., Site 38) was signed in 2014 and the site is currently in the RC/LTM phase. Site 30, Site 31, Site 35, and SWMU 19 have been transferred to the MRP. SWMU 14 is currently in the RI/FS phase. SWMU 13 will be managed under RCRA. SWMU 16 is an active range. Additionally, NFA is planned for the remaining SWMUs.

Pursuant to the requirements of the RCRA Corrective Action Permit, NSFIIH notified the EPA Region 3 RCRA Programs Branch in 1991 of three additional SWMUs that were not originally identified in the RFA, but warranted further investigation. These three sites are listed below. These SWMUs were associated with operations of the Naval School Explosive Ordnance Disposal. The three “school” sites included Sites 63, 64, and 65 (SWMUs 25, 26, and 27), which became inactive with the relocation of the school in 1998. The Navy completed a VI report on the three sites in June 1996. Currently, the Navy is addressing these three sites under the MRP.

Site 63 / SWMU 25	Area 8
Site 64 / SWMU 26	Improvised Explosive Devices (IED)
Site 65 / SWMU 27	Inert Ordnance Disposal (IOD)

### 1.2.2.1 Areas of Concern

In 1991, the Navy discovered a fourth SWMU (i.e., SWMU 30), which was associated with a dry well that was connected to a laboratory located in Building 2015. SWMU 30 and ten of the twenty-four SWMUs originally identified by the RFA were evaluated under the IRP as AOCs. These ten SWMUs are listed below.

SWMU 12	Waste Oil Storage Site
SWMU 14	Photographic Lab Septic Tank System (now an IRP site in the RI/FS stage)
SWMU 15	Spent Photographic Solution Storage
SWMU 16	Thermal Treatment Tank
SWMU 17	Building 2015 - Chemistry Lab Accumulation Area
SWMU 18	Waste Pile
SWMU 19	Disposal Area No. 1
SWMU 20	Disposal Area No. 2
SWMU 21	Drum Storage Area
SWMU 30	Building 2015 Dry Well

In 1992, NSFIH notified EPA of two additional sites at the Stump Neck Annex, which later became SWMUs 28 and 29. Both of these units have been included in the MRP.

SWMU 28	Old Skeet and Trap Range
SWMU 29	Small Arms Range (Pistol Range)

All twelve of the above AOCs were subjected to a desktop audit on November 28, 2001. The audit involved a thorough review of all existing or easily obtainable documentation/information on the identified areas. A total of thirteen Stump Neck AOCs were included in the desktop audit. Based on this evaluation, decisions were made by the Project Managers as to which AOCs will proceed to the SSP and which AOCs will require no action and can be closed out. Table 1-3 summarizes the audit results. Notations have been added to the table to indicate changes made on decisions to address the SWMUs since the desktop audit was conducted.

The FFA officially incorporated the Stump Neck SWMUs from the RCRA Program into the NSFIH CERCLA Program. SWMUs have been evaluated under the IRP as AOCs.

### **1.2.3 Additional Munitions Response Program Sites**

In 2005, the Navy completed a PA for MRP sites identified in a range inventory. This included 7 sites on the Main Area, 16 sites on the Stump Neck Annex, and 5 Water Area Munitions Study (WAMS) sites. For the water sites, two are located at the Main Area, two are at the Stump Neck Annex, and one is off-installation. Some sites already existed as IRP sites under the FFA, but were moved to the MRP. The seven sites evaluated in the PA for the Main Area are listed below.

UXO 6	NG Slums Burning Ground
UXO 9	Single Base Propellant Grains Spill Area
UXO 11	The Valley
UXO 13	FDR Skeet Range
UXO 20	Safety Thermal Treatment Point
UXO 29	Southwestern Pistol Range
UXO 30	Gate 3 Burning Ground

The 16 sites evaluated in the PA for the Stump Neck Annex are included below.

UXO 1	Air Blast Pond
UXO 2	Area 8
UXO 4	Basic IED Area
UXO 5	Advanced IED Area
UXO 10	Stump Neck Impact Area
UXO 12	Torpedo Burial Site
UXO 14	Marine Rifle Range
UXO 15	Old Skeet and Trap Range
UXO 16	Rum Point Skeet Range
UXO 17	Small Arms (Pistol) Range
UXO 21	Test Area 1
UXO 22	Test Area 2
UXO 23	Torpedo Casing Disposal Area
UXO 25	Roach Road Rifle Range
UXO 26	The Valley Impact Area
UXO 28	EOD School Demolition Area

The five water area sites include the Igniter Area (UXO 19) and Water Impact Area (UXO 33) at the Main Area, the Battle Range Firing Area (UXO 18) and Sonar Training Area (UXO 27) at the Stump Neck Annex, and the Pope's Creek site (UXO 31) located off the installation (see Figure 1-3).

The PA for the MRP sites concluded that an SI be performed for all of the MRP sites listed above. The subsequent SI was completed in 2010, recommending an RI/FS for all sites, except for recommending NFA for UXO 022 and UXO 029. An NFA Decision Document was signed for each site in February 2011 and October 2011, respectively. Following an IRA for soil in 2019, UXO 16, 17, and 25 were closed out. The remainder of the MRP sites are currently in the RI/FS phase with the exception of two small arms/skeet ranges (UXO 14& 15) which are in the IRA phase.

### **1.3 FIVE-YEAR REVIEW**

The latest Five-Year Review, which was the third review completed for the installation, was signed on March 1, 2018. It included the Lab Area (consists of Sites 14, 15, 16, 49, 50, 53, 54, and 55), UXO 32, and Sites 11, 12, 17, 21, 28, 36, 38, 42, 47, and 57. Remedies for Sites 11, 12, 21, 28, 38, and UXO 32 were found to be protective and the remedies for Sites 17, 36, 42, 47, and 57 were found to be short-term-protective. The required signature date for the next Five-Year Review is September 27, 2022.

### **1.4 PURPOSE OF THE SITE MANAGEMENT PLAN**

The SMP is intended to be a living document. It serves as a tool to support planning, scheduling, and budgeting future activities at sites located on NSFIH. The SMP will be updated annually, as required by the FFA.

In addition to providing a record of the milestones achieved in connection with each site, the SMP presents the anticipated milestones for the future work necessary to address the potential adverse impacts of contamination at each site.

### **1.5 FORMAT OF THE SITE MANAGEMENT PLAN**

This SMP document is organized into four sections and three appendices. Section 1.0 presents a brief description of the NSFIH, a summary of the facility's overall environmental history, and a description of the purpose of this document. Section 2.0 provides fact sheets for each site and AOC in the program. Each of the fact sheets presents a compilation of historical information and summarized data extracted from previously prepared studies and reports. All the documents supplying information to this SMP are listed in the References section located at the end of this document. Section 3.0 includes two maps of the NSFIH showing the approximate location of each of the sites discussed. Section 4.0 provides a schedule of future activities for the sites recommended for further action. The schedules present the sequence of activities anticipated to be necessary for the completion of critical steps in the IRP. Appendices A and B supplement the Site Location Map(s) by presenting figures for each of the sites. Appendix A includes sites at the Main Area and Appendix B includes sites at the Stump Neck Annex. These figures offer a more detailed view of site locations and features in the immediate vicinity of the respective sites. Appendix C provides site photographs organized by site number.

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## **2.0 SITE DESCRIPTIONS**

Section 2.0 contains a series of fact sheets addressing each site's history, current conditions, recent investigative activity, and recommended future action. Section 2.0 contains limited historical information representing a compilation of historical documents. References from which the fact sheets were developed are listed in the References section at the end of this SMP.

Section 2.1 contains descriptions of the sites and AOCs located on the Main Area of NSFIIH. Section 2.2 contains descriptions of the sites and AOCs located at the Stump Neck Annex.

### **2.1 SITE DESCRIPTIONS – MAIN AREA**

This section consists of fact sheets for the Main Area sites and AOCs.



## SITE 1 – THORIUM SPILL

(OLD MAP GRID C27)

IRP Site 1

Fact Sheet

1. **Contamination:** Thorium.
2. **Location:** Special Weapons Disposal Building (Building 900).
3. **From:** Potential thorium contamination from ordnance training session near Building 900.
4. **When:** Date of training session is unknown.
5. **Generated By:** Thorium items were used for ordnance training on the ground near Building 900. If these items were not completely removed after the training session, then these items may have contaminated the ground near Building 900.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment portion of the IRP. The IAS recommended that a thorough survey and Confirmation Study be conducted prior to any excavation or change in land use.
  - b. Site Screening Process Investigation started in April 2004. The final SSP Report was submitted in May 2009.
  - c. Final EE/CA was submitted in September 2010 and Final Action Memorandum was issued by the Navy in February 2011.
  - d. Navy Radiological Affairs Support Office (RASO) submitted the Final Removal Action Work Plan (RAWP) (including an Erosion and Sediment Control Plan [ESCP]) in December 2012.
  - e. Interim removal action (IRA) started in February 2013, but suspended in March 2013 due to the uncertainty of the extent of contamination (based on verification results) and the presence of munitions and explosives of concern (MEC). The site was temporarily backfilled and stabilized in September 2013.
  - f. Soil characterization to fully delineate limits of soil requiring removal was completed in March 2015.
  - g. The final IRA phase was completed in December 2015.
8. **Current Status:** In September 2016, a Final Status Survey Report was finalized and a Decision Document, which recommended No Further Action (NFA), was signed.

**SITE 2 – WASTE CRANK CASE OIL APPLIED TO TORRENCE ROAD****(OLD MAP GRID E17)  
IRP Site 2  
Fact Sheet**

1. **Contamination:** Waste oil.
2. **Location:** Torrence Road behind Building 290 (Public Works Department maintenance garage).
3. **From:** Waste oil from Transportation Branch buildings was reportedly applied to unpaved roads for dust control.
4. **When:** Prior to 1965.
5. **Generated By:** Waste oils from the Transportation Branch buildings consisted of crankcase, hydraulic, transmission, and motor oils.
6. **Amount:** The Transportation Branch buildings generated approximately 7,700 gallons annually.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment portion of the IRP. The IAS recommended that a Confirmation Study not be conducted for Site 2.
8. **Current Status:** Site Screening Process (SSP) investigation started in April 2004. The final SSP Report was submitted in February 2006, and a Decision Document which recommended no further action (NFA) was signed in March 2006.

## **SITE 3 – NITROGLYCERIN EXPLOSION, NITRATION BUILDING AREA**

### **(OLD MAP GRID E17) IRP Site 3 Fact Sheet**

1. **Contamination:** Residual nitroglycerin.
2. **Location:** Vicinity of Nitration Building, Building 1543.
3. **From:** Explosion in former Nitration Building, Building 675.
4. **When:** 1971.
5. **Generated By:** Explosion in former Nitration Building.
6. **Amount:** Unknown.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment portion of the IRP. The IAS recommended that a Confirmation Study not be conducted for Site 3.
8. **Current Status:** A Site Screening Process investigation was started in 2004. However, review of sample results obtained in this area in 2002 for Military Construction Project P161 led to the signing of a Decision Document in February 2005, which recommended no further action (NFA).

## SITE 4 – LLOYD ROAD OIL SPILL SITES

(OLD MAP GRID E37)

IRP Site 4

Fact Sheet

1. **Contamination:** Waste oil.
2. **Location:** On Lloyd Road near the Public Works Department Maintenance garage area, Building 290.
3. **From:** Waste oil spilled from a dumpster that was used to store waste petroleum.
4. **When:** Prior to 1981.
5. **Generated By:** Waste oil from the Public Works maintenance operations was deposited in a dumpster. Waste oil consisted of fuel oil, motor oil, and kerosene.
6. **Amount:** Estimated to be 50 to 100 gallons.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment portion of the IRP. The IAS recommended that a Confirmation Study not be conducted for this site.
8. **Current Status:** Site Screening Process (SSP) investigation started in April 2004. The final SSP Report was submitted in February 2006, and a Decision Document which recommended no further action (NFA) was signed in March 2006.

## SITE 5 – X-RAY BUILDING 731

(OLD MAP GRID F6, F7)

IRP Site 5

Fact Sheet

1. **Contamination:** Silver from spent fixer and developer.
2. **Location:** Drainage swales behind Building 731 that flow to Mattawoman Creek.
3. **From:** Discharge of spent fixer and developer for X-Ray film.
4. **When:** 1953 to 1965.
5. **Generated By:** Fixer and developer are used to develop X-Ray film. Some of the silver, which is on the film, becomes “fixed” to the X-Ray and the remainder of the silver is washed off. Both the spent fixer and wash water, which contain silver, were discharged behind Building 731 into two separate swales.
6. **Amount:** Up to 720 pounds of silver.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP.
  - b. A Confirmation Study, the NACIP equivalent of an IRP Site Inspection (SI), was completed in 1985 to determine if silver was actually present in the sediment at the site.
  - c. A removal action was performed on the eastern swale from November 1992 through January 1993. The silver-contaminated soil of the swale was removed, solidified, and stabilized and then placed in an earthen berm.
  - d. A removal action was performed on the western swale from December 1994 through January 1995. The silver-contaminated soil of the swale was removed and placed in a borrow pit at Rum Point on Stump Neck Annex. The soil was covered with an impermeable layer of soil (clay), which was then covered with topsoil and reseeded.
  - e. A Site Screening Process (SSP) field investigation was completed in 2001 and 2002. Groundwater monitoring wells were installed and sampled for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and Target Analyte List (TAL) metals. Sediment and surface water samples were collected in a portion of the western swale, which was previously not sampled, and analyzed for TAL metals.
8. **Current Status:** The Final SSP Report was completed in December 2003 and recommended no further action (NFA). A Concurrence Letter for NFA was signed by the Navy and EPA with concurrence from the MDE in January 2004.

## **SITE 6 – HYPO SPILL, RADIOGRAPHIC FACILITY ACCELERATOR CONTROL BUILDING AND OPEN DRAIN**

### **(OLD MAP GRID G3) IRP Site 6 Fact Sheet**

1. **Contamination:** Silver from spent fixer.
2. **Location:** Drainage swales south of Buildings 1349 and 1140.
3. **From:** Spill of fixer for X-Ray film during transfer of storage tank contents.
4. **When:** Reportedly 1965 to 1977.
5. **Generated By:** Fixer and developer are used to develop X-Ray film. Some of the silver, which is on the film, becomes “fixed” to the X-Ray, and the remainder of the silver is washed off.
6. **Amount:** 10 gallons.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study should be conducted for Site 6 if the Site 5 study revealed a danger to aquatic life. Because Site 5 soil was determined to pose a threat to ecological receptors, it was determined that a remedial investigation (RI) should be conducted at Site 6.
  - b. RI fieldwork was completed at Site 6 in 2001. Surface soil, shallow subsurface soil, surface water, and shallow groundwater samples were collected and analyzed for silver. The final RI report was completed in April 2004. The RI recommended further action to address health hazards and potential ecological risk posed by silver contamination.
  - c. An additional investigation was conducted in October 2005 to identify the lateral extent of silver and to assess the need for a BERA or remediation outside the fenced area.
  - d. An interim removal action (IRA) inside the fenced area was completed in September 2008.
  - e. A Proposed Plan was completed in February 2009. A public meeting for the Proposed Plan was held on February 19, 2009.
  - f. A Record of Decision (ROD) was signed in January 2010.
8. **Current Status:** The 2008 IRA resulted in no further action (NFA) for the site, which is documented in the ROD.

## SITE 7 – HMX SPILL, SLURRY MIX BUILDING

(OLD MAP GRID G17)

IRP Site 7

Fact Sheet

1. **Contamination:** Lead, HMX, phthalate esters, nitrate esters, amines, oil, and grease.
2. **Location:** Slurry Mix Building, Building 682, and associated open drainage ditch, which flows to IW10.
3. **From:** Wastewater from dewatering HMX and building floor wash-down.
4. **When:** Between 1964 and 1968.
5. **Generated By:** Facility processing procedures included dewatering HMX, which was purchased in a slurry form and dewatered in an eductor vacuum filter. Wastewater was discharged into the floor drain and from there to an open storm ditch, which flows to IW10.
6. **Amount:** 168 pounds of HMX and 5 pounds of lead.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 7.
8. **Current Status:** A Site Screening Process (SSP) investigation started in August 2004. The Final SSP Report was submitted in December 2005, and a Decision Document, which recommended no further action (NFA), was signed at the same time.

## SITE 8 – MERCURY CONTAMINATION FROM BUILDING 766

### (OLD MAP GRID G-20) IRP Site 8 Fact Sheet

1. **Contamination:** Mercury.
2. **Location:** The drainage system from Building 766, which included a stormwater manhole, a ditch, and a pond that discharges into Mattawoman Creek.
3. **From:** Lab operations.
4. **When:** 1958 to 1981.
5. **Generated By:** During sensitivity tests, nitrometer bulbs, which contained mercury, sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills from transferring mercury to the slop jar were common. Jars of mercury often broke during rinsing in the sink.
6. **Amount:** Estimates range from 23 to 500 pounds of elemental mercury.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP.
  - b. A Confirmation Study, the NACIP equivalent of an IRP Site Inspection (SI), was completed in 1985 to determine if mercury was actually present in the sediment at the site.
  - c. While construction work was being performed in the area of Building 766 in 1985, the contractor inadvertently broke the drain pipe leading from the building to a manhole. Mercury was discovered in the pipe and ground at the site of excavation. Approximately 200 drums of mercury-contaminated soil were removed from the area near the manhole and properly disposed.
  - d. The floor drains were sealed shut with concrete, and sink drains were re-routed to the sewage treatment system. In addition, mercury traps were placed on the drains to collect any mercury that may inadvertently enter the drain.
  - e. A Confirmation Study was performed in 1985 to determine the extent of mercury contamination throughout the ditch. The mercury in the soil was present in the highest concentration directly under the pipe which discharges into the ditch. The mercury concentrations then decreased downstream from the pipe. The Confirmation Study recommended monitoring mercury levels over a 5-year period. Water monitoring samples taken between the pond and Mattawoman Creek did not indicate any movement of the mercury.
  - f. The U.S. Fish and Wildlife Service sampled fish in Mattawoman Creek for the 5-year period ending in 1991 to determine if fish were bioaccumulating mercury. Fish upstream from the entrance location to the creek have been sampled to determine background levels of mercury.



within the fish. The background level is the amount of mercury that is normally found in the fish. The U.S. Fish and Wildlife Service has also sampled fish downstream from the entrance location to the Creek to determine if the levels are different. In the past, fish downstream were found to contain mercury at a level slightly higher than those upstream. The latest report from the U.S. Fish and Wildlife Service indicates that the mercury levels in both the fish upstream and downstream from IRP Site 8 contain equivalent levels of mercury. Mercury levels of the fish from both areas, however, have been within regulatory limits.

- g. A potential problem with IRP Site 8 is the transport of mercury downstream through entrainment, especially during storm events, such as heavy rains. With the installation of a weir in June 1992, the tidal pond acts as a natural sediment basin. The weir provides additional settling time to ensure that any sediment that has flowed from the upper section of the stream into the pond will not exit into Mattawoman Creek.
- h. Approximately 200 water and sediment samples were taken from the ditch, the pond, and Mattawoman Creek during the week of August 24, 1992 to better characterize the location and extent of mercury in the drainage system. Based on the sample results, an Engineering Evaluation and Cost Analysis (EE/CA) was prepared to determine the best alternative to be taken to ensure protection of human health and the environment. The alternative recommended in the EE/CA was to remove the area of highest mercury contamination. This area, the upper section of the stream, could be considered a source to the receptor (tidal pond) downstream, it was approximately 300 feet in length, and it contained mercury at concentrations above 10 parts per million (ppm).
- i. In October 1992, a biomonitoring program was initiated to determine the effect of mercury on the biota (plant and animal life) in the tidal pond. The results of the study did not show any adverse effects on the biota of the pond due to the mercury.
- j. In June 1994, the removal action was begun to remove the mercury-contaminated sediment in the first 300 feet of the ditch, as recommended in the EE/CA. The soil that was removed was placed in the soil cover of an explosives storage magazine, Building 606. The soil was capped with clay and then topsoil and was reseeded. This work was completed in December 1994.
- k. A Site Screening Process investigation started in April 2004. Additional investigation of lead and mercury in the middle and lower stream sections was completed in September 2005.
- l. A Desktop Evaluation of existing data was completed in September 2006, which recommended additional sampling since most of the existing data used in the evaluation are more than 10 years old. The additional investigation was completed in September 2006 and recommended no further action (NFA) for the site, with the exception of the lower stream and upper pond.
- m. Additional sampling to determine the horizontal and vertical extent of lead and mercury in soil and sediment in the lower stream and pond area was completed in October 2008 and May 2009. The subsequent Technical Memorandum discussing the results and preliminary remediation goals for a future excavation was finalized in January 2011.
- n. A Final EE/CA evaluating removal options was submitted in December 2011 and a Final Action Memorandum documenting the decision to perform an interim removal action (IRA) was issued by the Navy in June 2012.
- o. The IRA was completed in November 2012.

8. **Current Status:** A Construction Completion Report and Decision Document which recommended NFA were finalized in December 2013.

## SITE 9 – PATTERSON AVENUE OIL SPILL

### (OLD MAP GRID G37) IRP Site 9 Fact Sheet

1. **Contamination:** Fuel oil.
2. **Location:** South of Building 320.
3. **From:** Spill of fuel oil from a tanker truck.
4. **When:** Circa 1958.
5. **Generated By:** Spill of fuel oil from a tanker truck.
6. **Amount:** 10,000 gallons.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 9.
8. **Current Status:** A Site Screening Process investigation started in April 2004. However, review of sample results obtained for the closure of nearby underground storage tanks (USTs) led to the signing of a Decision Document in October 2004, which recommended no further action (NFA).

**SITE 10 / UXO 9 – SINGLE-BASE PROPELLANT GRAINS SPILL AREA**

(OLD MAP GRID I37 TO I39; O37 TO O39)  
IRP Site 10 / MRP Site UXO 9  
Fact Sheet

1. **Contamination:** Nitrocellulose (NC) propellant grains.
2. **Location:** 14-acre site near the Powder Dry Houses.
3. **From:** Spill of NC grains during railroad transportation.
4. **When:** Estimated between 1900 and 1957.
5. **Generated By:** Spill of NC grains during railroad transportation.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 10.
  - b. The site was moved to the Munitions Response Program (MRP) and designated as UXO 09.
  - c. The final Preliminary Assessment Report, which recommended that a Site Inspection be performed, was completed in September 2005.
  - d. The Site Inspection was completed in September 2010 and recommended a Remedial Investigation (RI) for munitions constituents (MC) in soil and groundwater.
  - e. The Final RI UFP-SAP Work Plan (along with the Explosive Safety Submission [ESS] Determination Request) was submitted in November 2012.
  - f. The initial phase of RI fieldwork was completed in August 2013.
8. **Current Status:** Included in the MRP as Site UXO 009. The Draft RI Report was submitted in March 2014 and is currently on hold pending the results of a BERA and additional sampling of propellant grains planned for 2020.

## SITE 11 – CAFFEE ROAD LANDFILL

(OLD MAP GRID K6, L6)

IRP Site 11

Fact Sheet

1. **Contamination:** Metals and polycyclic aromatic hydrocarbons (PAHs) from disposal and burning of bulk metals items.
2. **Location:** Terminus of Caffee Road, from east of Building 1608 to the unnamed creek discharging to the Mattawoman Creek on the west side of the site.
3. **From:** Disposal of building debris, open burning residues, and bulk metal items.
4. **When:** Unknown.
5. **Generated By:** Disposal and open burning of various wastes.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP.
  - b. In late 1980, NSFIIH removed approximately 5,000 to 6,000 cubic yards of deposited material. This material was primarily flashed metal parts and dunnage, which were removed by a private contractor for off-station disposal.
  - c. Initial Remedial Investigation (RI) fieldwork was completed in 2000. Surface soil, subsurface soil, sediment, surface water, and groundwater samples were collected in the area of waste disposal and analyzed for Target Compound List (TCL), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and Target Analyte List (TAL) metals.
  - d. Further historical information was obtained indicating the presence of four open burning pits on the eastern side of the area initially investigated. Additional RI sampling of surface and subsurface soils, sediment, surface water, and groundwater for TCL VOCs, TCL SVOCs, and TAL metals was conducted on the eastern side of the site in 2002.
  - e. The Final RI report was completed in April 2004. The RI recommended a Feasibility Study (FS).
  - f. A wetland delineation was completed in February 2005.
  - g. The Baseline Ecological Risk Assessment (BERA) Report was finalized in July 2005.
  - h. The Draft FS Report was submitted in December 2005, and a third party optimization review of the document was completed in March 2006.

- i. A geophysical survey was completed in May 2006 to provide a better delineation of the horizontal and vertical extent of waste and to identify subsurface anomalies. A hydrographic survey was completed in November 2007. Design of living shoreline stabilization and sediment remediation alternatives are under review.
  - j. The FS Report was finalized in July 2008.
  - k. A Proposed Plan was completed in August 2008 recommending a protective soil cover, Institutional Controls (ICs), and groundwater long-term monitoring (LTM) for the soil, solid waste, and near-shore sediment in Area A; and an in situ cap and ICs for the near-shore sediment adjacent to Area B along Mattawoman Creek. A public meeting was held on September 18, 2008.
  - l. The Record of Decision (ROD) was signed in September 2009.
  - m. The 100% Remedial Design (RD) was submitted in November 2010.
  - n. The Remedial Action Work Plan was finalized in May 2011 and the Remedial Action was completed in January 2012.
  - o. The Final Land Use Control (LUC) RD and LTM Plan were completed in January 2012.
  - p. The Final Construction Completion Report was submitted in July 2012. The Remedial Action Completion Report (RACR) was finalized in 2014.
8. **Current Status:** Site 11 groundwater is in the LTM phase currently on a semiannual sampling frequency. Groundwater samples are analyzed in accordance with *Maryland Solid Waste Tables 1 and 2*. The landfill cover/conditions and ICs are inspected during each LTM sampling event.

## SITE 12 – TOWN GUT LANDFILL

### (OLD MAP GRID K-22) IRP Site 12 Fact Sheet

1. **Contamination:** Construction debris, including scrap metal, empty cans, and drums containing paint and varnish residue, demolition debris, such as asphalt, concrete, and rubble, possible chemical waste
2. **Location:** Approximately 4 acres bisected by Atkins Road extension (northwest of Building 471).
3. **From:** Disposal of landscaping waste, fill material, rubble, and construction debris.
4. **When:** 1968 to 1980.
5. **Generated By:** Disposal of various wastes.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP.
  - b. A Confirmation Study, the NACIP equivalent of an IRP Site Inspection (SI), was completed in 1985 to determine if contamination was actually present at the site. Low levels of metals were found in the sediment at this site. The Confirmation Study recommended monitoring the site for 5 years to ensure that no contamination is migrating from the landfill.
  - c. The 5-year monitoring results did not show that any contamination is migrating from this area.
  - d. A remedial investigation report for Site 12 was completed in July 1999. The report determined that the human health risk for non-residential scenarios is within acceptable limits. The document identified a potential ecological risk in connection with surface soil contamination. The document recommended a feasibility study report to evaluate alternatives that would address the ecological risk, as well as the State of Maryland requirements for closing landfills.
  - e. A feasibility study was completed in January 2001. The study developed several potential remedial alternatives, including one requiring total landfill removal and others involving various capping scenarios combined with institutional controls.
  - f. A Proposed Plan was completed in January 2001. The preferred remedial alternative presented in the document provided for covering the landfill with a 2-foot-thick soil cover.
  - g. A public meeting was held on January 23, 2001 to present the Proposed Plan to the public.
  - h. Completion of the final design documents occurred in February 2002.
  - i. Due to unresolved issues related to Land Use Controls between the EPA and the Navy with respect to Records of Decision (RODs), an Engineering Evaluation and Cost Analysis was

prepared in June 2002. On June 27, 2002 an Action Memorandum was signed describing a Removal Action to be performed at this site, which consists of covering the landfill with a 2-foot thick soil cover.

- j. Construction of the Removal Action began in September 2002 and was completed in August 2003.
  - k. Long-Term Monitoring (LTM) contract awarded in September 2003. The first Long-Term Monitoring quarterly sampling event was conducted in March 2004.
  - l. The Final Record of Decision was signed in September 2004. The ROD was modified to state that the Removal Action was completed and incorporated any changes required by the resolution of the LUC issue between the EPA and the Navy.
8. **Current Status:** The site is currently in the LTM Phase (beginning in 2004). Surface water monitoring was discontinued after the October 2007 sampling event, as per IHIRT decision. During the March 2011 partnering meeting, the IHIRT determined that a sufficient amount of groundwater sampling at Site 12 had been completed and the data showed stabilization of COC concentrations. Groundwater LTM sampling frequency was reduced from quarterly to once every 15 months. In addition, groundwater sample analyses were reduced from the *Maryland Solid Waste Tables 1 and 2* analytes to only [total and dissolved] arsenic, cobalt, iron, and manganese. Naphthalene analysis will continue in one well (MW10) to confirm previous detections. The landfill cover/conditions and institutional controls are inspected during each LTM sampling event.



## SITE 13 – PAINT SOLVENTS DISPOSAL GROUND

(OLD MAP GRID K31)

IRP Site 13

Fact Sheet

1. **Contamination:** Kerosene, mineral spirits, lacquer thinners, and solvents.
2. **Location:** 200-square-foot depressed area located 50 feet behind the Paint Shop, Building 870.
3. **From:** Dumping of thinners, solvents, and spent paint behind the building.
4. **When:** Between 1953 and 1979.
5. **Generated By:** Shop activities included painting various items by hand, using aerosol sprays, or in paint spray booths, and wastes were generated during paint equipment cleaning operations.
6. **Amount:** Up to 20,000 pounds of waste.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 13.
  - b. Fieldwork for a Remedial Investigation (RI) was completed in 2000. Surface and subsurface soil samples were collected and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and Target Analyte List (TAL) metals. The Final RI report was completed in April 2004.
8. **Current Status:** A Record of Decision (ROD), which recommended no further action (NFA), was signed in September 2004.

## SITE 14 – WASTE ACID DISPOSAL PIT

### (OLD MAP GRID L33) IRP Site 14 Fact Sheet

1. **Contamination:** Waste acids and other chemicals.
2. **Location:** 15- to 20-foot-deep disposal pit located 50 feet northeast of the Solvent Storehouse (Building 881) and 75 feet northwest of the Test Paper Manufacturing building (Building 444).
3. **From:** Dumping of waste acids and other chemicals.
4. **When:** Until 1975.
5. **Generated By:** Waste acids and other chemicals were collected from these and other buildings.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 14.
  - b. The acid pit was believed to be found under the chemical disposal pit during the investigation of the Lab Area. In order to obtain samples from under the chemical disposal pit, it had to be removed, which revealed a concrete and brick structure resembling descriptions of the waste acid pit.
  - c. The final Remedial Investigation Report for the Lab Area was completed in January 2004. No human health or ecological risks that require remediation were identified for Site 14; therefore, no further action (NFA) is planned for this site. A wetland delineation was completed in April 2006, and the final Baseline Ecological Risk Assessment Report was submitted in May 2006.
  - d. A Focused Feasibility Study was completed in December 2009.
  - e. A Proposed Plan was completed in April 2010, recommending soil excavation, Institutional Controls (ICs), and wetland restoration. A public meeting was held on April 15, 2010.
  - f. The Record of Decision (ROD) was signed in September 2011.
  - g. The Remedial Action Work Plan was finalized in November 2011 and remedial action activities finished in May 2012. The Construction Completion Report was finalized in May 2013.
8. **Current Status:** ICs are in place due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

## **SITE 15 – MERCURY DEPOSITS IN MANHOLE, FLUORINE LAB**

**(OLD MAP GRID L34)**

**IRP Site 15**

**Fact Sheet**

1. **Contamination:** Mercury, lead, and oil/grease.
2. **Location:** Manhole located 100 feet from Building 502.
3. **From:** Disposal of laboratory wastewater into storm sewer.
4. **When:** 1942 to 1981.
5. **Generated By:** Wastewater from laboratory activities in Buildings 502 and 103.
6. **Amount:** Up to 1 pound of mercury and 64 pounds of lead.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 15.
  - b. This site is included in the "Lab Area" grouping of sites. Remedial investigation (RI) fieldwork was completed at the Lab Area in 2001. Surface and shallow subsurface soil, sediment, and surface water samples were collected in the Lab Area and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - c. The Final RI Report for the Lab Area was completed in January 2004. A wetland delineation was completed in April 2006, and the Final Baseline Ecological Risk Assessment (BERA) Report was submitted in May 2006.
  - d. A Focused Feasibility Study (FS) was completed in December 2009.
  - e. A Proposed Plan was completed in April 2010, recommending soil excavation, Institutional Controls (ICs), and wetland restoration. A public meeting was held on April 15, 2010.
  - f. The Record of Decision (ROD) was signed in September 2011.
  - g. The Remedial Action Work Plan was finalized in November 2011 and remedial action activities finished in May 2012. The Construction Completion Report was finalized in May 2013.
8. **Current Status:** ICs are in place due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

## SITE 16 – LABORATORY CHEMICAL DISPOSAL

(OLD MAP GRID K34)

IRP Site 16

Fact Sheet

1. **Contamination:** Acids, amines ( $\text{RNH}_3$ ), cyanide compounds, metals, and chlorinated and nonchlorinated solvents.
2. **Location:** Wastewater collection system within the Research and Development Building (Building 600).
3. **From:** Disposal of laboratory chemicals into wastewater system.
4. **When:** 1944 to present.
5. **Generated By:** Wastewater from laboratory activities in Building 600.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 16.
  - b. This site is included in the "Lab Area" grouping of sites. Remedial investigation (RI) field work was completed at the Lab Area in 2001. Surface and shallow subsurface soil, sediment, and surface water samples were collected in the Lab Area and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - c. The Final RI report for the Lab Area was completed in January 2004. A wetland delineation was completed in April 2006, and the final Baseline Ecological Risk Assessment report was submitted in May 2006.
  - d. A Focused Feasibility Study (FS) was completed in December 2009.
  - e. A Proposed Plan was completed in April 2010, recommending soil excavation, Institutional Controls (ICs), and wetland restoration. A public meeting was held on April 15, 2010.
  - f. The Record of Decision (ROD) was signed in September 2011.
  - g. The Remedial Action Work Plan was finalized in November 2011 and remedial action activities finished in May 2012. The Construction Completion Report was finalized in May 2013.
8. **Current Status:** ICs are in place due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

## SITE 17 – DISPOSED METAL PARTS ALONG SHORELINE

(OLD MAP GRID M 6, 7, 8 and L 5)

IRP Site 17

Fact Sheet

1. **Contamination:** Rocket motor casings, shipping containers, empty drums, solvents, and various metal parts.
2. **Location:** A 1,000-foot stretch of shoreline east of the Decontamination Burning Point, along Mattawoman Creek and extending back approximately 100 feet from the shoreline in the wooded area near Building 1569.
3. **From:** Disposal of metal parts and drums in the adjacent wooded area.
4. **When:** From 1960 to about 1980.
5. **Generated By:** Disposal of metal parts and drums in the adjacent wooded area.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 17.
  - b. Initial Remedial Investigation (RI) fieldwork was completed in 2000. Surface soil, subsurface soil, sediment, surface water, and groundwater samples were collected in the metal parts and drum disposal areas and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - c. Pre-Feasibility Study (FS) field investigation activities were conducted in 2002. Groundwater and surface water samples were collected and analyzed for TCL VOCs.
  - d. Exposed drums located throughout the site were removed in April 2003.
  - e. The RI Report was finalized in January 2004. The RI recommended an FS for groundwater.
  - f. An Engineering Evaluation and Cost Analysis (EE/CA), which discussed source removal options, was completed in August 2004.
  - g. A revised final Work Plan for additional investigation of groundwater was completed in February 2005, and sampling was conducted in March 2005.
  - h. The Baseline Ecological Risk Assessment (BERA) Report was finalized in June 2005.
  - i. A soil interim removal action (IRA) was completed in February 2006.
  - j. The FS was completed in October 2008.

- k. A Proposed Plan was completed in February 2009, and recommended removal of munitions items, groundwater treatment, long-term monitoring for groundwater, and institutional controls. A public meeting was held on February 19, 2009.
  - l. The Final Record of Decision (ROD) was signed in January 2010.
  - m. The remedial action activities to clear munitions and explosives of concern (MEC) and remove non-MEC debris along the shoreline were completed in October 2012. The Completion Report for this phase of the remedial action was finalized in June 2013.
  - n. The remedial action Pilot Study (zero-valent iron [ZVI] soil mixing) was completed in December 2012. Additional ZVI soil mixing may not be needed (to be determined by groundwater long-term monitoring [LTM]). The Pilot Study Completion Report (i.e., Soil Mixing Completion Report) was completed in June 2013. The Final Annual Monitoring Report was completed in June 2014. The Remedial Action Completion Report (RACR) for the soil mixing remedy component was finalized in May 2015.
8. **Current Status:** The site is currently in the RA-O phase. Post-ZVI soil mixing groundwater LTM began following the Pilot Study completed in December 2012. Sampling has been conducted quarterly since that time. Groundwater LTM results will be used to determine if additional ZVI soil mixing is necessary. Institutional Controls (ICs) have been implemented as part of the remedial action. An ESTCP demonstration project using groundwater injection technology was completed in the summer of 2017. Additional monitoring and optimization of the groundwater remedy is planned throughout 2019.

## SITE 18 – HOG ISLAND

### (OLD MAP GRID M20) IRP Site 18 Fact Sheet

1. **Contamination:** Grit and sludge.
2. **Location:** 1.8-acre site situated 600 feet southwest of Building 474, near Atkins Road.
3. **From:** Depositing grit/sludge in the marshy area near Hog Island.
4. **When:** Unknown.
5. **Generated By:** Sewage treatment plant grit chambers, primary tanks, or sludge drying beds.
6. **Amount:** Unknown.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 18.
8. **Current Status:** A Site Screening Process (SSP) investigation started in September 2004. The final SSP Report was submitted in August 2006, and a Decision Document which recommended no further action (NFA) was signed at the same time.

## SITE 19 – CATCH BASINS AT CHIP COLLECTION HOUSES

(OLD MAP GRID M26 AND M28)

IRP Site 19

Fact Sheet

1. **Contamination:** Wastewater contaminated with lead and copper salts.
2. **Location:** Catch basins of the Chip Collection Houses (Buildings 1051 and 785).
3. **From:** Wastewater contaminated with lead and copper salts.
4. **When:** Unknown.
5. **Generated By:** Wastewater generated from the Chip Collection Houses (Building 1051 and 785).
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 19.
  - b. Site Screening Process (SSP) investigation started in April 2004. Additional sampling was completed in July 2007, July 2008, and December 2008. The final SSP Report was submitted in June 2009 and recommended a surface and subsurface removal.
  - c. The Final Engineering Evaluation and Cost Analysis (EE/CA), which evaluated potential removal options, was finalized in September 2010. The Final Action Memorandum documenting the decision to perform a Removal Action was issued by the Navy in January 2011.
  - d. The Final Removal Action Work Plan was submitted in February 2011.
  - e. The removal of contaminated soil was completed in April 2011 and final restoration of the site was completed in October 2011.
  - f. The final Construction Completion Report was submitted in September 2012.
8. **Current Status:** A Decision Document recommending No further action (NFA) at the site was finalized and signed by the Navy and EPA, with concurrence from MDE, in October 2012.



## SITE 20 – SINGLE-BASE POWDER FACILITIES

(OLD MAP GRID M35 to N33)

IRP Site 20

Fact Sheet

1. **Contamination:** Suspected polychlorinated biphenyls (PCBs).
2. **Location:** Single-base Powder Facilities.
3. **From:** Leaks from PCBs from transformer switches.
4. **When:** Circa 1940s.
5. **Generated By:** PCBs from transformer switches.
6. **Amount:** Unknown.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 20.
8. **Current Status:** A Site Screening Process investigation was started in 2004. However, review of existing information led to the signing of a Decision Document in February 2005, which recommended no further action (NFA).

## SITE 21 – BRONSON ROAD LANDFILL

(OLD MAP GRID N21 AND O21)

IRP Site 21

Fact Sheet

1. **Contamination:** Solid waste including various quantities of paint sludges, asbestos, barium sulfate, zinc, and lead.
2. **Location:** 2-acre abandoned borrow pit located near the terminus of Bronson Road, directly across the street from Building 1384.
3. **From:** Dumping of solid waste from facilities in the explosives manufacturing area.
4. **When:** Between 1975 and 1982.
5. **Generated By:** Solid waste from facilities in the explosives manufacturing area.
6. **Amount:** Up to 1500 tons of solid waste, 2.5 tons of barium sludge, 3.3 tons of asbestos, and 3 tons of paint sludge.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 21.
  - b. Initial remedial investigation (RI) fieldwork was completed in 2000. Surface soil and groundwater samples were collected and analyzed for Target Compound List (TCL) volatile organic compounds, TCL semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - c. An additional pre-feasibility study field investigation was conducted in 2002. Groundwater samples were collected and analyzed for TCL VOCs, TAL metals, and explosives.
  - d. The installation and sampling of monitoring wells was completed in January 2003. High detections of perchlorate were found in MW 04. It was later determined that the perchlorate is not associated with the landfill based on probable groundwater flow direction and that the source is off site.
  - e. The final RI Report was completed in April 2004, and the final Baseline Ecological Risk Assessment Report was submitted in July 2005.
  - f. Fieldwork for a groundwater manganese investigation was completed in June 2006. The results of the investigation were incorporated into the final Feasibility Study report which was submitted in September 2006.
  - g. Additional investigation was performed in 2008 to determine whether manganese in groundwater occurs from a natural source. Results were documented in a Technical Memorandum that was submitted in March 2009.

- h. The Proposed Plan, which recommended the installation of a soil cover, was finalized in June 2010. The public meeting was held on July 1, 2010.
  - i. The Record of Decisions (ROD) was signed in September 2011.
  - j. A 100% Remedial Design was submitted in January 2012.
  - k. A final Remedial Action Work Plan was submitted in June 2012.
  - l. A final LUC Remedial Design and Long Term Monitoring (LTM) Plan were submitted in June 2012. The Remedial Action field work was completed in January 2013. A Final Construction Closeout Report was completed in February 2014. A Remedial Action Completion Report (RACR) was completed in June 2014.
8. **Current Status:** Site 21 groundwater is in the LTM phase currently on a semiannual sampling frequency. Groundwater samples are analyzed in accordance with *Maryland Solid Waste Tables 1 and 2*. The landfill cover/conditions and ICs are inspected during each LTM sampling event.

**SITE 22 / UXO 6 – NG SLUMS BURNING SITE**

**(OLD MAP GRID O12)  
IRP Site 22 / MRP Site UXO 6  
Fact Sheet**

1. **Contamination:** Nitroglycerin slums.
2. **Location:** 50-foot-wide strip along the shoreline of the Greenslade Road Peninsula and Mattawoman Creek.
3. **From:** Spills of nitroglycerin slums during burning.
4. **When:** Late 1940s until 1953.
5. **Generated By:** Nitroglycerin slums from nitroglycerin plant production.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 22.
  - b. The final PA report was completed in September 2005.
  - c. The Site Inspection was completed in September 2010 and recommended no further action (NFA) in surface soil and subsurface soil. However, due to the presence of explosives (specifically NG) in groundwater, it was recommended that a Remedial Investigation for groundwater be performed.
8. **Current Status:** Currently designated as MRP Site UXO 006. A site visit was completed in spring 2019 and a UFP-SAP/Work Plan is expected to be submitted for review in fall 2019.

## **SITE 23 – HYDRAULIC OIL DISCHARGES FROM EXTRUSION PLANT**

### **(OLD MAP GRID P24) IRP Site 23 Fact Sheet**

1. **Contamination:** Hydraulic oil.
2. **Location:** Press lines (Buildings 561 and 564).
3. **From:** Discharge of wastewater containing hydraulic oil to the Mattawoman Creek via IW18.
4. **When:** 1943 until 1981.
5. **Generated By:** Wastewater used to cool pumps and press dies.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP) and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 23.
  - b. Site Screening Process (SSP) investigation started in April 2004. The final Work Plan was completed in February 2005, and sampling was completed in May 2005.
8. **Current Status:** The final SSP Report was submitted in February 2006, and a Decision Document, which recommended no further action (NFA), was signed in March 2006.

## SITE 24 – ABANDONED DRAIN LINES

(OLD MAP GRID O35, 37, 38)

IRP Site 24

Fact Sheet

1. **Contamination:** Acid water and nitrocellulose (NC) white water.
2. **Location:** Abandoned drain lines from former NC production facilities.
3. **From:** Discharge of neutralized acid water and NC white water to Mattawoman Creek.
4. **When:** Unknown.
5. **Generated By:** Production of NC, which used cotton liners, nitric acid, and sulfuric acid. NC, which is practically insoluble in water, may have deposited in abandoned drain lines located near the old NC Plant site.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 24.
  - b. A Site Screening Process (SSP) investigation started in September 2004. In 2005 through 2007, IHIRT recognized physical explosive hazards from residues versus toxicity issues from site contaminants. A Decision Document, which recommended no further action (NFA) under CERCLA, but included safety controls via the NSFIIH work permit process (already in place), was signed in April 2007.
  - c. A Desktop Audit was prepared in 2014. The review suggested updating the Site 57 Long-Term Monitoring Plan to include diphenylamine, which now has toxicity values. IRP Site 24 should be transferred to the Munitions Response Program (MRP) and undergo a PA or Site Investigation (SI), per Navy MRP policy.
8. **Current Status:** The Desktop Audit Tech Memo in 2014 recommended a PA/SI after the IRP Site 24 is transitioned to the MRP. When funding is available, Navy will proceed with a PA/SI per Navy MRP policy. In the meantime, the work permitting process at NSFIIH provides worker notification and safety checks prior to any work in the area.

## SITE 25 – HYPO DISCHARGES FROM X-RAY BUILDING NO. 2

### (OLD MAP GRID P27) IRP Site 25 Fact Sheet

1. **Contamination:** Silver from spent fixer and developer.
2. **Location:** Drainage swales behind Building 588, which flow to the Mattawoman Creek.
3. **From:** Discharge of spent fixer and developer for X-Ray film.
4. **When:** 1944 to 1964.
5. **Generated By:** Fixer and developer are used to develop X-Ray film. Some of the silver, which is on the film, becomes “fixed” to the X-Ray, and the remainder of the silver is washed off. Both the spent fixer and washwater, which contain silver, were discharged behind Building 588 and into IW46.
6. **Amount:** Estimated 864 pounds of silver.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a confirmation study be conducted at Site 25 if the study at Site 5 indicated a danger to aquatic life.
  - b. Initial Remedial Investigation (RI) fieldwork was completed in 2000. Surface soil, shallow subsurface soil, and groundwater samples were collected and analyzed for Target Compound List (TCL) volatile organic compounds, TCL semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and nitroglycerin.
  - c. Additional RI sampling was conducted in 2002. Groundwater samples were collected and analyzed for TAL metals.
8. **Current Status:** The final RI Report was completed in April 2004. A Record of Decision, which recommended no further action (NFA), was signed in September 2004.

## SITE 26 – THERMAL DESTRUCTOR 2

(OLD MAP GRID P30)

IRP Site 26

Fact Sheet

1. **Contamination:** Hydrazine fuel and unsymmetrical dimethyl hydrazine (UDMH)-contaminated water.
2. **Location:** Thermal Destructor 2 facility (Building 1595).
3. **From:** Spills of hydrazine- and UDMH-contaminated water at the incinerator.
4. **When:** 1976 until 1978.
5. **Generated By:** Thermal destruction of hydrazine- and UDMH-contaminated water.
6. **Amount:** 1.3 million pounds per year of hydrazine- and UDMH-contaminated water was treated in the incinerator. An unknown quantity of this wastewater may have spilled in the vicinity of the site.
7. **Work Completed:** The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP) and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 26. Site Screening Process (SSP) investigation started in April 2004. Sampling was completed in October 2005. The SSP Report was submitted in September 2006.
8. **Current Status:** A Decision Document, which recommended no further action (NFA), was signed in September 2006.



## SITE 27 – THERMAL DESTRUCTOR 1

(OLD MAP GRID S32)

IRP Site 27

Fact Sheet

1. **Contamination:** Hydrazine-contaminated water.
2. **Location:** Thermal Destructor 1 facility (Building 1584).
3. **From:** Spills of hydrazine-contaminated water at the incinerator.
4. **When:** 1976 until 1979.
5. **Generated By:** Thermal destruction of hydrazine-contaminated water.
6. **Amount:** 1.3 million pounds per year of hydrazine-contaminated water was treated in the incinerator. An unknown quantity of this wastewater may have spilled in the vicinity of the site.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 27.
  - b. Site Screening Process (SSP) investigation started in April 2004. Sampling was completed in October 2005. Additional sampling was completed in July 2007 and August 2008. The final SSP Report was submitted in June 2009
  - c. The EE/CA was finalized in September 2010. The Final Action Memorandum was issued by the Navy in January 2011.
  - d. The Final Removal Action Work Plan was submitted in February 2011, and the Removal Action was completed in November 2011.
  - e. The final Construction Completion Report was submitted in September 2012.
8. **Current Status:** A Decision Document recommending No further action (NFA) at the site was finalized and signed by the Navy and EPA, with concurrence from MDE, in October 2012.

**SITE 28 / UXO 8 – ORIGINAL BURNING GROUND**

**(OLD MAP GRID S36, 37)  
IRP Site 28 / MRP Site UXO 8  
Fact Sheet**

1. **Contamination:** Smokeless powder and zinc.
2. **Location:** 1.8-acre site on southeastern corner of base along Mattawoman Creek.
3. **From:** Open burning of materials and operation of a zinc recovery furnace.
4. **When:** Burning estimated between 1890 and 1942; zinc recovery estimated between 1928 and the mid-1950s.
5. **Generated By:** Burning of waste materials from base manufacturing, and residual contamination from the zinc recovery process.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 28.
  - b. Soil samples were collected at the site in 1993 and analyzed for soil texture, pH, and fertility. Elevated levels of zinc were detected.
  - c. Sampling off shore of this site was performed during the Toxicity Identification Evaluation Study in 2000 and the Mattawoman Creek Study in 2001. Both studies confirmed elevated levels of zinc in the sediment.
  - d. The Remedial Investigation (RI) fieldwork began in May 2003. Additional monitoring wells were installed in August 2003.
  - e. The RI Report for the zinc recovery furnace area was completed in April 2005. The zinc recovery furnace area remained under the IRP as Site 28, whereas the original burning area was transferred to the Munitions Response Program (MRP) as Site UXO 008.
  - f. A pilot study evaluating the use of apatite (a natural form of calcium phosphate mineral) to stabilize metals in Site 28 [Mattawoman Creek] sediment began in June 2004.
  - g. A Preliminary Assessment (PA) Report was completed in September 2005 under the MRP for the original burning ground (UXO 008). The report recommended no further action (NFA) for UXO 008.
  - h. The Final Baseline Ecological Risk Assessment Report and Final Engineering Evaluation and Cost Analysis (EE/CA) both were submitted in September 2006.

- i. An interim removal action (IRA) for soil at the zinc recovery furnace area (Site 28) was completed in November 2008.
  - j. A Focused Feasibility Study for groundwater was finalized in March 2010.
  - k. The Final Proposed Plan for Site 28 was finalized in August 2013. No further action (NFA) was proposed for surface soil, subsurface soil, sediment, and surface water. The Preferred Remedy for groundwater is long-term monitoring (LTM) and land use controls (LUCs). A public meeting was held on August 21, 2013. The Final Record of Decision (ROD) was signed in June 2014.
8. **Current Status:** The Land Use Control Remedial Design was finalized in May 2015. The Long-Term Monitoring Plan was finalized in March 2016. A Remedial Action Closeout Report (RACR) was finalized in September 2016. The site remains in the LTM phase.

**SITE 29 / UXO 11 – THE VALLEY****(OLD MAP GRID A37, B37, C37)  
IRP Site 29 / MRP Site UXO 11  
Fact Sheet**

1. **Contamination:** Exploded ordnance.
2. **Location:** Naturally occurring valley along Torrence Road for 0.5 mile beginning at the Potomac River, northwest of Building 54.
3. **From:** Firing of shells into butts in the valley walls.
4. **When:** From 1891 to 1921.
5. **Generated By:** Firing of shells into butts in the valley walls.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IRP), and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IRP. The IAS recommended that a Confirmation Study not be performed for Site 29.
  - b. A preliminary assessment was started in June 2003. The final PA Report was completed in September 2005.
  - c. A Site Inspection was completed in September 2010 and recommended the site move forward to a Remedial Investigation (RI) for munitions and explosives of concern (MEC) and munitions constituents (MC) in soil and groundwater.
  - d. A final RI UFP-SAP Work Plan (and Explosive Safety Submission [ESS] Determination Request) for DGM survey fieldwork was completed in November 2012. An ESS for intrusive investigation of anomalies was finalized in October 2013.
8. **Current Status:** Currently designated as MRP Site UXO 0011. Remedial Investigation fieldwork (intrusive investigation of anomalies) was completed in June 2014. A Remedial Investigation Report and BERA Report were finalized in August 2018. A Draft FS is expected to be submitted in late 2019.

## SITE 39 – SILVER RELEASE TO SEDIMENTS

(OLD MAP GRID P29)

IRP Site 39

Fact Sheet

1. **Contamination:** Elemental silver and possibly silver nitrate, dinitropropanol, ethylene dichloride, methyl chloride, formaldehyde, unsymmetrical dimethylhydrazine (UDMH), and nitroguanidine (NQ).
2. **Location:** Area surrounding Building 497.
3. **From:** Production of bis-2,2-dinitropropyl acetal/formal and explosives.
4. **When:** Releases to Mattawoman Creek 1961 to 1965; stack emissions 1942 to 1994.
5. **Generated By:** Release of silver and silver nitrate during production of acetal/formal. Silver nitrate was used as a catalyst in the production of acetal/formal, a plasticizer, or propellant binder, used in Polaris rocket motors. In the reaction, the silver nitrate catalyst was converted to elemental silver. The silver was recovered from the reaction vessel and returned to the supplier to undergo nitration back to silver nitrate. However, interviews with Navy personnel revealed that a significant amount of silver, as well as the other chemicals listed above, may have entered the creek through spills and human error, such as valves mistakenly left open. Additional releases may have occurred from the stacks on Buildings 497 and 498. Emissions from these stacks may have contaminated surface soil in the surrounding areas, however the quantity of contaminants that may have been discharged is unknown.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Site Inspection (SI) under the Navy Installation Restoration Program (IRP) was conducted as recommended by the Preliminary Assessment (PA) to determine if contamination is actually present. This inspection included taking four ponar grab samples from the top sediment of Mattawoman Creek and two sediment samples in the creek near Industrial Wastewater Outfall 05 (IW05). These samples were analyzed for acetal/formal, pelletized nitrocellulose, unsymmetrical dimethyl hydrazine, high bulk density nitroguanidine, Target Compound List (TCL) volatile organic compounds, and TCL semivolatile organic compounds (SVOCs). Subsequent investigation of the sediments near IW05 was conducted under the Mattawoman Creek study.
  - b. Because the site inspection did not address potential stack emissions, a Remedial Investigation (RI) began at Site 39. RI fieldwork was completed in 2001. Surface and shallow subsurface soil samples were collected and analyzed for TCL SVOCs, Target Analyte List (TAL) metals, and an expanded list of explosives.
  - c. The final RI report was completed in April 2004 and recommended no further action (NFA) for this site.
8. **Current Status:** A Record of Decision (ROD), which recommended NFA, was signed in September 2005.

**SITE 40 – PALLADIUM CATALYST IN SEDIMENT****(OLD MAP GRID P29)  
IRP Site 40  
Fact Sheet**

1. **Contamination:** Palladium.
2. **Location:** Mattawoman Creek southeast of Building 497.
3. **From:** Production of Unsymmetrical-Dimethylhydrazine (UDMH).
4. **When:** 1974 and 1975.
5. **Generated By:** Release of palladium, a catalyst used in the production of UDMH. Forty percent of the catalyst purchased was lost and cannot be accounted for. Therefore, it is possible that this catalyst entered Mattawoman Creek.
6. **Amount:** Based on the 40 percent estimated loss of the total palladium purchased, the total amount of palladium that may have entered the creek is 88 pounds.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) was performed ,but a Site Inspection (SI) was not recommended under the Navy Installation Restoration Program (IRP), because palladium is not a regulated hazardous substance. However, the SI was performed to ensure that a problem does not exist. This inspection included taking four ponar grab samples from the top sediment of Mattawoman Creek and two sediment samples in the Creek near the wastewater outfall, which is no longer in use. These samples were analyzed for palladium.
  - b. In January 2004, the site was re-assigned as a Site Screening Area (SSA).
8. **Current Status:** In April 2004, a Desktop Evaluation was signed by the Navy and EPA with concurrence from MDE, which recommended no further action (NFA).

## SITE 41 / UXO 32 – SCRAP YARD

### (OLD MAP GRID R31, S31) IRP Site 41 / MRP Site UXO 32 Fact Sheet

1. **Contamination:** Arsenic, iron, lead, and polychlorinated biphenyls (PCBs).
2. **Location:** Scrap yard west of Building 436.
3. **From:** Storage of coal, scrap / discarded materials, lead-acid batteries, and PCB and PCB-contaminated transformers. By definition, PCB transformers contain oil with greater than 500 parts per million (ppm) of PCBs, and PCB-contaminated transformers contain oil within 50 to 500 ppm PCBs.
4. **When:** From the 1960s to 1988.
5. **Generated By:** Before Building 1440 was dedicated to the storage of removed PCB equipment, transformers containing PCBs were stored at the Scrap Yard. Transformers, some in poor condition, which leaked PCB oil on the ground, were stored at the northwestern end of the Scrap Yard near Mattawoman Creek. Coal and lead-acid batteries also were stored in the Scrap Yard, along with various scrap materials.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Site Inspection (SI) under the Navy Installation Restoration Program (IRP) was conducted as recommended in the Preliminary Assessment (PA) to determine if contamination is actually present. Soil and groundwater samples along with sediment samples from Mattawoman Creek were collected and analyzed for Target Compound List (TCL) organics, Target Analyte List (TAL) metals, and total petroleum hydrocarbons (TPH).
  - b. A Remedial Investigation (RI) Report for Site 41 was completed in July 1999. The report determined that the human health risk for non-residential scenarios is within acceptable limits, with the exception of the full-time worker. The document identified a potential ecological risk in connection with surface soil contamination. The document recommended a feasibility study report to evaluate alternatives to address the full-time worker and ecological risks.
  - c. A Feasibility Study (FS) was completed in January 2001. The study developed a potential remedial alternative requiring removal of contaminated soil from areas adjacent to the Scrap Yard, the removal of contaminated soil from within the Scrap Yard, and the remediation of contamination on the concrete slab within the Scrap Yard, all in combination with institutional controls.
  - d. A Proposed Plan was completed in February 2001. The preferred remedial alternative presented in the document provided for the removal of contaminated soil from areas adjacent to the Scrap Yard, the removal of contaminated soil from within the Scrap Yard, and the remediation of contamination on the concrete slab within the Scrap Yard, all in combination with institutional controls.
  - e. A public meeting was held on February 20, 2001 to present the Proposed Plan to the public.

- f. Completion of the final design documents occurred in August 2002. The RD, intended for the anticipated Selected Remedy, was used to implement a CERCLA response under the Navy's removal action authority (see below).
- g. Due to unresolved issues related to Land Use Controls (LUCs) between the EPA and the Navy with respect to Records of Decision (RODs), an Engineering Evaluation and Cost Analysis (EE/CA) was prepared in June 2002. On June 27, 2002, an Action Memorandum was signed describing an Interim Removal Action (IRA) to be performed at this site, which consists of removing contaminated soil from within the Scrap Yard as well as from outside the Scrap Yard.
- h. Construction of the IRA began in November 2002, but was halted due to an incident involving scrap metal at the site.
- i. Due to the discovery of numerous ordnance and explosive (OE) items, the site was transferred to the MRP in March 2004 and designated as Site UXO 032.
- i. The first phase of the removal action and remediation began in September 2006. Removal of all large potentially explosive items was completed in March 2007.
- j. A final Remedial Action Work Plan (including a final Explosive Safety Submission) was completed in April 2010.
- k. The second phase of the removal action was completed in May 2011, closing out the soil medium for the site. Additional monitoring wells were installed to continue groundwater characterization.
- l. The RI UFP-SAP Work Plan for groundwater was finalized in June 2011. Groundwater samples were collected from new and existing monitoring wells in June 2011.
- m. The final Construction Completion Report for the IRA was submitted in August 2011
- n. A revised baseline Human Health Risk Assessment (HHRA) was finalized in February 2012. It incorporated the June 2011 groundwater data and post-removal action soil data considerations. The results indicated no risks to current industrial users from exposure to soil. Potential unacceptable risks remain from residential and construction worker exposure to soil. Groundwater contamination also poses a potential risk to future receptors. The groundwater results from 2011 showed elevated contaminant concentrations upgradient of the Scrap Yard.
- o. Following submittal of a new Draft Proposed Plan (for both groundwater and soil at UXO 32) in December 2011, the IHIRT further evaluated the revised HHRA results and the elevated upgradient groundwater contaminant (e.g., TCE) concentrations. Because the groundwater contamination appears to originate upgradient (offsite), the IHIRT determined additional groundwater investigation was necessary. In order for the Proposed Plan for the soil medium at IRP Site 41 / MRP Site UXO 32 to move forward, the IHIRT agreed that groundwater would be addressed separately by additional investigation as a new site. The groundwater operable unit has been assigned as new IRP Site 70.
- p. A Focused FS was submitted in July 2013 to summarize the site history, action(s), and decision(s) since the 2001 FS. The Focused FS evaluated a Land Use Control (LUC) alternative, considering the IRA mitigated risks at the site under current industrial exposure conditions.
- q. The Final Proposed Plan was completed in August 2013. No action is proposed for sediment and surface water. The Preferred Remedy for soil is LUCs. A public meeting was held on August 21, 2013. The Final Record of Decision (ROD) was signed in June 2014.



- r. The Final Remedial Action Completion Report (RACR) and LUC Remedial Design were completed in January 2015.
- 8. **Current Status:** LUCs are in place at the site for soil. Groundwater is being addressed as new IRP Site 70.

**SITE 42 – OLSEN ROAD LANDFILL****(OLD MAP GRID G5, G6)  
IRP Site 42  
Fact Sheet**

1. **Contamination:** Unknown.
2. **Location:** Near Building 1866.
3. **From:** Disposal of various solid wastes from all over the base.
4. **When:** A period of approximately 5 years ending in 1987.
5. **Generated By:** Normal operations. Whether hazardous wastes were disposed at the landfill cannot be confirmed or denied by activity records or personnel. Analysis of the former topography suggests that earth-moving equipment was used to fill the area.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Site Inspection (SI) was performed under the Navy Installation Restoration Program (IRP), as recommended in the Preliminary Assessment (PA). Soil, groundwater, sediment, and surface water samples were collected and analyzed for volatile organic compounds (VOCs), Target Compound List (TCL) organics, Target Analyte List (TAL) metals, and total petroleum hydrocarbons (TPH).
  - b. A Remedial Investigation (RI) Report for Site 42 was completed in July 1999. The report determined that the human health risk for non-residential scenarios is within acceptable limits. The potential for ecological risks was identified in connection with a small creek running along the downgradient, southwestern edge of the site. An additional issue focused on the need to close the landfill in accordance with Maryland regulations.
  - c. In December 1999, a toxicity study of the sediments in the above-described creek was completed. Sediment contaminants detected during the RI were found to not exhibit toxicity.
  - d. The Feasibility Study (FS) was completed in June 2002. The study developed several potential remedial alternatives, including one requiring total landfill removal and others involving various capping scenarios combined with institutional controls.
  - e. The final Remedial Design was completed in March 2005.
  - f. The Record of Decision (ROD) was signed by the Navy and EPA in September 2005.
  - g. The remedial action, construction of a landfill cap, was completed in June 2006.
  - h. Surface water monitoring was discontinued after the October 2007 sampling event, as per IHIRT decision.
8. **Current Status:** This site is currently in the Long-term Monitoring Phase. During the February 2012 partnering meeting, the IHIRT determined that a sufficient amount of groundwater sampling at Site 42 has been completed and the COCs have stabilized. Groundwater sampling was reduced from

quarterly to once every 9 months. Groundwater is tested for all the *Maryland Solid Waste Tables 1 and 2* analytes.

## SITE 43 – TOLUENE DISPOSAL

### (OLD MAP GRID D8)

#### IRP Site 43

#### Fact Sheet

1. **Contamination:** Acetone and toluene.
2. **Location:** a) Near utility pole across the street from Building 1041 and b) the northern corner of Building 1040.
3. **From:** Disposal of acetone and toluene used for propellant removal at Building 1041 and disposal of acetone used for propellant removal at Building 1040.
4. **When:** Parts cleaning operations took place from the late 1950s through November 1989 at Building 1041 and from 1960 to 1989 at Building 1040. It is estimated that, for a period of more than two years during the operation, spent solvent was improperly disposed at the base of the pole by Building 1041 and in the drainage ditch outside the door of Building 1040.
5. **Generated By:** After parts were cleaned within Buildings 1040 and 1041, the spent solvent was normally combined or "slummed" with sawdust in a 55-gallon drum for treatment at the Strauss Avenue Thermal Treatment Point. Occasionally, however, the spent solvent was carried across the street from Building 1041 to the utility pole and poured on the ground at the base of the pole and in the ditch outside the door of Building 1040.
6. **Amount:** One report estimated that 15 to 20 gallons per week of spent solvent were disposed at the base of the pole. It was not possible to determine the amount of solvent disposed at this site. In addition, acetone was reportedly sometimes poured in the ditch outside the door of Building 1040.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) was performed and a Site Inspection (SI) was recommended under the Navy Installation Restoration Program (IRP) to determine if contamination is actually present.
  - b. An SI under the Navy IRP was conducted at the base of the utility pole across the street from Building 1041. This inspection included obtaining 10 soil-gas samples from 10 borings and analyzing for volatile organic compounds (VOCs). In addition, four soil samples were taken using a hand auger at a depth not greater than 3 feet for analysis VOCs, base-neutral acids (BNAs), and total petroleum hydrocarbons (TPH).
  - c. Additional sampling was recommended in the SI. The Site Screening Process (SSP) investigation started in April 2004 and included taking samples from both the Building 1040 and 1041 areas. The Draft SSP report was submitted in December 2005. Additional sampling was planned prior to finalizing the report.
  - d. The Phase 1 Supplemental SSP investigation was completed in November 2007. Additional (Phase 1A) sampling was completed in February 2009. Rather than continuing with Phase 2 Supplemental SSP, IHIRT decided that the site should enter the RI/FS phase. Therefore, SSP results through Phase 1A were documented in a final SSP Report in October 2009.
  - e. The RI UFP-SAP Work Plan was finalized in March 2011. The initial RI fieldwork was completed in June 2011; however, data gaps were identified, necessitating an additional

phase of RI fieldwork. The Phase 2 RI UFP-SAP Work Plan Addendum was submitted in April 2012.

- f. An Interim Summary Report for the Phase 1 RI Results was submitted in April 2012 along with the SAP addendum. The Phase 2 RI field work was completed in July 2013. The RI Report was finalized in October 2014.
  - g. Pre-Design Investigation (PDI) fieldwork for cobalt in groundwater and soil was completed in November 2017.
8. **Current Status:** A Draft Feasibility Study Report was submitted in March 2015 and is on hold until completion of an additional investigation to delineate the extent of cobalt in groundwater. Fieldwork is planned for late 2019.

## SITE 44 – SOAK OUT AREA

### (OLD MAP GRID F18) IRP Site 44 Fact Sheet

1. **Contamination:** An unknown nonflammable solvent, believed to be Pennchem 901B, a polysulfide solvent containing mercaptan.
2. **Location:** Area approximately 75 feet east of Building 1363 and 40 feet south of Building 907.
3. **From:** Removal of propellant from rocket motor catapult tubes.
4. **When:** Late 1960s to early 1970s.
5. **Generated By:** Rocket motor catapult tubes were allowed to soak in the solvent contained in two 55-gallon drums that were welded together. The tubes soaked for 2 to 3 days and were then removed without regard to solvent spillage. However, a smaller catch tank was placed in the larger tank to collect pieces of propellant that fell out of the tubes. Reports indicated that the solvent drums (less than ten 55-gallon) were taken into the woods for storage until a disposal method was found. These drums could not be located.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Site Inspection (SI) under the Navy Installation Restoration Program (IRP) was conducted as recommended in the Preliminary Assessment (PA) to determine if contamination is actually present. Soil and groundwater samples were collected and analyzed for volatile organic compounds (VOCs), base-neutral acids (BNAs), and total petroleum hydrocarbons (TPH).
  - b. A Remedial Investigation (RI) Report for Site 44 was completed in July 1999. The report determined that the human health risk for all receptors is within acceptable levels. Ecological risks were not evaluated since it had previously been determined that the site did not offer any suitable habitat.
  - c. A Proposed Plan was completed in February 2001. The plan presented a no further action (NFA) approach to the site.
  - d. A public meeting was held on February 20, 2001 to present the Proposed Plan to the public.
  - e. The Record of Decision (ROD), which recommends NFA, was signed in September 2002.
8. **Current Status:** The site was removed from the IR Program based on the signed NFA ROD.

## SITE 45 – ABANDONED DRUMS

### (OLD MAP GRID E18) IRP Site 45 Fact Sheet

1. **Contamination:** Unknown.
2. **Location:** 250 feet west of Building 1363.
3. **From:** Unknown.
4. **When:** Circa 1980.
5. **Generated By:** Unknown. Possibly the same solvent that was used in the Soak Out Area.
6. **Amount:** Assuming the twenty-one 55-gallon drums and two over-pack drums were full, a total of 1,295 gallons of solvent would have leaked onto the ground.
7. **Work Completed:**
  - a. A Site Inspection (SI) under the Navy Installation Restoration Program (IRP) was conducted as recommended in the Preliminary Assessment (PA) to determine if contamination is actually present. Three soil samples were taken from three soil borings with a hand auger. The borings were obtained at a depth not greater than three feet. These samples were analyzed for volatile organic compounds (VOCs), base-neutral acids (BNAs), and Target Analyte List (TAL) metals. In addition, four soil-gas samples were taken and analyzed for VOCs.
  - b. Remedial investigation (RI) fieldwork was completed in 2001. Surface soil, subsurface soil, shallow groundwater, and sediment samples were collected and analyzed for Target Compound List (TCL) volatile organic compounds, TCL semivolatile organic compounds (SVOCs), TAL metals, and an expanded list of explosives.
  - c. The Final RI Report was completed in April 2004, which recommended no further action (NFA) for this site.
8. **Current Status:** The Final Record of Decision (ROD), which recommended NFA, was signed in September 2005. In addition, the wetlands area downgradient of the site was addressed separately by a Site Screening Process (SSP) investigation that started in April 2004. A Decision Document, which recommended NFA, was signed in September 2006.

**SITE 46 – CADMIUM SANDBLAST GRIT****(OLD MAP GRID E20)****IRP Site 46****Fact Sheet**

1. **Contamination:** Cadmium.
2. **Location:** Gravel area behind Building 855.
3. **From:** Sandblast grit disposal.
4. **When:** Mid-1960s to possibly early 1980s.
5. **Generated By:** Rocket catapult tubes plated with cadmium were sandblasted at Building 855 as part of a resurfacing operation. Often, the cadmium-contaminated grit was dumped in the gravel area behind Building 855.
6. **Amount:** Estimates as to the amount, frequency, and time period over which the grit was disposed near the building could not be confirmed.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) was performed and a Site Inspection (SI) was recommended under the Navy Installation Restoration Program (IRP) to determine if contamination is actually present.
  - b. The SI was conducted under the Navy IRP. It included collecting nine soil samples using a hand auger and analyzing them for Target Analyte List (TAL) metals.
8. **Current Status:** A Site Screening Process (SSP) investigation started in April 2004. However, review of the data in the SI Report for this site led to the signing of a Decision Document in October 2004, which recommended no further action (NFA).



## SITE 47 – MERCURIC NITRATE DISPOSAL AREA

(OLD MAP GRID F21)

IRP Site 47

Fact Sheet

1. **Contamination:** Mercuric nitrate, barium sludge, and solvents.
2. **Location:** South of the concrete pad behind Building 856.
3. **From:** Disposal of mercuric nitrate dissolved in nitric acid, disposal of barium sludge, and storage of solvents.
4. **When:** Mercuric nitrate disposal from 1957 through 1965, barium sludge disposal between 1969 and 1974.
5. **Generated By:** Mercuric nitrate is a catalyst that was used to produce hydrazinium nitroformate, an oxidizer used in the propellants for the Polaris missile. The spent solution, 1 ounce of mercuric nitrate dissolved in 98 percent nitric acid, was poured from 55-gallon drums onto a 6-foot by 4-foot bed of limestone chips. Additionally, a slurry of particulate barium sulfate used in the manufacturing process was pumped to a pit located approximately 50 feet to the east of Building 856.
6. **Amount:** Assuming enough limestone was present to neutralize the nitric acid, up to 274 pounds of mercuric nitrate (equivalent to 169 pounds of elemental mercury) would have precipitated out as a salt. An estimated 2,000 pounds of barium sulfate may have been disposed of in the barium pit.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) was performed and a Site Inspection (SI) was recommended under the Navy Installation Restoration Program (IRP) to determine if contamination is actually present.
  - b. An SI was conducted under the Navy IRP. It included collecting two soil samples with a hand auger in the ditch where the mercuric nitrate may have settled and analyzing for volatile organic compounds (VOCs), base-neutral organic acids (BNAs), and Target Analyte List (TAL) metals. In addition, 10 soil samples were collected with a hand auger at the south edge of the concrete pad. The samples were collected at various depths from 0 to 1 foot and were analyzed for VOCs, BNAs, and TAL metals. No limestone was found during the sampling.
  - c. Remedial investigation (RI) fieldwork was conducted in several phases at Site 47. Groundwater, concrete chips, surface soil, and sediment samples were collected and analyzed for Target Compound List (TCL) volatile organic compounds, TCL semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives during the initial field investigation in 1999. In 2001, membrane interface probe/electrical conductivity (MIP/EC) technology was used to further define the extent of VOC contamination, and six monitoring wells were installed and sampled for TCL VOCs. Further delineation of the VOC plume, as well as investigation of the reported barium sludge pit, was completed in 2002.
  - d. The Final RI report was completed in December 2003.

- e. A Baseline Ecological Risk Assessment (BERA) was conducted in 2004. Additional sampling in support of the BERA was completed in March 2006. The final BERA Report was submitted in September 2006.
- f. A third-party optimization review of the pre-draft Feasibility Study (FS), which was completed in July 2005, recommended bench-scale tests and a pilot study to evaluate alternatives prior to finalizing the FS. The bench-scale tests were completed in May 2007, and the FS was completed in October 2008.
- g. A Pilot Study Work Plan was submitted in May 2008. Field work consisting of monitoring well and gas vent installation was completed in May 2009. The first treatment injection began in October 2009, with a post-injection sampling event being completed in February 2010 and June 2010. Based on the February and June 2010 post-injection sample data, a second injection event for the pilot study was not needed.
- h. A Proposed Plan was submitted in April 2012. The public meeting for the Proposed Plan was held on April 12, 2012. The Proposed Plan was finalized in April 2012.
- i. The Record of Decision (ROD) was signed in February 2013. The selected remedy consists of in situ Chemical Oxidation in the source zone area, monitored natural attenuation in areas where the Site Remediation Goals (SRGs) are exceeded, and Institutional Controls (ICs) restricting residential development and use of shallow groundwater at the site until SRGs are met.
- j. The final Remedial Design was submitted in February 2013
- k. The final Remedial Action Work Plan was completed in March 2013
- l. The Phase I fieldwork (well installation) for the remedial action was completed in June 2013. Phase II of the remedial action fieldwork was completed in November 2013. A LUC RD was completed in December 2013. The Final RACR was completed in May 2015.

**8. Current Status:** The site is currently in the RA-O phase.

## SITE 48 – NITROGLYCERIN PLANT DISPOSAL AREA

### (OLD MAP GRID H20) IRP Site 48 Fact Sheet

1. **Contamination:** Unknown.
2. **Location:** On the hill behind Building 766.
3. **From:** Unknown, possibly laboratory samples.
4. **When:** Unknown.
5. **Generated By:** Unknown. Bottles, metal scrap, solvent containers, and refuse, possibly generated at Building 766, are visible on the hill. Most containers appear to be old and empty.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) was performed and a Site Inspection (SI) was recommended under the Navy Installation Restoration Program (IRP) to determine if contamination is actually present.
  - b. Two soil samples were taken on the hillside where the bottles and scrap are located in 1991. The samples were analyzed for mercury to determine if this site could be a source of mercury at the Building 766 ditch. No mercury was detected in the samples.
  - c. A Site Investigation (SI) was conducted under the IRP. This SI included obtaining nine soil samples from three borings, three per boring at approximately 5-foot intervals. These samples were analyzed for volatile organic compounds (VOCs), base-neutral acids (BNAs), and total petroleum hydrocarbons (TPH).
8. **Current Status:** A Site Screening Process (SSP) investigation was started in April 2004. However, review of the data in the SI Report for this site led to the signing of a Decision Document in October 2004, which recommended no further action (NFA).

## SITE 49 – CHEMICAL DISPOSAL PIT

### (OLD MAP GRID L33) IRP Site 49 Fact Sheet

1. **Contamination:** Waste chemicals, solvents, and mercury.
2. **Location:** Northeast of Building 444.
3. **From:** Lab operations.
4. **When:** Limited use up to the early 1970s.
5. **Generated By:** Bottles containing wastes were placed on a steel grate in the pit, and the drop plate was dropped. The plate then crushed the bottles containing waste chemicals. The glass fell into a wire basket, and the contents of the bottles were allowed to soak into the bottom of the pit.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) was performed, and a Site Inspection was not recommended under the Navy Installation Restoration Program (IRP). According to Navy personnel, the pit received little, if any, use. No visible signs of disposal can be seen, such as chemical stains or broken glass.
  - b. Five soil samples were taken at one soil boring and analyzed for volatile organic compounds (VOCs), base-neutral acids (BNAs), Target Analyte List (TAL) metals, and nitrate esters. One soil sample from inside the pit was obtained and was analyzed for VOCs, BNAs, TAL metals, and nitrate esters.
  - c. This site is included in the "Lab Area" grouping of sites. Remedial Investigation (RI) field work was completed at the Lab Area in 2001. Surface and shallow subsurface soil, sediment, and surface water samples were collected in the Lab Area and analyzed for Target Compound List (TCL) volatile organic compounds, TCL semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - d. The RI Report for the Lab Area was completed in January 2004. A wetland delineation was completed in April 2006 and the Final Baseline Ecological Risk Assessment (BERA) Report was submitted in May 2006.
  - e. During the RI, the chemical disposal pit (Site 49) was removed (excavated) and disposed offsite. Confirmatory samples were collected around and beneath the chemical disposal pit before the excavation was backfilled with clean imported fill.
  - f. A Focused Feasibility Study (FS) for the Lab Area was completed in December 2009.
  - g. A Proposed Plan for the Lab Area was completed in April 2010, recommending soil excavation, Institutional Controls (ICs), and wetland restoration. A public meeting was held on April 15, 2010.
  - f. The Record of Decision (ROD) was signed in September 2011.

- g. The Remedial Action Work Plan was finalized in November 2011 and remedial action activities for other portions of the Lab Area finished in May 2012. The Construction Completion Report was finalized in May 2013.
- 8. **Current Status:** ICs are in place at the Lab Area due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

## SITE 50 – BUILDING 103 CRAWL SPACE

### (OLD MAP GRID L34) IRP Site 50 Fact Sheet

1. **Contamination:** Elemental mercury and possibly other chemicals.
2. **Location:** Crawl space of Building 103.
3. **From:** Sinks in Building 103.
4. **When:** From 1902 to 1985. During construction in 1985, it was discovered that the sinks did not drain to either the sanitary or storm sewer system. Instead, the sinks discharged directly to the soil under Building 103.
5. **Generated By:** Laboratory equipment containing mercury was used in Building 103 at various times. During sensitivity tests, nitrometer bulbs, which contained mercury, sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills from the transfer of mercury to the "slop jar" were common. Jars of mercury often broke during rinsing in the sink. Other chemicals were also placed in the sinks. A visual inspection of the crawl space revealed possible asbestos insulation covering the pipes. The insulation appeared to be in good condition.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The sinks were re-routed to the sanitary sewer system. In addition, chemicals are no longer put down the sink.
  - b. A Site Inspection under the Navy Installation Restoration Program (IRP) was conducted as recommended in the Preliminary Assessment to determine if contamination is actually present. This inspection included taking soil-boring samples from the crawl space under Building 103 and analyzing for volatile organic compounds (VOCs), base-neutral acids (BNAs), Target Analyte List (TAL) metals, and nitrate esters.
  - c. This site is included in the "Lab Area" grouping of sites. Remedial Investigation (RI) field work was completed at the Lab Area in 2001. Surface and shallow subsurface soil, sediment, and surface water samples were collected in the Lab Area and analyzed for Target Compound List (TCL) volatile organic compounds, TCL semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - d. The RI Report for the Lab Area was completed in January 2004. A wetland delineation was completed in April 2006 and the Final Baseline Ecological Risk Assessment (BERA) Report was submitted in May 2006.
  - e. A Focused Feasibility Study (FS) was completed in December 2009.
  - f. A Proposed Plan was completed in April 2010, recommending soil excavation, Institutional Controls (ICs), and wetland restoration. A public meeting was held on April 15, 2010.

- f. The Final Record of Decision (ROD) was signed in September 2011.
  - g. The Remedial Action Work Plan was finalized in November 2011 and remedial action activities finished in May 2012. The Construction Completion Report was finalized in May 2013.
8. **Current Status:** ICs are in place due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

**SITE 51 – BUILDING 101 DRY WELL****(OLD MAP GRID L34)  
IRP Site 51  
Fact Sheet**

1. **Contamination:** None.
2. **Location:** Dry well by Building 101.
3. **From:** N/A.
4. **When:** N/A.
5. **Generated By:** Initially, it was believed that a laboratory waste stream was separated for disposal purposes. The volatile component was evaporated in a flash tank while the remaining liquid wastes were discharged into a dry well. However, inspection of Department of the Navy, Bureau of Yards and Docks drawings revealed that the flash tank did not discharge to the dry well.
6. **Amount:** None.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) was performed, and a Site Inspection (SI) was not recommended under the Navy Installation Restoration Program (IRP).
  - b. This site was subjected to a Site Screening Process (SSP) during 2002. The field investigation included a geophysical survey and the collection of subsurface soil samples for analysis of Target Compound List (TCL) volatile organic compounds (VOCs).
  - c. The SSP Report was completed in March 2003. The report recommended no action.
8. **Current Status:** A No Action Decision Document was signed by the Navy and EPA with concurrence from the MDE in June 2003.



## SITE 52 – BUILDING 102 DRY WELL

### (OLD MAP GRID L34) IRP Site 52 Fact Sheet

1. **Contamination:** None.
2. **Location:** Dry well by Building 102.
3. **From:** N/A.
4. **When:** N/A.
5. **Generated By:** Initially, it was believed that a laboratory waste stream was separated for disposal purposes. The volatile component was evaporated in a flash tank while the remaining liquid wastes were discharged into a dry well. However, inspection of Department of the Navy, Bureau of Yards and Docks drawings revealed that the flash tank did not discharge to the dry well.
6. **Amount:** None.
7. **Work Completed:**
  - a. A Preliminary Assessment was performed, and a Site Inspection was not recommended under the Navy Installation Restoration Program (IRP).
  - b. This site was subjected to a Site Screening Process (SSP) during 2002. A visual of the physical conditions at the site as well as available drawings of the site did not indicate the presence of a dry well in the area separate from the Site 51 dry well (which is located nearby). No further investigation of the Site 51 was conducted.
  - c. The Site Screening Process (SSP) Report was completed in March 2003. The report recommended no action.
8. **Current Status:** A No Action Decision Document was signed by the Navy and EPA with concurrence from the MDE in June 2003.

## SITE 53 – MERCURY CONTAMINATION OF THE SEWAGE SYSTEM

### (OLD MAP GRID L34) IRP Site 53 Fact Sheet

1. **Contamination:** Mercury.
2. **Location:** Storm and sanitary sewer pipes.
3. **From:** Building 102.
4. **When:** 1909 through 1986.
5. **Generated By:** In 1969, approximately 10 pounds of mercury were discovered in a storm sewer manhole and, in 1989, approximately 1 pound of mercury was discovered in a sanitary sewer manhole. Both manholes have drain line connections to Building 102. Laboratory equipment that contained mercury, such as nitrometers, was used extensively in Building 102. Mercury often entered drains during the cleaning of laboratory equipment. In 1986, when mercury traps were placed on all sinks in Building 102, mercury was discovered in the U-joints of the sinks.
6. **Amount:** The Draft Preliminary Assessment Report states that only about 10 percent of the mercury sent to Building 102 was returned to the Building 444 storage vault for reclamation. Laboratory workers estimated that approximately 1 liter of mercury was lost per month. Therefore, it is possible that 28,000 pounds of mercury could have been discharged to the drain lines over the 77-year period that the building operated without mercury traps on the sinks.
7. **Work Completed:**
  - a. Ten pounds of mercury discharged in the storm sewer manhole in 1969 were recovered.
  - b. One pound of mercury discharged in the sanitary sewer manhole in 1989 was recovered.
  - c. A television inspection of the gravity sewer lines was conducted in late 1988. The vitrified clay and terra cotta pipes were broken, cracked, sagging, separated, and, in some cases, collapsed. Mercury contamination of the sewage sludge rose to 150 parts per million while the television inspection was being conducted. This suggests that the sewer cleaning, which was done prior to the television inspection, washed mercury down to the Sewage Treatment Plant. Mercury levels have since dropped to levels acceptable for sending the sludge to an approved landfill.
  - d. A Site Inspection (SI) was conducted under the Navy Installation Restoration Program (IRP) and included:
    - 1) Taking 26 soil samples from 13 borings. One sample per boring was located below the level of the sewer line. These samples were analyzed for mercury and nitrate esters. In addition, some samples were analyzed for volatile organic compounds (VOCs), base-neutral acids (BNAs), Target Analyte List (TAL) metals, and total petroleum hydrocarbon (TPH).
    - 2) Obtaining four sediment samples from sanitary and storm sewer manholes and analyzing for mercury and nitrate esters.

- e. During the SI, six monitoring wells were to be installed. However, at a depth of approximately 41 feet, a marker bed was encountered that was subsequently identified as a unit of the Tertiary Brandywine Formation that is on top of the Patapsco Formation. The Upper Patapsco Formation is a confining unit, which is estimated to be 100 feet thick. Therefore, no shallow water-bearing zones were present.
  - f. This site is included in the "Lab Area" grouping of sites. Remedial Investigation (RI) field work was completed at the Lab area in 2001. Surface and shallow subsurface soil, sediment and surface water samples were collected in the Lab Area and analyzed for Target Compound List (TCL) VOCs, TCL semivolatile organic compounds (SVOCs), TAL metals, and an expanded list of explosives.
  - g. The RI Report for the Lab Area was completed in January 2004. A wetland delineation was completed in April 2006 and the Final Baseline Ecological Risk Assessment (BERA) Report was submitted in May 2006.
  - h. A Focused Feasibility Study (FS) was completed in December 2009.
  - i. A Proposed Plan was completed in April 2010, recommending soil excavation, Institutional Controls, and wetland restoration. A public meeting was held on April 15, 2010.
  - f. The Final Record of Decision (ROD) was signed in September 2011.
  - g. The Remedial Action Work Plan was finalized in November 2011 and remedial action activities finished in May 2012. The Final Construction Completion Report was submitted in May 2013.
8. **Current Status:** ICs are in place due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

## SITE 54 – BUILDING 101

### (OLD MAP GRID L34) IRP Site 54 Fact Sheet

1. **Contamination:** Mercury and asbestos.
2. **Location:** Basement of Building 101.
3. **From:** Use of laboratory equipment that contained mercury and possibly leaking pipes.
4. **When:** From building construction in 1909 to mid-1980s.
5. **Generated By:** In January 1990, several droplets of mercury were discovered on the insulation of a steam pipe located in the southeastern corner room of the basement in Building 101. In addition, in the mid-1980s, an employee noticed solvent odors in the basement when solvent was flushed down the sink in the room above, indicating a leaky pipe.

Laboratory equipment that contained mercury was used in the room above the basement where mercury was discovered. A 1918 blueprint shows four nitrometers located in this room. During sensitivity tests, nitrometer bulbs, which contained mercury, sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills were common from transferring mercury to the "slop jar." Jars of mercury often broke during rinsing in the sink.

6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Site Inspection was conducted under the Navy Installation Restoration Program (IRP), as recommended in the Preliminary Assessment, to determine the extent of contamination. This inspection included:
    - 1) Taking five wipe samples within the building and analyzing for mercury.
    - 2) Taking five media samples from within the building and analyzing for mercury.
    - 3) Obtaining five soil boring samples from beneath the building and analyzing for mercury and nitrate esters.
  - b. This site is included in the "Lab Area" grouping of sites. Remedial Investigation (RI) field work was completed at the Lab Area in 2001. Surface and shallow subsurface soil, sediment, and surface water samples were collected in the Lab Area and analyzed for Target Compound List (TCL) volatile organic compounds, TCL semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - c. The RI Report for the Lab Area was completed in January 2004. A wetland delineation was completed in April 2006 and the Final Baseline Ecological Risk Assessment (BERA) Report was submitted in May 2006.
  - d. A Focused Feasibility Study (FS) was completed in December 2009.

- e. A Proposed Plan was completed in April 2010 recommending soil excavation, Institutional Controls (ICs), and wetland restoration. A public meeting was held on April 15, 2010.
  - f. The Final Record of Decision (ROD) was signed in September 2011.
  - g. The Remedial Action Work Plan was completed in November 2011 and remedial action activities finished in May 2012. All CERCLA-related work was limited to discharges from Building 101 and not the contamination inside of the building. The Construction Completion Report for the Lab Area was finalized in May 2013.
8. **Current Status:** ICs remain onsite due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

## SITE 55 – BUILDING 102

### (OLD MAP GRID L34) IRP Site 55 Fact Sheet

1. **Contamination:** Mercury and asbestos.
2. **Location:** Building 102.
3. **From:** Use of laboratory equipment that contained mercury.
4. **When:** From building construction in 1909 to 1963 when renovations to the building were made.
5. **Generated By:** On October 6, 1987, metallic mercury was discovered dripping from the ceiling onto the sink table top of the coffee mess, located in the northern end of the basement of Building 102. Review of Department of the Navy, Bureau of Yards and Docks drawings indicates that a nitrometer was once located in the room directly above the area where the metallic mercury was discovered.

While installing mercury traps in the sinks of Building 102 in 1986, the plumber reported approximately a teaspoon of mercury in each of the U-joints.

During sensitivity tests, nitrometer bulbs, which contained mercury, sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills from transferring mercury to the "slop jar" were common. Jars of mercury often broke during rinsing in the sink.

6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During building renovations in 1963, the nitrometer operation was moved to the southern room on the first floor of Building 102, and the floor was sealed with a 2-inch layer of concrete.
  - b. In the mid-1970s, the nitrometer was moved to the southern room in the basement of Building 102 and, in the early 1980s, the floor drains were sealed to prevent mercury release in case of a spill.
  - c. Cleanup of the mercury began after the mercury was found dripping from the ceiling but promptly ceased after asbestos was discovered.
  - d. Plastic sheeting was placed under the ceiling to encapsulate the leaking mercury, and the northern end of the building was closed to protect the health of the employees.
  - e. In February 1989, the building was abandoned. In June 1991, the water supply to the building was disconnected to eliminate the potential for mercury contamination of the sludge generated from sewage treatment.
  - f. A Site Inspection was conducted under the Navy Installation Restoration Program (IRP). This inspection included:
    - 1) Taking five wipe samples within the building and analyzing for mercury.

- 2) Taking five media samples from within the building and analyzing for mercury.
  - 3) Obtaining five soil boring samples from beneath the building and analyzing for mercury and nitrate esters.
- g. This site is included in the "Lab Area" grouping of sites. Remedial Investigation (RI) field work was completed at the Lab Area in 2001. Surface and shallow subsurface soil, sediment, and surface water samples were collected in the Lab Area and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals, and an expanded list of explosives.
  - h. The RI Report for the Lab Area was completed in January 2004. A wetland delineation was completed in April 2006 and the Final Baseline Ecological Risk Assessment (BERA) Report was submitted in May 2006.
  - i. A Focused Feasibility Study (FS) was completed in December 2009.
  - j. A Proposed Plan was completed in April 2010 recommending soil excavation, Institutional Controls (ICs), and wetland restoration. A public meeting was held on April 15, 2010.
  - f. The Record of Decision (ROD) was signed in September 2011.
  - g. The Remedial Action Work Plan was finalized in November 2011 and remedial action activities finished in May 2012. All CERCLA-related work was limited to discharges from Building 101 and not the contamination inside of the building. The Construction Completion Report for the Lab Area was finalized in May 2013.
8. **Current Status:** ICs are in place due to the unknown network of underground pipes that may contain mercury. The Remedial Action Completion Report (RACR) was finalized in July 2014.

## **SITE 56 – LEAD CONTAMINATION AT INDUSTRIAL WASTEWATER OUTFALL (IW) 87**

**(OLD MAP GRID H19)  
IRP Site 56  
Fact Sheet**

1. **Contamination:** Lead.
2. **Location:** Pit, pipe, and sediment leading to IW87 from Building 790.
3. **From:** Washdown of lead-lined floor.
4. **When:** 1953 to October 1992.
5. **Generated By:** Building 790 contains a tank of nitric acid and a tank of sulfuric acid. The fumes from these acids get on the walls and floor inside the building, requiring a periodic wash-down of the walls and floor. The fumes from the strong acids dissolved the lead from the flooring, and the wash-down provided a route for the dissolved lead to discharge from the building to IW87.
6. **Amount:** Unknown.
7. **Work Completed:** An Engineering Evaluation/Cost Analysis (EE/CA) was prepared to determine the best method for cleaning this lead from the pit, pipe, and sediment.  
  
A removal action conducted in late 1996 included removal and cleaning of the pipe leading to IW87, excavation of the outfall area, treatment of contaminated water on the site, and relining of the pipe.
8. **Current Status:** A Site Screening Process (SSP) investigation for this site started in April 2004. A Decision Document, which recommended no further action (NFA), was signed in September 2006.



## SITE 57 – BUILDING 292 TCE CONTAMINATION

### (OLD MAP GRID P33) IRP Site 57 Fact Sheet

1. **Contamination:** Trichloroethylene (TCE).
2. **Location:** Building 292.
3. **From:** Possible discharges and spills from drainage of the vapor-degreasing tank.
4. **When:** 1964 to 1989.
5. **Generated By:** Emptying of a 2000-gallon vapor-degreasing tank. The cleaning system used TCE vapors to clean metal parts. The 2000-gallon tank of TCE was emptied and refilled approximately every 6 months.
6. **Amount:** Unknown. Extent of contamination to be determined.
7. **Work Completed:**
  - a. A limited subsurface investigation was conducted in March 1996. This investigation indicated elevated levels of TCE in the soil and groundwater in the area south of Building 292.
  - b. A draft Engineering Evaluation/Cost Analysis (EE/CA) was completed in October 1996. Before the EE/CA was completed, a treatability study was conducted to determine if Soil Vapor Extraction (SVE) was an effective remedy. The results of the treatability study indicated that SVE would not work at the site due to the geology and location of the groundwater table.
  - c. In 1998, the Navy completed an interim removal action (IRA) at Site 57 to address infiltration of TCE-contaminated groundwater into a storm sewer leading to outfall IW-80. Approximately 700 feet of storm sewer were lined to inhibit the accelerated migration of TCE.
  - d. The Navy completed a remedial investigation at Site 57 in July 2000.
  - e. During August 2001, a field investigation was conducted at Site 57 to collect data to aid in the evaluation of remedial alternatives during the preparation of an FS.
  - f. A pilot study, which includes injecting Hydrogen Release Compound (HRC) in shallow groundwater to facilitate in situ bioremediation, began in May 2003.
  - g. An EE/CA for contaminated soil was completed in August 2005.
  - h. The final Feasibility Study (FS) was submitted in July 2006. A third party optimization review of the FS was completed in April 2006.
  - i. An interim removal action for soil was completed in July 2006.
  - j. The final Record of Decision was signed in September 2007.
  - k. The 65% Remedial Design and draft Long-Term Monitoring (LTM) Plan were submitted in October and November 2007. An optimization review was completed and recommended

additional investigation to better delineate the contaminant source area. The final Design Investigation Work Plan and investigation field work was completed in February and April 2009 respectively. The final RD was submitted in December 2009 and the final LTM Plan was submitted in March 2010.

- l. The Final Remedial Action Work Plan was submitted in October 2010. Complications using the preferred Remedial Alternative of emulsified vegetable oil via permanent injection wells arose during implementation, which led to a decision of altering the remedial technology. The new remedial technology to be used at the site is A-SOX and Proton Reduction Technology (PRT).
  - m. The PRT Work Plan was finalized in October 2012, along with the installation of the A-SOX system.
  - n. The PRT demonstration work plan was completed in January 2013 and the Final PRT Evaluation Report to assess impacts to nearby buildings was submitted in March 2013.
  - o. PRT demonstration fieldwork was completed in July 2013. A Final full-scale PRT design was completed in November 2013. Fieldwork and installation of the PRT system was completed in May 2015. Operation of the PRT system was evaluated via quarterly groundwater performance monitoring. A revised LTM Plan was finalized in September 2016.
8. **Current Status:** Further optimization of the site remedy and fieldwork was completed in October 2018. An investigation to delineate the contaminated clay layer is planned for 2020. The site is currently in the RA-O phase.

## **SITE 66 – TURKEY RUN DISPOSAL AREA**

### **(OLD MAP GRID H8, I8, J8) IRP Site 66 Fact Sheet**

1. **Contamination:** Unknown.
2. **Location:** Woods and streambed behind Building 1440.
3. **From:** Disposal of various items, including lead flooring, clinker from Powerhouse, glass bottles, etc., based on visual inspection of the area.
4. **When:** Exact dates unknown.
5. **Generated By:** Disposal of various items.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. Site was visually inspected and included in the Installation Restoration Program (IRP) in 2004.
  - b. The final Work Plan for the Site Screening Assessment investigation was completed in July 2007. Field work which included sampling was conducted at the site in April 2007. Based on the results of the field work, the IHIRT decided to change the investigation from a Site Screening Process to a Site Inspection (SI).
  - c. A final SI Report was completed in November 2008 and recommended that a Remedial Investigation (RI) be performed..
  - d. The Final RI Report was submitted in February 2012. It recommended that an additional investigation, a Baseline Ecological Risk Assessment (BERA), and a Wetland Delineation be completed to fill data gaps prior to the start of the Feasibility Study.
8. **Current Status:** Additional RI phase fieldwork is planned for 2019 through 2021 to better define the conceptual site model and limits of waste.

## SITE 67 – HOG-OUT FACILITY

### IRP Site 67 Fact Sheet

1. **Contamination:** Perchlorate.
2. **Location:** Building 1419.
3. **From:** Cleaning out solid propellant containing ammonium perchlorate from various devices.
4. **When:** 1960s to mid-1990s.
5. **Generated By:** Cleanout or “hog-out” of various devices, including rockets and ejection seat motors that have exceeded their useful life span.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A field demonstration of in situ bioremediation of perchlorate was conducted in 2002.
  - b. Additional sampling of the area was completed as part of additional pilot study and demonstration efforts in 2005, and perchlorate was identified in shallow groundwater.
  - c. Site was added to the Navy Installation Restoration Program (IRP) in 2006.
  - d. A desktop audit technical memorandum was finalized in March 2011. The document summarized previous data and investigative efforts at the site and recommended a Remedial Investigation (RI).
  - e. The Final RI UFP-SAP Work Plan was submitted in July 2013. The phase I RI fieldwork was completed in August 2013.
8. **Current Status:** The final phase of RI fieldwork was completed in December 2015. The Revised Draft RI Report was submitted in June 2019 and is under regulatory review. An EE/CA and Action Memo were finalized in September 2019. An IRA for soil is planned for late 2019 to address hot spots. The IRA also includes rehabilitation of some of the storm water utility system lines, manholes, and/or drop inlets (migration pathways).

## SITE 68 – FORMER BUILDING 259 CONTAMINATION

### IRP Site 68 (Formerly AOC 31) Fact Sheet

1. **Contamination:** Metals and energetics
2. **Location:** Building 259 – Old Storehouse / Detonator Production
3. **From:** Detonator production activities.
4. **When:** Building 259 is a former inert storehouse constructed in 1917. Detonator production activities occurred during World War I timeframe.
5. **Generated By:** Detonator production outside building. Lead azide was produced outside the building and cooled by water that ran through the trench.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. Pre-decontamination sampling results in January 2011 revealed elevated metals and energetics in soil outside the building. Subsequently, the team created new AOC 31 in the Navy Installation Restoration Program (IRP) to evaluate the new site.
  - b. The Final Site Screening Process (SSP) UFP-SAP Work Plan was submitted in July 2013. The SSP fieldwork was completed at AOC 31 along with IRP Site 69 in July 2013 and the SSP Report was finalized in July 2015.
  - c. AOC 31 was designated as IR Site 68 in April 2017.
8. **Current Status:** Additional action is recommended at Site 68 to address mercury in soil, potentially in the form of a non-time-critical removal action. A Draft SAP for a pre-EE/CA investigation is planned to be submitted in fall 2019.

**SITE 69 – BUILDING 1018****IRP Site 69  
Fact Sheet**

1. **Contamination:** Perchlorate.
2. **Location:** Building 1018 – Oxidizer Process Building.
3. **From:** Unloading/transferring ammonium perchlorate at Building 1018 for processing.
4. **When:** 1960s to 2000s.
5. **Generated By:** Spillage during unloading/transferring activities at Building 1018 for perchlorate processing.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. Pre-demolition sampling identified elevated perchlorate in soil surrounding Building 1018 in January 2011.
  - b. Site was added to the Navy Installation Restoration Program (IRP) in 2011.
  - c. The Final Site Screening Process (SSP) UFP-SAP Work Plan was submitted in July 2013. The SSP fieldwork was completed at Site 69 along with AOC 31 in July 2013.
  - d. The Final RI UFP-SAP work plan was submitted in September 2016. The RI fieldwork was completed in April 2017.
8. **Current Status:** The Draft RI Report was submitted in June 2019 and is currently under regulatory review. The RI Report is planned to be finalized in October 2019. The Draft FS is planned to be submitted in October 2019.

## SITE 70 – GROUNDWATER CONTAMINATION ALONG WATER WORKS WAY

### IRP Site 70 Fact Sheet

1. **Contamination:** TCE, lead, and arsenic in groundwater
2. **Location:** North/West (upgradient) of and within Scrap Yard (IRP Site 41 / MRP Site UXO 32), near Building 1470.
3. **From:** Scrap and discarded materials disposal and staging in the Scrap Yard, and unknown (to be determined) upgradient source(s). The site was discovered (i.e., assigned) as a result of attempting to find the source of groundwater contamination located at the Scrap Yard during the Remedial Investigation (RI) / Feasibility (FS) and Interim Removal Action (IRA) at Site 41 / UXO 32.
4. **When:** From the 1960s to 1988.
5. **Generated By:** Release(s) from historical storage of coal and lead-acid batteries (along with various scrap materials) and unknown upgradient release(s).
6. **Amount:** Unknown.
7. **Work Completed:** Sampling conducted while determining the extent of groundwater contamination during Site 41/UXO 32 RIs determined some groundwater contamination originates upgradient of the Scrap Yard.
8. **Current Status:** The groundwater medium at the Scrap Yard was assigned as new IRP Site 70 in 2013. Scoping for the groundwater RI began in 2013. A UFP-SAP Work Plan addendum was finalized in May 2015. RI fieldwork was completed in December 2015. The RI Report is delayed until supplemental fieldwork to delineate cobalt in groundwater is completed in late 2019.

## SITE 71 – PFAS AREA OF CONCERN

### IRP Site 71 Fact Sheet

1. **Contamination:** Per- and Polyfluoroalkyl Substances (PFAS)
2. **Location:** Five separate areas located throughout the installation (two are at the Main Area along S. Patterson Road behind the firehouse and near the intersection of W. Farnum Road and S. Dashiell Road. The remaining three are at Stump Neck Annex in the contractor lot along Archer Ave, the helicopter pad near Building 2174, and the field behind Building 1SN.)
3. **From:** Unknown.
4. **When:** Unknown, but likely after 1970.
5. **Generated By:** Potential use of foam containing PFAS in fire training exercises.
6. **Amount:** Unknown.
7. **Work Completed:** Site added to program in 2017.
8. **Current Status:** A Preliminary Assessment is scheduled for the site and a SAP is expected to be submitted for review in fall 2019.



## **SWMUS 4 AND 5 – UNDERGROUND STORAGE TANKS AT TRANSPORTATION DEPARTMENT**

### **(OLD MAP GRID E37) IRP AOC Main Area SWMUs 4 and 5 Fact Sheet**

1. **Contamination:** Waste oil from equipment maintenance.
2. **Location:** These units consist of one 550-gallon underground storage tank (UST) (SWMU 4) behind the automotive shop (Building 290) and a second 1,000-gallon UST (SWMU 5) behind the heavy equipment shop (Building 525).
3. **From:** Waste oil from equipment maintenance is placed in a basin, which is approximately 36 inches by 18 inches by 12 inches deep, inside the shops. The waste oil drains through a pipe to the USTs. A contractor pumps the waste oil from the tanks to a truck for off-site disposal.
4. **When:** Facility personnel indicated that the units have been in operation since 1978.
5. **Generated By:** The wastes managed at this unit include waste oils from the transportation equipment maintenance branch.
6. **Amount:** One 550-gallon underground storage tank (SWMU 4) and a second 1,000-gallon UST (SWMU 5).
7. **Work Completed:**
  - a. During the visual site inspection (VSI), stained soil was observed in the vicinity of the standpipe from the UST behind Building 525 (SWMU 5). No evidence of release was observed in the vicinity of SWMU 4.
  - b. These units were included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with these units.

**SWMU 6 – USED BATTERY ACCUMULATION AREA (BUILDING 290)**

**(OLD MAP GRID R27)  
IRP AOC  
Main Area SWMU 6  
Fact Sheet**

1. **Contamination:** Unit is used for storage of used batteries.
2. **Location:** Automotive shop (Building 290).
3. **From:** The Transportation Department automotive shop (Bldg. 290) uses an area outside the building for accumulation of used batteries. The batteries are stored on wooden pallets over a concrete driveway. The area is uncovered and measures approximately 6 feet wide by 10 feet long.
4. **When:** According to facility representatives, the date the area was first used for storage is not known. However, the area has been used for several years.
5. **Generated By:** The Transportation Department automotive shop (Building 290) uses an area outside the building for accumulation of used batteries.
6. **Amount:** Unknown
7. **Work Completed:**
  - a. Staining was observed on the concrete pad during the visual site inspection (VSI). However, no visible signs of release to soils were noted, and no releases were noted in available file information.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

## SWMU 27 – WASTE OIL STORAGE AREA (GOODARD POWER PLANT)

(OLD MAP GRID N31)

IRP AOC

Main Area SWMU 27

Fact Sheet

1. **Contamination:** The area is approximately 150 feet long by 50 feet wide and includes metal drums of waste oil sitting on the soil surface. At the time of the visual site inspection (VSI), the unit contained eight drums of waste oil from the oil/water separator, five empty drums labeled pelletized nitrocellulose, and a pile of oily soil that was approximately 12 feet by 10 feet by 3 feet high. The pile appeared to contain waste oil and absorbent collected from spills inside the power plant.

Remediation activities included the removal of the empty drums and the partial removal of the empty waste oil and absorbent. The remaining stained soil was drummed for off-site disposal.

2. **Location:** Fuel storage area at Goddard Power Plant.
3. **From:** Goddard Power Plant.
4. **When:** Area had been used for storage of this type since the start-up of the power plant in 1957.
5. **Generated By:** This unit is used for storage of waste oil collected from the power plant. The drums of waste oil are taken to the Caffee Road thermal treatment unit (SWMU 21) for burning or to Building 455 (SWMU 2) for off-site disposal.
6. **Amount:** At the time of the visual site inspection (VSI), the unit contained eight drums of waste oil from the oil/water separator, five empty drums labeled pelletized nitrocellulose, and a pile of oily soil approximately 12 feet by 10 feet by 3 feet high.
7. **Work Completed:**
  - a. On the second day of the VSI, a pile of stained soil was observed in the area. During the fifth day of the VSI, the unit was revisited, and it was observed that the waste pile had been partially removed and that an area of stained soil remained.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

**SWMU 38 – CAFFEE ROAD WASTE OIL STORAGE AREA**

**(OLD MAP GRID L6)  
IRP AOC  
Main Area SWMU 38  
Fact Sheet**

1. **Contamination:** This unit is a storage area for drums of waste oil used at the Decontamination Burn Point (SWMU 21).
2. **Location:** Decontamination Burn Point (SWMU 21).
3. **From:** The oil is used to start and maintain the fire at the burn point. The fire is initiated to flash explosive residue from discarded metal parts generated on-base.
4. **When:** Oil has been stored at this location since approximately 1986.
5. **Generated By:** The unit is used for storage of waste oil from vehicles and machinery in drums. The oil is used to start and maintain the fire at the Decontamination Burn Point.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. There was no known history of release at the unit, and no signs of release were observed during the visual site inspection.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that this unit would be handled with Site 11. The remedial action at Site 11 also addresses this SWMU. See the fact sheet for Main Area IRP Site 11.

## **SWMUs 40-46 – WASTEWATER COLLECTION TREATMENT TANKS (MOSER PLANT)**

### **(OLD MAP GRID E17) IRP AOC Main Area SWMUs 40 through 46 Fact Sheet**

1. **Contamination:** These seven units are used for the collection and treatment of wastewater generated from the production of nitrate esters (e.g., nitroglycerin, nitrocellulose, etc.) at the Moser Plant. The wastewater contains concentrations of slightly acidic explosive residue.
2. **Location:** Moser Plant.
3. **From:** The tanks are used to collect the wastewater, settle the explosive residue, and neutralize the acidity, if necessary.
4. **When:** The units were installed and began operation in the mid-1970s.
5. **Generated By:** The units are used for collection and treatment of wastewater containing explosive residue, which is slightly acidic. The settled explosive residue from the wastewaters is adsorbed onto wood chips and burned at the Cast Plant Burn Point (SWMU 19). The water is discharged to an NPDES outfall after settling.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The tanks observed during the visual site inspection included two 300-gallon tanks, one 1,000-gallon tank, and one 200-gallon tank. The tanks were all constructed of steel, were located indoors on concrete floors, and were each covered. Three additional tanks of the same design and construction are located in the process area.
  - b. These units were included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with these units.

**SWMUs 47-51 – SPENT ACID STORAGE TREATMENT TANKS (MOSER PLANT)**

**(OLD MAP GRID E17)  
IRP AOC  
Main Area SWMUs 47 through 51  
Fact Sheet**

1. **Contamination:** These five units are used for the collection and treatment of spent acid generated during production of nitrated esters at the Moser Plant.
2. **Location:** Moser Plant.
3. **From:** The tanks include three spent acid tanks, including one 150-gallon and two 553-gallon tanks, one 200-gallon slum recovery tank, and one 6,000-gallon neutralization tank (divided into two compartments). The tanks are constructed of steel, are located indoors, and are covered. The level in the tanks is controlled by batch flow to the units.
4. **When:** Tanks were installed and began operation in the mid-1970s.
5. **Generated By:** The units are used for collection and treatment of spent acid from the production of nitrated esters. The wastewater from neutralization is discharged to an NPDES outfall. The facility representative stated that no sludge was generated by the neutralization process.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. There is no history of release from the units, and there were no visible signs of release during the visual site inspection.
  - b. These units were included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with these units.

## **SWMUs 64-66 – WASTEWATER STORAGE TANKS (BUILDING 1596)**

**(OLD MAP GRID P30)**

**IRP AOC**

**Main Area SWMUs 64 through 66**

**Fact Sheet**

1. **Contamination:** The units were used for storage of water contaminated with hydrazine fuel.
2. **Location:** Building 1596.
3. **From:** The wastewater storage tanks located in Building 1596 were used for storage of water contaminated with hydrazine fuel. The water was incinerated in Thermal Destructor 2 (SWMU 63). The tanks are located indoors over concrete flooring. They are constructed of polyurethane and are approximately 10,000-gallon each in capacity.
4. **When:** The exact date of installation of the tanks is not certain; however, it is assumed the tanks were installed circa 1976 [i.e. the same time as construction of Thermal Destructor 2 (SWMU 63)].
5. **Generated By:** The tanks are located indoors on a concrete floor and have been empty for a number of years. No details were available on the control of flow to the tanks.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. There is no known history of release from the units, and no visible signs of release were observed during the visual site inspection.
  - b. These units were included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with these units.

## **SWMU 69 – TEMPORARY ACCUMULATION DUMPSTERS FOR EXPLOSIVE SCRAP**

### **IRP AOC Main Area SWMU 69 Fact Sheet**

1. **Contamination:** The dumpsters are used for storage of explosive scrap from processes throughout the facility.
2. **Location:** Throughout the base.
3. **From:** NSFIH uses metal dumpsters for collection of explosive scrap from manufacturing and associated operations throughout the base.
4. **When:** The practice of storing explosive scrap in dumpsters was used at the base from the late 1950s until 1992.
5. **Generated By:** The dumpsters are color coded (blue or yellow) for use only as storage for explosive scrap. They are constructed of metal, measure approximately 5 feet long by 4 feet wide by 4 feet deep, and are typically located over concrete or asphalt. The explosive scrap contained in a water bath is in the dumpster. Water must be present in the dumpsters for safety reasons: dry propellant scrap is an explosive hazard. When filled, the dumpster is transported to the burn point (SWMU 19), the water is filtered and discharged through an NPDES outfall, and the explosive scrap is burned at the burn point.

The dumpsters are filled to fill-lines marked on the dumpster. The fill-line leaves ample freeboard to prevent overflow or spilling from the dumpster.

6. **Amount:** 50 to 60 dumpsters
7. **Work Completed:**
  - a. There is no known history of release from the dumpsters. Visual inspection of several units during the visual site inspection found no signs of release. All inspected units were found to be in good condition.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.



## **SWMU 70 – TEMPORARY ACCUMULATION BUILDINGS FOR DRUMMED EXPLOSIVE SCRAP**

### **IRP AOC Main Area SWMU 70 Fact Sheet**

1. **Contamination:** The buildings are used for temporary storage of explosive scrap generated at process areas throughout the facility.
2. **Location:** The storage locations are wooden sheds, all of similar design, constructed over concrete pads. The sheds are covered and typically measure approximately 6 feet by 6 feet.
3. **From:** NSFIH has 51 storage buildings for accumulation of explosive scrap in metal cans. The metal cans (commonly called G.I. cans) are about 30 gallons in size and are color coded blue or yellow for use only as storage for explosive scrap.
4. **When:** There are 51 temporary accumulation areas that have been constructed at various times during the facility operation.
5. **Generated By:** Explosive scrap is typically adsorbed (i.e., liquid) onto wood chips and collected in non-conductive rubber bags, placed in the metal cans, and stored in the accumulation area. Cans were removed daily to the burn point (SWMU 19) for safety reasons.

The explosive scrap is collected in non-conductive rubber bags, placed in the metal cans, and stored in the building. The buildings have concrete floors but no curbs.

6. **Amount:** Unknown.
7. **Work Completed:**
  - a. There is no known history of release from the units, and the visual inspection found no signs of release.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

## SWMU 72 – OIL/WATER SEPARATORS

### IRP AOC Main Area SWMU 72 Fact Sheet

1. **Contamination:** Several wastewater discharge lines at NSFIH include an oil/water separator for removal of floating oil from the wastewater prior to discharge through an NPDES outfall.
2. **Location:** Various process areas on-base.
3. **From:** The unit separates floating oil from wastewater generated by various process areas on-base. Waste oil is collected at the units and either used on site or disposed of offsite. The units are typically constructed of concrete and are generally covered with a metal lid. Many of the units overflow to NPDES discharge points.
4. **When:** It is assumed that the separators were typically constructed at the time of building construction.
5. **Generated By:** The waste oil is either used on site (e.g., such as the waste oil used for starting fires at the Decontamination Burn Point) or disposed of offsite.
6. **Amount:** The Industrial Wastewater Treatment Study listed at least 15 separators associated with various buildings and process lines.
7. **Work Completed:**
  - a. There is no known history of release from the units, and visual inspection of two units found no signs of release.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with these units.

## **SWMU 74 – UNLINED OVERLAND DRAINAGE DITCHES**

### **IRP AOC Main Area SWMU 74 Fact Sheet**

1. **Contamination:** Process wastewater containing various contaminants.
2. **Location:** Drainage ditches throughout the Activity.
3. **From:** Discharge of process wastewater to unlined overland drainage ditches.
4. **When:** Startup varies with each ditch. However, the practice of discharge in unlined ditches has been used since the beginning of production at the Activity.
5. **Generated By:** Various processes throughout the Activity.
6. **Amount:** Unknown
7. **Work Completed:** This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002. The decision reached was this SWMU will remain an AOC, and additional work is needed to identify and verify ditches with potential contamination.
8. **Current Status:** A concurrence letter for no further action (NFA) was signed in February 2004 for this unit. The team agreed to administratively close out SWMU 74. Drainage ditches considered problematic have been addressed during investigations of them specifically or along with adjacent sites. Any ditches found to be a potential concern during future site investigations will be addressed by those investigations.

**AOC G – SAND BLASTING SAND STORAGE AREA**

**(OLD MAP GRID B8)  
IRP AOC  
Main Area RCRA AOC G  
Fact Sheet**

1. **Contamination:** Sand blasting is used to remove paint from rocket motor casings. Sand blasting sand commonly contains heavy metals.
2. **Location:** The equipment is located indoors on a floor and containment area constructed of steel and concrete (Building 1134).
3. **From:** The sand is collected and continuously recycled to the sand blast equipment, resulting in no waste sand.
4. **When:** Unknown.
5. **Generated By:** The process is currently being converted to use a plastic medium (i.e., to replace the sand) for removal of the paint.
6. **Amount:** Unknown.
7. **Work Completed:** This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

## AOC H – DRUM AT FUEL STORAGE AREA

(OLD MAP GRID C8)  
IRP AOC  
Main Area RCRA AOC H  
Fact Sheet

1. **Contamination:** During visual inspection of the vehicle maintenance area (Building 290), a single drum containing an unidentified liquid was observed adjacent to the nearby fuel storage area. There was no indication, however, that the contents of the drum were a waste (i.e., no signs that activities in the area would generate a waste). The drum was located outdoors on an asphalt roadway. There was no apparent leakage from the drum, and visual inspection found no signs indicating that the area was routinely used for storage of drums.
2. **Location:** Unknown.
3. **From:** Unknown.
4. **When:** Unknown.
5. **Generated By:** Unknown.
6. **Amount:** Unknown.
7. **Work Completed:** This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

## SWMU 20 / UXO 20 – SAFETY THERMAL TREATMENT POINT

(OLD MAP GRID F1)

IRP AOC

Main Area SWMU 20 / MRP Site UXO 20

Fact Sheet

1. **Contamination:** The Safety Thermal Treatment Point was an open burning area that operated in a manner similar to the Cast Plant Burn Point (SWMU 19). The unit was used for thermal treatment of explosive and flammable waste.
2. **Location:** The Safety Thermal Treatment Point is located west of the Cast Plant Burn Point on a small peninsula extending into the Potomac River (south of Building 1248).
3. **From:** The treatment point is an area of bare soil on the end of the peninsula where various explosive and flammable materials were burned. The Safety Thermal Treatment Point was used for burning of pyrotechnics including igniters, detonators, and other explosive devices.

Like the Cast Plant Burn Point, the state of Maryland determined that the unit would require a RCRA permit under Subpart X regulations.

4. **When:** The start-up date of the unit is estimated to be the late 1940s or early 1950s.
5. **Generated By:** The unit was used for thermal treatment of explosive and flammable waste. The unit is an area of bare soil with no secondary containment preventing runoff into the river. The unit is designed to release to air. Some residue may remain from incomplete burning of the waste materials; however, facility representatives stated that the area was periodically "shocked" to remove any residual explosive or flammable material.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. Cleanup of contaminated soil at the site in 1988 (removal of approximately 100 drums.)
  - b. Completion of a site characterization report for the STTP as part of a RCRA closure effort. Lead was the chemical of concern.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
  - d. The final Preliminary Assessment Report was completed in September 2005.
  - e. A Site Inspection was completed in September 2010 and recommended a Remedial Investigation for munitions and explosives of concern (MEC) and munitions constituents (MC) in soil and groundwater.
  - f. The Final Remedial Investigation (RI) Work Plan (along with completed Explosive Safety Submission) was submitted in November 2012.
8. **Current Status:** SWMU 20 has been included in the Munitions Response Program (MRP) and designated as Site UXO 020. MEC and MC field work (sampling and DGM survey) were completed

in May 2014. Phase II fieldwork (intrusive investigation of anomalies) was completed in August 2016. A Draft RI Report was submitted in March 2019 and is currently under regulatory review.

## SWMU 21 – CAFFEE ROAD DECONTAMINATION BURN POINT

### (OLD MAP GRID L6) IRP AOC Main Area SWMU 21 Fact Sheet

1. **Contamination:** The Decontamination Burn Point is a thermal treatment open burn area for decontamination of scrap metal contaminated with explosive. The burn area had two large piles of scrap metal, one awaiting thermal treatment and a second, treated pile. The waste oil used to ignite and sustain the fire was stored in drums at a storage area near the burn point.

Like the Cast Plant and Safety Burn Points, the state of Maryland determined that the Decontamination Burn Point would require a RCRA permit under Subpart X regulations.

2. **Location:** The unit lies at the south end of Caffee Road on top of the inactive Caffee Road Landfill and approximately 253 yards from Mattawoman Creek.
3. **From:** The metal was placed into a pile and ignited to remove any explosive contaminants by burning. Waste oil was used on the metal to ignite and sustain the fire. Following treatment, the metal was sold to off-site contractors as scrap.
4. **When:** This unit has been in operation since the Caffee Road Landfill was covered in the early 1980s.
5. **Generated By:** This unit is used for the thermal treatment of solids, including wood and metal contaminated with explosives. The contaminated material is burned with waste oil to aid combustion. Thermally treated material is periodically collected and sold as scrap. The unit is located on the soil cover over the Caffee Road Landfill.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. Operations ceased, the scrap pile was removed, and the site was re-graded to address stormwater runoff issues in September 2001.
  - b. Three mounds covered with CR-6 were built around the new planned burn area in November 2001.
  - c. Conduits, a 6-foot by 6-foot equipment concrete pad, heat shields, and control panel were installed in April 2002, but the new treatment pad has not yet been used for thermal treatment operations.
  - d. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and EPA with concurrence from the MDE on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that this unit would be handled with Site 11. The remedial action at Site 11 also addresses this SWMU. See fact sheet for Main Area IRP Site 11.



## UXO 13 – FDR SKEET RANGE

### MRP Site UXO 13 Fact Sheet

1. **Contamination:** Lead, PAHs.
2. **Location:** The southeast portion of the main installation adjacent to Mattawoman Creek.
3. **From:** Recreational target practice.
4. **When:** 1940s to 1960s.
5. **Generated By:** Recreational munitions use that was limited to shotgun ammunition.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment Report was completed in September 2005 and recommended no further action (NFA) for munitions and explosives of concern (MEC), and a Site Inspection for munitions constituents (MC).
  - b. A Site Inspection was completed in September 2010 and recommended a Remedial Investigation for MC in surface soil around the trap house and NFA for the shot fall area.
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 013. A UFP-SAP/Work Plan is expected to be submitted for review in fall 2019.

## UXO 19 – IGNITER AREA

### MRP Site UXO 19 Fact Sheet

1. **Contamination:** Explosives, lead styphnate.
2. **Location:** The southeastern shoreline of the main installation in the vicinity of Building 1451 and adjacent to Mattawoman Creek.
3. **From:** Disposal of igniters at the shoreline.
4. **When:** Unknown.
5. **Generated By:** Disposal of igniters described to be electric primers or electrically-primed rifle cartridges approximately .50 caliber in size.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was designated as Munitions Response Program (MRP) Site UXO 026 and was included in the Water Area Munitions Study (WAMS) which was completed in February 2005, and recommended an interim removal action for munitions and explosives of concern (MEC) and a Site Inspection for munitions constituents (MC).
  - b. A shoreline munitions inventory was completed in January 2010.
  - c. The Site Inspection was completed in September 2010 and recommended no further action (NFA) for MC in the sediment.
  - d. A Final Interim Removal Action Work Plan was completed in January 2011 and the Final Explosive Safety Submission was completed in June 2012. The interim removal action (IRA) was completed in October 2012 along a 400'x 10' area along the shoreline. Approximately 410 pounds of material documented as safe (MDAS) was removed.
  - e. A DGM Survey Work Plan to investigate the presence of potential items in the shallow water off the shoreline was completed in December 2012 and the DGM Survey fieldwork was completed in May 2013.
8. **Current Status:** A DGM Technical Memorandum was completed in June 2013. A total of 1,087 anomalies potentially representing MEC/MPPEH were identified from the DGM at UXO 19. The anomalies extend northwest and southeast of the DGM boundaries, suggesting that the extent of metallic anomalies beyond those boundaries has not been determined. To determine if the DGM anomalies are related to munitions items, a statistically representative subset of the identified anomalies must be intrusively investigated. Based on the statistical assessment performed, 284 of the 1,087 anomalies should be intrusively investigated to confirm if the anomalies are related to MEC/MPPEH. A Remedial Investigation is planned when funding is available.

## UXO 29 – SOUTHWESTERN PISTOL RANGE

### MRP Site UXO 29 Fact Sheet

1. **Contamination:** Lead and other munitions constituents such as antimony, arsenic, copper, nickel, and lead styphnate/lead azide.
2. **Location:** The western end of the main installation peninsula, between Drop Tower Drive and Pump House Lane, southwest of Building 739.
3. **From:** Small arms (pistol) training.
4. **When:** 1940s.
5. **Generated By:** Practice range firing of small arms. The site is also overlapped by The Valley firing fan.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment Report was completed in September 2005.
  - b. The Site Inspection was completed in September 2010 and recommended no action for this site.
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 029. A draft Technical Memorandum that recommends NFA for the site was submitted in January 2010 but was never finalized. Instead, the information documenting NFA for this site was included in the Final Site Inspection. A no action Decision Document was signed in October 2011.

## UXO 30 – GATE 3 BURNING GROUND

### MRP Site UXO 30 Fact Sheet

1. **Contamination:** Flares, pyrotechnics, solid fuse boosters, bulk explosives, propellants, small arms ammunition.
2. **Location:** Near the intersection of Strauss Avenue and E. Caffee Road, along the Potomac River shoreline.
3. **From:** Burning of explosives.
4. **When:** 1955-1961.
5. **Generated By:** Burning of explosives.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment Report was completed in September 2005 and recommended a Site Inspection for munitions and explosives of concern (MEC) and munitions constituents (MC) in surface soil, subsurface soil, and groundwater.
  - b. A Site Inspection was completed in September 2010 and recommended further investigation of MEC based on subsurface anomalies and a Remedial Investigation for MC in soil and groundwater.
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 030. The site is currently in the Remedial Investigation phase. A Draft UFP-SAP Work Plan for RI fieldwork was submitted in July 2019 and is currently under regulatory review.

## UXO 33 – WATER IMPACT AREA

### MRP Site UXO 33 Fact Sheet

1. **Contamination:** Naval ordnance constituents: explosives, black powder, smokeless powder, brown powder, emmensite, joveite, wet gun cotton, randite, and thorite.
2. **Location:** Located within the Potomac River between Chapman's Point, Maryland and the mouth of the Chicamuxen River encompassing approximately 12,296 acres.
3. **From:** Testing and development of ordnance that may have strayed from targets.
4. **When:** 1890s to 1920s.
5. **Generated By:** Guns and rockets fired from the Valley that may have missed intended impact areas and landed in the Water Impact Area.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was designated as Munitions Response Program (MRP) Site UXO 024 and was included in the Water Area Munitions Study (WAMS) which was completed in February 2005.
  - b. A Site Inspection (SI) was completed in September 2010 and recommended no action for munitions and explosives of concern (MEC) and munitions constituents (MC).
8. **Current Status:** Although the SI recommended no action for the site, it recommended that the existing Danger Zone on the NOAA maps be expanded to include the potential impact area from UXO 033, updating the current site use, and restricting intrusive activities. A report titled "Preliminary Assessment of Water Ranges for Munitions Response Sites and Areas of Concern for the Naval Support Activity South Potomac (Dahlgren), VA" dated August 2015 stated that while MEC may be present at UXO 33, due to sediment deposition over time, soft sediments, and currents in the river, there is an incomplete pathway for human exposure. Institutional controls against disturbing the sediments, documented in the description of the Danger Zone regulations and shown on the NOAA charts, is recommended. Additionally, a 1935 range map retrieved from the Archive showed seven range fans within the boundary of UXO 33. This site may be investigated further in the future.

## **2.2 SITE DESCRIPTIONS – STUMP NECK ANNEX**

This section consists of fact sheets for the Stump Neck Annex sites and AOCs.

## **SITE 30 / SWMU 22 / UXO 10 – STUMP NECK IMPACT AREA**

(OLD MAP GRID F16, G16)

### **IRP Site 30 / Stump Neck Annex SWMU 22 / MRP Site UXO 10 Fact Sheet**

1. **Contamination:** Exploded ordnance.
2. **Location:** The area is approximately 40 acres of marshland.
3. **From:** According to facility representatives, this area was used for testing of single-base, powder-fired projectiles.
4. **When:** The unit was reportedly used before World War II.
5. **Generated By:** Projectile testing.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. No projectiles have been recovered from the area.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. A Preliminary Assessment (PA) Report was completed in September 2005, recommending the area be investigated for MEC.
  - d. A Site Inspection (SI) Report was completed in September 2010, recommending a Remedial Investigation (RI) for munitions and explosives of concern (MEC) and NFA for munitions constituents (MC).
8. **Current Status:** Currently designated as Munitions Response Program (MRP) Site UXO 010. A Remedial Investigation (RI) UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork was completed in August 2017. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

**SITE 31 / SWMU 23 / UXO 7 – OLD DEMOLITION RANGE****IRP Site 31 / Stump Neck Annex SWMU 23 / MRP Site UXO 7  
Fact Sheet**

1. **Contamination:** Small quantities of shrapnel and casings from detonation of explosives.
2. **Location:** The area is approximately 1 acre in size. This unit is in the immediate vicinity of the Chicamuxen Creek's Edge Dump Site B (SWMU 4).
3. **From:** Training activities at the site are believed to have been similar to those now practiced at Range 6 (SWMU 5), an explosive ordnance disposal training range.
4. **When:** Used in 1962, and for many years prior to 1962, as an old demolition training ground.
5. **Generated By:** Explosive Ordnance Disposal (EOD) training.
6. **Amount:** Small quantities of shrapnel and casings.
7. **Work Completed:**
  - a. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - b. A Preliminary assessment (PA) started in June 2003. The PA Report was completed in September 2005.
8. **Current Status:** Currently designated as Munitions Response Program (MRP) Site UXO 007. Because this site is collocated with an active range (Hypervelocity Gun), it is ineligible for further action under CERCLA. A No Action Decision Document was signed in October 2005.



## **SITE 32 / SWMU 11 – SUSPECTED TOOL BURIAL SITE**

### **IRP Site 32 (Stump Neck Annex SWMU 11) Fact Sheet**

1. **Contamination:** Beryllium-copper alloy.
2. **Location:** Vicinity of Building 31 Stump Neck.
3. **From:** Hand tools used in explosive ordnance disposal work.
4. **When:** Unknown.
5. **Generated By:** This unit is suspected to contain special beryllium-copper alloy hand tools used in explosive ordnance work.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During the visual site inspection, the unit was covered with grass and rimmed by sparse woods. Facility representatives indicated the burial site's approximate size was 10 feet by 10 feet.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This site was subjected to a Site Screening Process (SSP) during 2002. Because the site is so similar to Site 34 with respect to the potential sources of contamination, the work plan allowed for not pursuing the investigation of Site 32 if the results from the Site 34 investigation indicated that no action was appropriate. Since the results of the Site 34 investigation indicated no reason to pursue Site 32, no field investigation was performed.
  - d. The SSP Report was finalized in March 2003.
8. **Current Status:** A No Action Decision Document was signed by the Navy and the EPA with concurrence from the MDE in June 2003.

**SITE 33 / SWMU 7 – SCRAP METAL PIT****(OLD MAP GRID O16)****IRP Site 33 / Stump Neck Annex SWMU 7  
Fact Sheet**

1. **Contamination:** Metal parts of mines, torpedoes, and other explosive-inert items.
2. **Location:** The exact location of the Scrap Metal Pit could not be identified. The area is southwest of Building 2117.
3. **From:** Used as a disposal pit for mines and torpedoes. This unit is an outdoor, unlined earthen area that measures approximately 10 feet by 30 feet by 10 feet deep.
4. **When:** Prior to 1983.
5. **Generated By:** Disposed wastes include metal objects (parts of mines, torpedoes, and other inert materials) derived from the manufacture of explosives.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During the visual site inspection in July 1988, the area was covered with grass and brier and was sparsely lined with trees. The area had been re-forested approximately two years earlier.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. A Site Screening Process (SSP) field investigation was completed in 2002. The field investigation included a geophysical survey; temporary monitoring wells with groundwater samples analyzed for Target Analyte List (TAL) metals and explosives; subsurface soil samples analyzed for TAL metals and explosives; and test pits located based on the results of the geophysical survey.
  - d. The SSP Report was finalized in March 2003.
8. **Current Status:** A No Action Decision Document was signed in October 2004.

## **SITE 34 / SWMU 8 – TOOL BURIAL SITE**

### **(OLD MAP GRID E15) IRP Site 34 / Stump Neck Annex SWMU 8 Fact Sheet**

1. **Contamination:** Beryllium-copper alloy.
2. **Location:** Located approximately 60 to 70 feet into a wooded area southeast of Building D21C.
3. **From:** Two unlined burial pits, each measuring about 5 feet by 15 feet by 12 feet deep. The volume of tools in each pit is reported to be about 5 feet by 8 feet by 2 feet.
4. **When:** Used once in 1972 or 1973. Beryllium-copper alloy hand tools were disposed in the pits. These tools were discarded because they did not pass a magnetometer test and were considered unserviceable.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - b. A Site Screening Process (SSP) field investigation was completed in 2002. The field investigation included a geophysical survey; temporary monitoring wells with groundwater samples analyzed for beryllium and copper; subsurface soil samples analyzed beryllium, copper, and explosives; and test pits located based on the results of the geophysical survey.
  - c. The SSP Report was completed in March 2003.
8. **Current Status:** A No Action Decision Document was signed by the Navy and the EPA with concurrence from the MDE in June 2003.

**SITE 35 / SWMU 9 / UXO 12 – TORPEDO BURIAL SITE****(OLD MAP GRID E14, E15)****IRP Site 35 / Stump Neck Annex SWMU 9 / MRP Site UXO 12****Fact Sheet**

1. **Contamination:** Torpedoes and associated hardware, possibly containing fuses and parts which are not rendered safe.
2. **Location:** Located near Building 2075.
3. **From:** The unit is an unlined earthen pit. Inert objects disposed in this unit included discarded torpedo shells and associated hardware.
4. **When:** Used in the late 1940s and early 1950s and inactive since the early 1950s
5. **Generated By:** The waste was transported from a torpedo station near Washington, D.C.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During the visual site inspection the area appeared flat and was covered with green grass. The perimeter of the unit is wooded and an unnamed creek dissects the area.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. A Preliminary Assessment (PA) Report was completed in September 2005, recommending an investigation for MEC.
  - d. A Site Investigation (SI) Report was completed in September 2010.
8. **Current Status:** Currently designated as Munitions Response Program (MRP) Site UXO 012. A Remedial Investigation (RI) UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork began in May 2017 and the last phase was completed in summer 2018. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

## **SITE 36 / SWMU 10 – CLOSED LANDFILL**

### **(OLD MAP GRID H14, H15) IRP Site 36 / Stump Neck Annex SWMU 10 Fact Sheet**

1. **Contamination:** Inert metal casings, mines, bombs, and torpedoes.
2. **Location:** Near Building 2010; west of Roach Road adjacent to Chickamuxen Creek.
3. **From:** Objects disposed in the landfill included metal casings, mines, bombs, and torpedoes, which reportedly were inert and contained no explosives or chemicals when buried.
4. **When:** Used from 1972 to 1974; inactive since 1974.
5. **Generated By:** Unknown.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The Initial Assessment Study describes a landfill that consists of two distinct adjacent areas. The unit is an unlined, earthen area, approximately 1 to 2 acres in size, and is covered with grass and other low vegetation. The unit is contiguous with a wetland area and is rimmed by sparse woods.
  - b. During the visual site inspection, tall grass covered the area, and the soil was dark with a low brier ground cover.
  - c. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - d. A Site Screening Process (SSP) field investigation was completed in 2002. According to the work plan, the field investigation was limited to a geophysical survey.
  - e. A Benthic Study was completed in November 2007.
  - f. The SSP Report was completed in May 2008. The report concluded that there were potential unacceptable risks to human health under a residential exposure scenario. The report recommended a Feasibility Study (FS) to evaluate alternatives that would address potential risks to human health and the environment.
  - g. The FS Report was completed in March 2010.
  - h. A Proposed Plan was finalized in April 2010, recommending removal of surface debris and Institutional Controls (ICs) along with long-term monitoring (LTM) at the site. A public meeting was held on April 15, 2010.
  - i. The Record of Decision (ROD) was signed in September 2011.
  - j. A landfill maintenance work plan addendum (for debris removal) was completed in October 2013. An Explosive Safety Submission (ESS) for the debris removal was submitted to Naval

Ordnance Safety and Security Activity (NOSSA). Debris removal fieldwork was completed in April 2014. A Remedial Action Completion Report (RACR) was finalized in September 2014.

8. **Current Status:** Site 36 is in the LTM phase currently on a semiannual sampling frequency which began in 2014. Groundwater and pore water samples are analyzed in accordance with *Maryland Solid Waste Tables 1 and 2*. The landfill cover/conditions and ICs are inspected during each LTM sampling event.

## SITE 37 / SWMU 24 – CAUSEWAY

### (OLD MAP GRID E13) IRP Site 37 / Stump Neck Annex SWMU 24 Fact Sheet

1. **Contamination:** Causeway fill, which is primarily rubble partly composed of old torpedo casings.
2. **Location:** The access road to the ranges at Stump Neck crosses a narrow neck of land. The causeway is directly adjacent to the Potomac River.
3. **From:** The narrow neck of land has been built up with fill material.
4. **When:** Unknown.
5. **Generated By:** Shore stabilization.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. Observation of the area indicated the presence of a raised land area and use of concrete blocks and rock to protect the Potomac River side of the roadway from erosion for a distance of 300 to 400 feet. Along the river's edge, there was a small beach which was rimmed with rip-rap wrapped in wire mesh. During the visual site inspection, the unit appeared relatively flat and grassy.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. A Site Screening Process (SSP) field investigation was completed in 2002. The field investigation included the installation of temporary monitoring wells with groundwater, soil, sediment, and surface water samples analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs); Target Analyte List (TAL) metals; and explosives.
  - d. The SSP Report was completed in March 2003, recommending a Remedial Investigation (RI).
  - e. During scoping of the RI for Site 37, the team identified the need for further SSP investigation prior to entering the RI phase, because no waste was encountered during the 2002 SSP effort.
  - f. The additional (i.e., Phase 2) SSP fieldwork was conducted in June 2011. No waste was encountered in eight soil borings and two test trenches. The Phase 2 SSP Report was finalized in October 2011. The report recommended no action, because no waste was used to build up the Causeway. Therefore, no CERCLA response is necessary.
8. **Current Status:** A No Action Decision Document was signed in November 2011.

**SITE 38 / SWMU 1 – RUM POINT LANDFILL**

**(OLD MAP GRID U7)  
IRP Site 38 / Stump Neck Annex SWMU 1  
Fact Sheet**

1. **Contamination:** Various unknown containers and metals in addition to ash from a thermal treatment tank.
2. **Location:** West of Rum Point Road.
3. **From:** The unit is an unlined landfill that is approximately 1.5 to 2 acres in size.
4. **When:** Until December 1989.
5. **Generated By:** Ash from a thermal treatment tank, located on Range 3 Burn Point, was reportedly disposed here one time.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. The IAS report indicated disposal of several metal objects, including garbage cans and drums.
  - b. As required by the Naval Explosive Ordnance Disposal Technology Center (NEODTC) RCRA Corrective Action Permit, an RCRA Facility Investigation (RFI) / Verification Investigation (VI) Report was completed (draft) in January 1998. That document recommended that a no further action (NFA) decision be considered for this site.
  - c. A Site Screening Process (SSP) effort and report were completed in June 2008. The report concluded that there were potential unacceptable risks to human health under a residential exposure scenario. A Feasibility Study (FS) was recommended to evaluate alternatives that would address potential risks to human health and the environment.
  - d. Pre-FS waste delineation efforts were conducted in 2010. The Draft FS was submitted in January 2011.
  - e. A Draft Proposed Plan was submitted in January 2011, recommending a cap-in-place remedy. A Draft Record of Decision (ROD) was submitted in June 2011.
  - f. To help with the cover system design and/or to evaluate a potential dig and haul alternative, additional trenching activities to determine the thickness of waste on the site boundaries were conducted in June 2011. Material Potentially Presenting an Explosive Hazard (MPPEH) items were encountered, stopping the field activity.
  - g. Following approval of an Explosive Safety Submission (ESS) by Naval Ordnance Safety and Security Activity (NOSSA), additional test pits were installed in May 2012 using unexploded ordnance (UXO) safety protocols. No munitions and explosives of concern (MEC) items were found during test pitting activities.



- h. The FS Report was finalized in June 2013. The 2011 and 2012 test pitting results indicated significantly less volume of buried waste than was assumed in the Draft FS Report. The Final FS Report included detailed development of a dig and haul alternative for buried waste and contaminated soil, followed by a groundwater evaluation (i.e., groundwater long-term monitoring [LTM]).
  - i. The Final Proposed Plan was completed in July 2013. The Preferred Remedy is excavation and offsite disposal of buried waste and impacted soils, land use controls (LUCs), and groundwater long-term monitoring (LTM) to evaluate changes in manganese concentrations. A public meeting was held on August 21, 2013. The Final Record of Decision (ROD) was signed in June 2014.
  - j. RA fieldwork began in October 2015 and was completed in September 2017. A Remedial Action Closeout Report (RACR) was signed in September 2017. A UFP-SAP Work Plan for groundwater monitoring was finalized in 2018.
8. **Current Status:** The site is currently in the LTM phase and a post-RA groundwater investigation started in summer 2018. The outcome of the groundwater evaluation with three sampling rounds will dictate groundwater remedial requirements, if any.

**SITE 58 / SWMU 2 – RANGE 3 BURN POINT****IRP Site 58 / Stump Neck Annex SWMU 2  
Fact Sheet**

1. **Contamination:** Unknown explosives, waste ash, and petroleum.
2. **Location:** Bank of Chicamuxen Creek. This unit is located downhill and slightly southwest of the Pink Water Treatment Tank (SWMU 13). The Range 3 Burn Point is located within the 100-year flood plain.
3. **From:** The unit is used for burning or thermal treatment of explosive wastes, explosive-contaminated materials, and carbon.
4. **When:** Currently in use.
5. **Generated By:** The Range 3 Burn Point is used to periodically burn or thermally treat explosive wastes generated at the facility and is a RCRA-regulated unit. The wastes are burned either directly on bare soil using gasoline as an ignition source or in a Thermal Treatment Tank (SWMU 16) that rests on bare soil approximately 15 to 30 feet from the Creek's edge. This area also contains a metal container used to test small blasting caps (squibs).
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During the visual site inspection, burned scraps were observed in the container, and charred debris was observed on the soil in the immediate vicinity of the Thermal Treatment Tank. A paint solvent or paint odor was detected close to the creek, approximately 15 feet from the Thermal Treatment Tank.
  - b. As required by the Naval Explosive Ordnance Disposal Technology Center (NEODTC) RCRA Corrective Action Permit, a RCRA Facility Investigation (RFI) / Verification Investigation (VI) Report was completed (draft) in January 1998. That document recommended that a no further action (NFA) decision be considered for this site.
8. **Current Status:** Currently designated as an active range and will not be addressed under the Installation Restoration Program (IRP).

## **SITE 59 / SWMU 3 – CHICAMUXEN CREEK'S EDGE DUMP SITE A**

### **IRP Site 59 / Stump Neck Annex SWMU 3 Fact Sheet**

1. **Contamination:** Unknown.
2. **Location:** This unit is located directly under the Range 3 Burn Point (SWMU 2). Exactly what was dumped in this unit is not known. There are indications that the earthen area which comprises this unit and the Range 3 Burn Point (SWMU 2) are man-made fill areas. The unit is located adjacent to Chicamuxen Creek within the 100-year flood plain. The unit is surrounded on three sides by a rip-rap berm covered with wire mesh.
3. **From:** Potential contamination associated with filling operations.
4. **When:** Unknown.
5. **Generated By:** Unknown.
6. **Amount:** The unit is approximately 2 acres in size and is covered with bare soil.
7. **Work Completed:** As required by the Naval Explosive Ordnance Disposal Technology Center (NEODTC) RCRA Corrective Action Permit, a RCRA Facility Investigation (RFI) / Verification Investigation (VI) Report was completed (draft) in January 1998. That document recommended that a no further action (NFA) decision be considered for this site.
8. **Current Status:** Currently designated as an active range and will not be addressed under the Installation Restoration Program (IRP).

**SITE 60 / SWMU 4 – CHICAMUXEN CREEK'S EDGE DUMP SITE B****IRP Site 60 / Stump Neck Annex SWMU 4  
Fact Sheet**

1. **Contamination:** This unit was used as a dump site but facility representatives were uncertain of the exact nature of materials disposed.
2. **Location:** Immediate vicinity of the Old Demolition Range (SWMU 23).
3. **From:** This unit is an unconfined earthen area located adjacent to Chicamuxen Creek.
4. **When:** Unknown.
5. **Generated By:** Unknown.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. No release controls associated with this unit. During the Visual Site Inspection (VSI), the unit was covered with grass, and a sparse stand of trees separated the area from the water's edge.
  - b. As required by the Naval Explosive Ordnance Disposal Technology Center (NEODTC) RCRA Corrective Action Permit, a RCRA Facility Investigation (RFI) / Verification Investigation (VI) Report was completed (draft) in January 1998.
8. **Current Status:** Designated as part of Site 31 – Old Demolition Range (UXO 007), which was investigated under the Preliminary Assessment (PA) in 2005. Since this site is collocated with an active range (Hypervelocity Gun), it is ineligible for further action under CERCLA. A No Action Decision Document was signed in October 2005.

## **SITE 61 / SWMU 5 – RANGE 6**

### **IRP Site 61 / Stump Neck Annex SWMU 5 Fact Sheet**

1. **Contamination:** Explosives. The area was used as a demolition range. The site consists of five ranges that were used for open detonation training. Small amounts (less than 2 to 3 pounds) of explosives were used. Unexploded ordnance was open-detonated in place.
2. **Location:** Range 6 is located at the end of Archer Avenue, on a point of land extending into the Potomac River and Chicamuxen Creek. This unit is located within the 100-year flood plain.
3. **From:** Wastes that were managed in this unit include small quantities of shrapnel and casings from detonation of explosives.
4. **When:** This unit has been phased out since the Explosive Ordnance Disposal (EOD) school relocated to Florida during early 1998.
5. **Generated By:** EOD school training.
6. **Amount:** This unit was used on a weekly basis, depending on the number of recruits at any given time.
7. **Work Completed:**
  - a. A Verification Investigation (VI) was completed in June 1996. The VI Report recommended additional field investigation.
  - b. As required by the Naval Explosive Ordnance Disposal Technology Center (NEODTC) RCRA Corrective Action Permit, a RCRA Facility Investigation (RFI) / Verification Investigation (VI) Report was completed in draft in January 1998. That document recommended consideration for implementing a feasibility study or land use restrictions.
8. **Current Status:** Currently designated as an active range and will not be addressed under the Installation Restoration Program (IRP).

## SITE 62 / SWMU 6 / UXO 1 – AIR BLAST POND

(OLD MAP GRID F15)

### IRP Site 62 / Stump Neck Annex SWMU 6 / MRP Site UXO 1 Fact Sheet

1. **Contamination:** Explosives include Pentolite, HBX1, HBX2, H6, and C4 Propellant (similar to lead azide).
2. **Location:** Adjacent to Chicamuxen Creek near industrial outfall IW 32.
3. **From:** Explosives testing.
4. **When:** Used by the facility from 1955 to 1975; has not been in service for 15 to 20 years.
5. **Generated By:** The unit consists of an unlined earthen pit, measuring approximately 100 feet in diameter, with a capacity of 1.3 million gallons. During operation, explosives were detonated above water and in water during testing. The pit was filled with water from Chicamuxen Creek through a steel, 14-inch-diameter pipe at a rate of 1,300 gallons per minute. Wire was strung across the pit to measure the concussion factor of explosives above water. The water in the pond was periodically discharged into Chicamuxen Creek through the same pipe (IW 32). The pond was emptied two to three times per year. The unit is located in a wooded area of the facility.
6. **Amount:** According to an interview of a former facility employee conducted by the Naval Explosive Ordnance Disposal Technology Center, a maximum of 8 pounds of explosives were used per detonation event (shot). During the unit's period of operations, three to four shots were conducted per day, with an estimated total of 1,500 shots over the unit's active life.
7. **Work Completed:**
  - a. As required by the Naval Explosive Ordnance Disposal Technology Center (NEODTC) RCRA Corrective Action Permit, a RCRA Facility Investigation (RFI) / Verification Investigation (VI) Report was completed (draft) in January 1998. That document recommended consideration of no action for this site.
  - b. A Preliminary Assessment (PA) Report was completed in September 2005, recommending a Site Inspection (SI) for munitions and explosives of concern (MEC).
  - c. An SI Report was completed in September 2010, recommending a Remedial Investigation (RI) for munitions and explosives of concern (MEC) and no action for munitions constituents (MC).
8. **Current Status:** Currently designated as Munitions Response Program (MRP) Site UXO 001. A Remedial Investigation (RI) UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork began in May 2017 and the last phase was completed in summer 2018. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

**SITE 63 / SWMU 25 / UXO 2 – AREA 8****IRP Site 63 / Stump Neck Annex SWMU 25 / MRP Site UXO 2  
Fact Sheet**

1. **Contamination:** Area 8 was an active facility used to train military personnel to defuse explosive devices. Explosives were detected in sediment samples collected at Area 8.
2. **Location:** Located on Roach Road. Access to the site is controlled by a fence and a gate located on Archer Avenue. Area 8 is approximately 9.6 acres in size.
3. **From:** At the water-shot locations, the explosive was placed 2 to 5 feet below the water surface. At the air-shot locations, the explosive was suspended (on wire) approximately 2 feet above ground. The types of ordnance used included TNT stock, PETN, military dynamite, blasting caps, detonation cord, and similar devices.
4. **When:** EOD School relocated in 1998.
5. **Generated By:** EOD School training.
6. **Amount:** Training exercises at Area 8 were performed 10 months a year. It is estimated that approximately 50 to 75 pounds (net explosive weight) of explosives were used at this training facility each year. No more than 0.5 pound of explosives were used at the air- or water-shot locations during training exercises.
7. **Work Completed:**
  - a. A Verification Investigation (VI) was completed in January 1996. The report recommended no further remedial action for the site, because contaminants detected at the site are unlikely to pose a risk to human health and the environment based on a future industrial land use scenario.
  - b. A Preliminary Assessment (PA) Report was completed in September 2005, recommending a Site Inspection (SI) for MEC.
  - c. An SI Report was completed in September 2010, recommending a Remedial Investigation (RI) for munitions and explosives of concern (MEC) and no further action (NFA) for munitions constituents (MC).
8. **Current Status:** Currently designated as Munitions Response Program (MRP) Site UXO 002. A Remedial Investigation (RI) UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork was completed in August 2017. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

**SITE 64 / SWMU 26 / UXO 4 – IMPROVISED EXPLOSIVE DEVICES (IED) SITE****IRP Site 64 / Stump Neck Annex SWMU 26 / MRP Site UXO 4  
Fact Sheet**

1. **Contamination:** Training operations were performed at this site to demonstrate that household and other easily obtained chemicals could be used to make IEDs. During these operations, small amounts of residual waste were discarded on the ground. These waste chemicals included small amounts of silver nitrate.
2. **Location:** Near Building 2118.
3. **From:** Residual waste discarded on the ground.
4. **When:** Since November 1957, the IED has been used to test and demonstrate the explosive potential of chemical mixtures.
5. **Generated By:** Training demonstrations.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A verification investigation was completed in January 1996. The report recommended no further remedial action for the site, because contaminants detected at the site are unlikely to pose a risk to human health and the environment based on a future industrial land use scenario.
  - b. A Preliminary Assessment (PA) Report was completed in September 2005, recommending a Site Inspection (SI) for munitions and explosives of concern (MEC).
  - c. An SI Report was completed in September 2010, recommending a Remedial Investigation (RI) for munitions and explosives of concern (MEC) and no further action (NFA) for munitions constituents (MC).
8. **Current Status:** Currently designated as a closed range and included in the Munitions Response Program (MRP) as Site UXO 004. A Remedial Investigation (RI) UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork began in May 2017 and the last phase was completed in summer 2018. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.



## SITE 65 / SWMU 27 / UXO 5 – INERT ORDNANCE DISPOSAL (IOD) SITE

### IRP Site 65 / Stump Neck Annex SWMU 27 / MRP Site UXO 5 Fact Sheet

1. **Contamination:** This site consists of a cement bunker where inert ordnance and inert training aids were discarded.
2. **Location:** South of Building 2074SN.
3. **From:** Historical activities at the IOD are not well documented, but the site was apparently used for disposal of inert ordnance.
4. **When:** The initial date when the scrap metal was discarded is unknown.
5. **Generated By:** Based on current information, only inert metal scrap was placed in this bunker. A layer of cement was poured over the metal scrap.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A verification investigation was completed in January 1996. The report recommended no further remedial action for the site, because contaminants detected at the site are unlikely to pose a risk to human health and the environment based on a future industrial land use scenario.
  - b. A Preliminary Assessment Report was completed in September 2005, recommending a Site Inspection (SI) for MEC.
  - c. An SI Report was completed in September 2010, recommending a Remedial Investigation (RI) for munitions and explosives of concern (MEC) and no further action (NFA) for munitions constituents (MC).
8. **Current Status:** Currently designated as Munitions Response Program (MRP) Site UXO 005. A Remedial Investigation (RI) UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork began in May 2017 and the last phase was completed in summer 2018. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

## **SWMU 12 – WASTE OIL STORAGE SITE**

**(OLD MAP GRID D15)  
IRP AOC  
Stump Neck Annex SWMU 12  
Fact Sheet**

1. **Contamination:** Waste oil.
2. **Location:** Designated area of storage lot near Building 2019.
3. **From:** Waste oil is stored in 55-gallon drums on wooden pallets in an asphalt-covered area surrounded by a chain-link fence.
4. **When:** Since approximately 1985.
5. **Generated By:** The waste oil is generated by vehicle maintenance operations and employee self-help oil changes at NAVEODTEHCEN. The waste is periodically collected from the storage site by Property Disposal (located off-site at NSFIH) for off-site recycling or disposal.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that NFA is required to be taken in connection with this unit.

## SWMU 13 – PINK WATER TREATMENT TANK AND ASSOCIATED TRENCHES

### IRP AOC Stump Neck Annex SWMU 13 Fact Sheet

1. **Contamination:** TNT, RDX, and various other forms of explosives. Types of explosives treated at the unit have included Tolite, RDX, RDX/Octal, TNT, Comp B, TD-50, H-6, and Black Powder. Spent carbon contaminated with explosives (K045).
2. **Location:** Building 2057, northeast of the Range 3 Burn Point (SWMU 2).
3. **From:** "Pink water" (K047) that is contaminated with explosive residue. This contaminated water is collected and treated on site at the Pink Water Treatment Tank.
4. **When:** Used from April until October each year since the permit was granted on November 14, 1985.
5. **Generated By:** Pink water is generated at the facility by a process in which explosive residues are removed from various types of ordnance. The treatment unit is a RCRA-regulated unit. The explosive is removed by steaming the interior of the ordnance casing.

The contaminated water is collected and treated on site at the Pink Water Treatment Tank. As the pink water is generated during steaming, the water is collected in a concrete trench that directs the waste to a 1,500-gallon stainless-steel collection tank. The collection tank and additional treatment units are located in below-ground, concrete secondary containment structures. Treatment consists of filtering to remove solid explosive particles and activated carbon adsorption for removal of organic constituents. The carbon filters are assembled in two inline, 55-gallon drums. Following treatment, the water is discharged through a plastic pipe to NPDES outfall IW 49 on Chicamuxen Creek. The filter materials are periodically thermally treated at the Range 3 Burn Point (SWMU 2), and the spent carbon (K045) is shipped off site for disposal.

6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The facility was authorized to treat pink water from TNT operations under Controlled Hazardous Substances Facility Permit Number A-223a, issued by the MDE. The permit is dated November 14, 1985, authorizes the K047 waste to be treated by filtration and activated carbon adsorption. Filtration sludges (K045) are drummed and shipped off site for disposal. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that this unit should continue to be managed within the RCRA Closure process.

## SWMU 14 – PHOTOGRAPHIC LAB SEPTIC TANK SYSTEM

### IRP AOC Stump Neck Annex SWMU 14 Fact Sheet

1. **Contamination:** Possible dilute amounts of silver, sodium thiosulfate, and hydroquinone.
2. **Location:** Near Photographic Lab, Building 22SN and X-ray facility, Building 2009, below-ground tank and associated collection and discharge lines and drain field.
3. **From:** Discharge of spent fixer and developer from film development.
4. **When:** Unknown.
5. **Generated By:** In the past, this unit handled wastewater from the photographic lab, which may have contained dilute amounts of silver, sodium thiosulfate, and hydroquinone.

Waste fixers containing silver were drummed and transported off site for silver recovery. The unit handled sanitary wastewater only and was inspected weekly; in accordance with NPDES permit conditions sampling is conducted monthly.

The effluent is chlorinated and discharged to the Potomac River under NPDES permit MD0020885, which was issued in May 1988 and expired in April 1993. In addition, dilute photographic wastewater is discharged to the Potomac River via NPDES permit #NMOOO3158 (EPA) and #88-DP-2515 (MDE).

7. **Work Completed:**
  - a. After the visual site inspection, a new septic system was installed, eliminating surface discharge to the Potomac River.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by all Remedial Project Managers on April 23, 2002. The decision reached was that, due to lack of information available, the unit should be retained as an area of concern pending additional investigation.
  - d. A Site Screening Process (SSP) Investigation was started in April 2004. Sampling was completed in October 2005. A Draft SSP report was submitted in September 2006 which recommended further investigation for this site. An additional investigation was completed in July 2007 that identified cobalt in groundwater. The final SSP Report was submitted in June 2009 and recommended that the site proceed to a Remedial Investigation (RI).
  - e. The Final Remedial Investigation Work Plan was completed in June 2011, with initial RI field work being completed in October 2011. Results from the initial round of RI sampling did not fully delineate groundwater and surface soil contamination at the site, and an additional round of sampling was conducted in August 2012.
  - f. The RI Report was finalized in April 2014. A Pilot Study Work Plan to evaluate options for treatment of cobalt in groundwater was finalized in March 2015. Pilot Study fieldwork which

included injection of organic substrate and sulfate was completed in October 2015. Monthly short-term performance monitoring of groundwater continued through July 2016. Results were evaluated in a Pilot Study Tech Memo, which was finalized in February 2018.

8. **Current Status:** The FS was finalized in February 2019. A Draft Proposed Plan was submitted in October 2018 and is currently under regulatory review. A Public Meeting is planned for October 2019.

**SWMU 15 – SPENT PHOTOGRAPHIC SOLUTION STORAGE**

**(OLD MAP GRID G11)  
IRP AOC  
Stump Neck Annex SWMU 15  
Fact Sheet**

1. **Contamination:** Silver, sodium thiosulfate, and hydroquinone.
2. **Location:** Photographic Laboratory, Building 22SN.
3. **From:** The visual site inspection (VSI) team observed a drum containing spent photographic solution staged outside the building.
4. **When:** At the time of the VSI in 1989.
5. **Generated By:** Spent photographic solution is collected and stored at the Photographic Laboratory, Building 22SN. The spent photographic solution is stored in a 50-gallon polyethylene tank prior to shipment off site for silver recovery.
6. **Amount:** One 55-gallon drum
7. **Work Completed:**
  - a. According to information provided by the facility after the VSI, the drums are normally staged indoors until they are transferred off site. The drum observed during the VSI was prematurely moved outside for shipment.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

## **SWMU 16 – THERMAL TREATMENT TANK**

### **IRP AOC Stump Neck Annex SWMU 16 Fact Sheet**

1. **Contamination:** The Thermal Treatment Tank is used for burning explosives and explosive-contaminated items.
2. **Location:** Range 3 Burn Point (SWMU 2). Ash was observed on bare soil immediately beneath and around the unit.
3. **From:** The Thermal Treatment Tank is an open-top, steel tank used for burning explosives and explosive-contaminated items. The tank is approximately 5 feet tall by 3 feet wide.
4. **When:** Currently active.
5. **Generated By:** Ash from the Thermal Treatment Tank was disposed one time in the Rum Point Landfill (SWMU 1). The ash is being tested for TCLP Toxicity. If hazardous, the ash is manifested as a hazardous waste. Otherwise, it is disposed in an off-site sanitary landfill.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During the visual site inspection, the tank was located on bare soil approximately 15 to 30 feet from Chicamuxen Creek's edge.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002. The decision reached was this unit would be investigated as part of the Remedial Investigation (RI) for Site 58.
8. **Current Status:** Currently designated as an active range and will not be addressed under the Installation Restoration Program (IRP).

**SWMU 17 – BUILDING 2015 – CHEMISTRY LAB ACCUMULATION AREA**

**(OLD MAP GRID S9)  
IRP AOC  
Stump Neck Annex SWMU 17  
Fact Sheet**

1. **Contamination:** Waste enamel, epoxy compound, capicure EH-30, and a resinous chlorinated paraffin (chlorowax 40).
2. **Location:** This unit is located inside Building 2015.
3. **From:** The unit consists of a metal-covered workbench used to store approximately 25 small metal and glass containers of spent chemicals. The containers are labeled and contained in zip-lock plastic bags.
4. **When:** The waste, which was observed during the visual site inspection (VSI), had been stored here since the chemistry lab began operations approximately 20 years ago.
5. **Generated By:** Unknown.
6. **Amount:** Small containers of unknown volume
7. **Work Completed:**
  - a. In addition to a VSI according to facility representatives, prior to disposal off-site, the containers were placed in over-pack drums and transferred to the Main Area.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.



## **SWMU 18 – WASTE PILE**

### **(OLD MAP GRID F14) IRP AOC Stump Neck Annex SWMU 18 Fact Sheet**

1. **Contamination:** Unknown.
2. **Location:** This unit is adjacent to the Air Blast Pond (SWMU 6). Facility representatives indicated that this area was originally identified in an aerial photo, which showed a mounded area.
3. **From:** Facility representatives indicated that the mounding seen in an aerial photo may have been excavated material from construction of the Air Blast Pond (SWMU 6).
4. **When:** Unknown.
5. **Generated By:** Construction excavation.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During the visual site inspection, the unit consisted of a flat, earthen area that was covered with grass. The unit is separated from the Air Blast Pond by a densely wooded area.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

**SWMU 19 – DISPOSAL AREA NO. 1**

**(OLD MAP GRID YY21)  
IRP AOC  
Stump Neck Annex SWMU 19  
Fact Sheet**

1. **Contamination:** Inert material.
2. **Location:** During the visual site inspection the area was observed to slope downhill from the northwest. A bunker, which functions as an office, occupies a portion of the area. The remaining portion consists of a leveled grassy area rimmed with sparse woods on the eastern side. The woods separate the unit from Chicamuxen Creek (south of Building 2063SN)
3. **From:** This is an unlined earthen area that was later used for various types of training.
4. **When:** Unknown.
5. **Generated By:** Unknown.
6. **Amount:** The unit's size was estimated to be approximately 1.5 acres.
7. **Work Completed:**
  - a. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - b. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
8. **Current Status:** This site was moved to the Munitions Response Program and will be investigated with Site 64 – Improvised Explosive Devices (MRP Site UXO 004). See fact sheet for Stump Neck Annex Site 64 / SWMU 26 / UXO 4.

## **SWMU 20 – DISPOSAL AREA NO. 2**

**(OLD MAP GRID D14)  
IRP AOC  
Stump Neck Annex SWMU 20  
Fact Sheet**

1. **Contamination:** Unknown.
2. **Location:** This is a relatively flat earthen area that is bounded on the north by the Potomac River. It is located west of Building 2012SN.
3. **From:** Facility representatives could not provide information about the composition of the inert material disposed here.
4. **When:** Unknown.
5. **Generated By:** Unknown.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. During the visual site inspection, the area was covered with grass and is currently used as a skeet and trap shooting area.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
  - d. The final Preliminary Assessment Report was completed in September 2005.
8. **Current Status:** The decision reached during the desktop audit was that this unit will be investigated as part of SWMU 28 – Old Skeet and Trap Range (MRP Site UXO 015). See fact sheet for SWMU 28 / UXO 15.

## **SWMU 21 – DRUM STORAGE AREA**

**(OLD MAP GRID YY21)  
IRP AOC  
Stump Neck Annex SWMU 21  
Fact Sheet**

1. **Contamination:** Unknown.
2. **Location:** This unit is a relatively flat earthen area where several drums of unknown materials and origin were stored on a short-term basis. (West of Building 2012SN)
3. **From:** The drums were noted in an aerial photo, and facility representatives could provide no further information.
4. **When:** Unknown.
5. **Generated By:** Unknown.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. At the time of the visual site inspection, no drums were being stored here.
  - b. The 1990 EPA RCRA Corrective Action Permit stated that no further action (NFA) was necessary at the time.
  - c. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002.
8. **Current Status:** The decision reached during the desktop audit was that no action is required to be taken in connection with this unit.

## **SWMU 28 / UXO 15 – OLD SKEET AND TRAP RANGE**

### **IRP AOC Stump Neck Annex SWMU 28 / MRP Site UXO 15 Fact Sheet**

1. **Contamination:** This area lies on what was originally identified as SWMU 20, Disposal Area 2, in the RCRA corrective action permit. The permit states that, "During the visual site inspection, the area was covered with grass and is currently used as a skeet and trap shooting area." In addition, the permit states, "EPA has determined that no further action (NFA) is necessary at this time." However, since the draft RFA was written, use of the skeet range has been discontinued. The skeet range was used mainly for recreational purposes. Clay pigeons were used as targets. Therefore, lead shots remain on the ground at the skeet range and in the Potomac River.
2. **Location:** West of Building 2012SN.
3. **From:** Unknown.
4. **When:** Operations began more than 25 years ago and ended in June 1991. The range is currently inactive.
5. **Generated By:** Unknown.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002. The decision reached was that the unit should be subjected to the site screening process.
  - b. A final Preliminary Assessment (PA) Report was completed in September 2005.
  - c. The site was designated as Munitions Response Program (MRP) Site UXO 015.
  - d. A Site Investigation (SI) Report was finalized for the site in September 2010. The report recommended a Phase 2 SI to fill data gaps.
  - e. A Work Plan for the Phase 2 SI was completed in June 2011. The Phase 2 SI field work was completed in October 2011.
  - f. The Phase 2 SI Report was finalized in May 2012. Additional groundwater investigation was recommended for UXO 015.
  - g. The Engineering Evaluation and Cost Analysis (EE/CA) for a soil non-time-critical removal action (NTCRA) was finalized in June 2012. The Revised Final EE/CA was submitted in March 2017. The Final Action Memo to support an IRA (soil removal) was signed in July 2017.
8. **Current Status:** An IRA Work Plan was finalized in July 2018. Soil removal action work began in August 2018. Due to discovery of munitions items, a Draft Explosive Safety Submission was submitted in August 2019 and is currently under review.

## SWMU 29 / UXO 17 – SMALL ARMS RANGE (PISTOL RANGE)

(OLD MAP GRID V7)

IRP AOC

Stump Neck Annex SWMU 29 / MRP Site UXO 17

Fact Sheet

1. **Contamination:** The facility Security Department used this site for training for approximately 7 years, ending in August 1991. Rounds were fired into the side of a hill. The side of the hill contains lead shots.
2. **Location:** Near Building 2070SN.
3. **From:** Unknown.
4. **When:** Approximately 7 years, ending in August 1991
5. **Generated By:** Unknown.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002. The decision reached was that, due to lack of information available, the unit should be retained as an area of concern pending additional investigation.
  - b. The final Preliminary Assessment (PA) Report was completed in September 2005.
  - c. The site was designated as Munitions Response Program (MRP) Site UXO 017.
  - d. A Site Investigation (SI) Report was finalized for the site in September 2010. The report recommended a Phase 2 SI to fill data gaps.
  - e. A Work Plan for the Phase 2 SI was completed in June 2011. The Phase 2 SI field work was completed in October 2011.
  - f. The Phase 2 SI Report was finalized in May 2012. No unacceptable risks were identified for groundwater at UXO 017. Therefore, no action is recommended for groundwater at UXO 017.
  - g. The Engineering Evaluation and Cost Analysis (EE/CA) for a soil non-time-critical removal action (NTCRA) was finalized in June 2012. A revised Final EE/CA was submitted in March 2017. A Final Action Memo to support an IRA (soil removal) was signed in July 2017.
8. **Current Status:** An IRA Work Plan was finalized in July 2018. Soil removal action work was completed in March 2019. A Construction Closeout Report and Decision Document were finalized in September 2019.

## **SWMU 30 – BUILDING 2015 DRY WELL**

### **IRP AOC Stump Neck Annex SWMU 30 Fact Sheet**

1. **Contamination:** This site consists of a dry well that is connected to a laboratory located in Building 2015.
2. **Location:** Industrial Wastewater Outfall 64 (IW 64), Building 2015.
3. **From:** Spent chemical reagents from the laboratory were discarded by pouring them down the drain. Currently, only wash water from a hand sink is discharged to the dry well.
4. **When:** Approximately 10 years.
5. **Generated By:** The overflow from the dry well enters permitted NPDES Outfall IW 64.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. This unit was included in the January 2002 Desktop Audit Decision Document, which was signed by the Navy and the EPA with concurrence from the MDE, on April 23, 2002. The decision reached was that, due to lack of information available, the unit should be retained as an area of concern pending additional investigation.
  - b. A Site Screening Process (SSP) Report was submitted in September 2006. The report recommended no action.
8. **Current Status:** A No Action Decision Document was signed in September 2006.

## UXO 14 – MARINE RIFLE RANGE

### MRP Site UXO 14 Fact Sheet

1. **Contamination:** Lead and other munitions constituents such as antimony, arsenic, copper, nickel, and lead styphnate/lead azide.
2. **Location:** South of Archer Avenue between the Causeway and Building 2195.
3. **From:** Small arms training.
4. **When:** 1911 to 1918.
5. **Generated By:** Practice range firing of small arms.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment (PA) Report was completed in September 2005.
  - b. The site was designated as MRP Site UXO 014.
  - b. A Site Investigation (SI) Report was finalized for the site in September 2010. The report recommended a Phase 2 SI to fill data gaps.
  - c. A Work Plan for the Phase 2 SI was completed in June 2011. The Phase 2 SI field work was completed in October 2011.
  - d. The Phase 2 SI Report was finalized in May 2012. No unacceptable risks were identified for groundwater at UXO 014. Therefore, no action is recommended for groundwater at UXO 014.
  - e. The Engineering Evaluation and Cost Analysis (EE/CA) for a soil non-time-critical removal action (NTCRA) was finalized in June 2012. A revised Final EE/CA was submitted in March 2017. A Final Action Memo to support an IRA (soil removal) was signed in July 2017.
8. **Current Status:** An IRA Work Plan was finalized in July 2018. Soil removal action work began in August 2018. Due to discovery of munitions items, a Draft Explosive Safety Submission was submitted in August 2019 and is currently under review.



## UXO 16 – RUM POINT SKEET RANGE

### MRP Site UXO 16 Fact Sheet

1. **Contamination:** Lead, antimony, arsenic, copper, zinc, and polycyclic aromatic hydrocarbons (PAHs).
2. **Location:** The northeast section of the Stump Neck Annex, directly north of Skeet Range Way.
3. **From:** Small arms (shotgun) firing.
4. **When:** 1991 to 2001.
5. **Generated By:** Recreational skeet range use by the Potomac River Gun Club.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment (PA) Report was completed in September 2005.
  - b. The site was designated as Munitions Response Program (MRP) Site UXO 016.
  - c. A Site Investigation (SI) Report was finalized for the site in September 2010. The report recommended a Phase 2 SI to fill data gaps.
  - d. A Work Plan for the Phase 2 SI was completed in June 2011. The Phase 2 SI field work was completed in October 2011.
  - e. The Phase 2 SI Report was finalized in May 2012. No unacceptable risks were identified for groundwater at UXO 016. Therefore, no action is recommended for groundwater at UXO 016.
  - f. The Engineering Evaluation and Cost Analysis (EE/CA) for a soil non-time-critical removal action (NTCRA) was finalized in June 2012. A revised Final EE/CA was submitted in March 2017. A Final Action Memo to support an IRA (soil removal) was signed in July 2017.
8. **Current Status:** An IRA Work Plan was finalized in July 2018. Soil removal action work was completed in March 2019. A Construction Closeout Report and Decision Document were finalized in September 2019.

## UXO 18 – BATTLE RANGE FIRING AREA

### MRP Site UXO 18 Fact Sheet

1. **Contamination:** Naval ordnance constituents- explosives and metals.
2. **Location:** The north-central section of Stump Neck Annex extending from the Potomac River to the north bluff along the shoreline of the Mattawoman Creek.
3. **From:** Testing of projectiles through battle range firing.
4. **When:** 1910 - unknown.
5. **Generated By:** Battle range firing using 3", 5", 8", 12", and 14" AP shells and high powered firing using pasteboard or similar targets. (Battle Range area is 340 acres in size; approximately 184 acres are overlapped by the Water Impact Area.)
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was designated as Munitions Response Site (MRP) Site UXO 018 and was included in the Water Area Munitions Study (WAMS) which was completed in February 2005.
  - b. A Site Inspection (SI) was completed in September 2010 and recommended no action for munitions and explosives of concern (MEC) and munitions constituents (MC).
8. **Current Status:** Although the SI recommended no action for the site, it recommended that the existing Danger Zone on the National Oceanic and Atmospheric Administration (NOAA) maps be expanded to include the potential impact area from UXO 033, updating the current site use, and restricting intrusive activities. This site may be investigated further in the future.

## UXO 21 – TEST AREA 1

### MRP Site UXO 21 Fact Sheet

1. **Contamination:** TNT and TNT breakdown products.
2. **Location:** Center of the Stump Neck Annex peninsula.
3. **From:** Experiments, testing, and training that utilized small charges.
4. **When:** 1950s to present.
5. **Generated By:** During the 1960s and 1970s, Advanced, Access, and Disablement (AA&D) trainings (such as booby traps and wires); in the 1980s, IED and IND training. Training items were inert but small charges of TNT were set off for total consumption.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) Report was completed in September 2005.
  - b. A Site Inspection (SI) was completed in September 2010, and recommended a Remedial Investigation (RI) for munitions and explosives of concern (MEC), but no action for munitions constituents (MC).
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 021. The RI UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork was completed in November 2017. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

## UXO 22 – TEST AREA 2

### UXO 22 Fact Sheet

1. **Contamination:** Constituents from ordnance testing/training.
2. **Location:** The southern central portion of Stump Neck Annex off an unnamed dirt road extending from the southern side of Old Range Road.
3. **From:** Non-explosive magnetic test range.
4. **When:** 1978 to present.
5. **Generated By:** The area is used as a non-explosive magnetic test range; no evidence confirming the use of explosives testing/training was discovered during the Preliminary Assessment (PA).
6. **Amount:** Unknown.
7. **Work Completed:** A Preliminary Assessment (PA) Report was completed in September 2005.
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 022. The IHIRT signed a Decision Document in February 2011 stating no action was necessary at this site.

## UXO 23 – TORPEDO CASING DISPOSAL AREA

### MRP Site UXO 23 Fact Sheet

1. **Contamination:** Metals and potential munitions constituents (MC) from residue remaining on the inside of torpedo casings.
2. **Location:** Center portion of the Stump Neck Annex north of Archer Avenue and partially within a designated wildlife area.
3. **From:** Disposal of torpedo casings.
4. **When:** 1950s.
5. **Generated By:** Disposal of torpedo casings that may have originated from training at the Explosive Ordnance Disposal (EOD) school or from use during WWII.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A Preliminary Assessment (PA) Report was completed in September 2005.
  - b. A Site Inspection (SI) was completed in September 2010, recommending a Remedial Investigation (RI) for munitions and explosives of concern (MEC), but no action for munitions constituents (MC).
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 023. The RI UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork began in May 2017 and the last phase was completed in summer 2018. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

## UXO 25 – ROACH ROAD RIFLE RANGE

### MRP Site UXO 25 Fact Sheet

1. **Contamination:** Lead.
2. **Location:** Central portion of Stump Neck Annex on the west side of Roach Road.
3. **From:** Small arms training.
4. **When:** 1963 to 1986.
5. **Generated By:** Small arms training with pistols and rifles.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment (PA) Report was completed in September 2005.
  - b. The site was designated as Munitions Response Program (MRP) Site UXO 025
  - c. A Site Investigation (SI) Report was finalized for the site in September 2010. The report recommended a Phase 2 SI to fill data gaps.
  - e. A Work Plan for the Phase 2 SI was completed in June 2011. The Phase 2 SI field work was completed in October 2011.
  - f. The Phase 2 SI Report was finalized in May 2012. Additional investigation was recommended for groundwater at UXO 025.
  - g. The Engineering Evaluation and Cost Analysis (EE/CA) for a soil non-time-critical removal action (NTCRA) was finalized in June 2012. A revised Final EE/CA was submitted in March 2017. A Final Action Memo to support an IRA (soil removal) was signed in July 2017.
8. **Current Status:** An IRA Work Plan was finalized in July 2018. The soil removal action construction was completed in March 2019. A Construction Closeout Report and Decision Document were finalized in September 2019.

## UXO 26 – THE VALLEY IMPACT AREA

### MRP Site UXO 26 Fact Sheet

1. **Contamination:** Potential munitions constituents including explosive D, black powder, TNT, magnesium, NH powder, CTNT, various propellants, and metals.
2. **Location:** The majority of the western portion of the Stump Neck Annex.
3. **From:** Used as an impact area from The Valley on Indian Head Main Installation.
4. **When:** 1891 to 1921.
5. **Generated By:** Firing of long-range projectiles from The Valley to the impact area.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment (PA) Report was completed in September 2005.
  - b. A Site Inspection (SI) was completed in September 2010, and recommended a Remedial Investigation (RI) for munitions and explosives of concern (MEC), but no action for munitions constituents (MC).
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 026. A UFP-SAP/Work Plan is expected to be submitted in fall 2019 for regulatory review.

## UXO 27 – SONAR TRAINING AREA

### MRP Site UXO 27 Fact Sheet

1. **Contamination:** TNT, explosives residuals, and metals.
2. **Location:** In the Potomac River along the north-central portion of Stump Neck Annex, north of Archer Ave. in the vicinity of Building 2174.
3. **From:** Underwater sonar training exercises.
4. **When:** 1980s to mid-1990s.
5. **Generated By:** Use of inert ordnance items (sea mines, torpedoes, and depth charges) for training. The site may also contain munitions associated with the Water Impact Area, which encompasses the Sonar Training Area.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was designated as Munitions Response Program (MRP) Site UXO 027. It was included in the Water Area Munitions Study (WAMS), which was completed in February 2005 and recommended a Site Inspection for munitions and explosives of concern (MEC), but no action for munitions constituents (MC).
  - b. A Site Inspection (SI) was completed in September 2010, and recommended institutional controls (ICs).
8. **Current Status:** The SI Report recommended that the existing Danger Zone on the National Oceanic and Atmospheric Administration (NOAA) maps be expanded to include the potential impact area from UXO 033, updating the current site use, and restricting intrusive activities. The site may be investigated further in the future.



## UXO 28 – EOD SCHOOL DEMO AREA

### MRP Site UXO 28 Fact Sheet

1. **Contamination:** Potential munitions constituents include metals, TNT, explosive residuals, and Tetryl.
2. **Location:** On the Stump Neck Annex, within the boundaries of the Marine Rifle Range and the Torpedo Burial Site.
3. **From:** Use as a demolition area.
4. **When:** 1944 to 1949.
5. **Generated By:** Explosive Ordnance Disposal (EOD) school use to detonate live explosives.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. A final Preliminary Assessment (PA) Report was completed in September 2005.
  - b. A Site Inspection (SI) was completed in September 2010, and recommended a Remedial Investigation (RI) for munitions and explosives of concern (MEC), but no action for munitions constituents (MC).
8. **Current Status:** The site was designated as Munitions Response Program (MRP) Site UXO 028. The RI UFP-SAP Work Plan and ESS were finalized in May 2017. RI fieldwork began in May 2017 and the last phase was completed in summer 2018. A Draft RI Report is expected to be submitted for regulatory review in fall 2018. Volume I-MEC of the Draft RI Report was submitted in December 2018. Volume II-MC was submitted in March 2019. Both are under regulatory review.

## UXO 31 – POPE'S CREEK

### MRP Site UXO 31 Fact Sheet

1. **Contamination:** Potential TNT.
2. **Location:** Southeast of Indian Head, off the installation, near Pope's Creek, Maryland. Lies approximately 1 to 2 miles north of the Potomac River Bridge and extends west from the eastern shoreline of the Potomac River.
3. **From:** Underwater testing of demolition charges and/or explosive material.
4. **When:** 1947.
5. **Generated By:** Underwater explosions of demolition charges and/or explosive material.
6. **Amount:** Unknown.
7. **Work Completed:**
  - a. The site was designated as Munitions Response Program (MRP) Site UXO 031 and was included in the Water Area Munitions Study (WAMS) which was completed in February 2005.
  - b. A Site Inspection (SI) was completed in September 2010, and recommended no action for munitions and explosives of concern (MEC) and munitions constituents (MC).
8. **Current Status:** The site was designated as MRP Site UXO 031. Although the SI recommended no action for the site, it recommended that the existing Danger Zone on the National Oceanic and Atmospheric Administration (NOAA) maps be expanded to include the potential impact area from UXO 033, updating the current site use, and restricting intrusive activities. UXO 031 may be investigated further in the future.

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### **3.0 SITE LOCATION SUMMARY**

The locations of all the sites and AOCs identified in the previous sections of this Site Management Plan are illustrated in Figures 3-1 and 3-2. Figure 3-1 shows the locations of the NSFIH Main Area sites and AOCs, while Figure 3-2 shows the locations of the NSFIH Stump Neck Annex sites and AOCs.

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## **4.0 SCHEDULES**

Table 4-1 provides the schedule for the investigation and reporting of all the sites and AOCs identified in the preceding sections of this Site Management Plan.

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**TABLE 1-1**  
**INSTALLATION RESTORATION PROGRAM SITES AND SWMUs**  
**MAIN AREA AND STUMP NECK ANNEX**  
**NSFIH, INDIAN HEAD, MARYLAND**  
**PAGE 1 OF 2**

IR Site ID	SWMU or AOC ID	MRP UXO ID	Name	Main Area (MA) / Stump Neck (SN)	Relative Risk	FFA Group	Status	Comments
<b>INSTALLATION RESTORATION (IR) SITES</b>								
1			Thorium Spill	MA	Low	SSA	NFA	
2			Waste Crank Case Oil Applied to Torrence Road	MA	Low	SSA	NFA	
3			Nitroglycerin Explosion, Nitration Building Area	MA	Low	SSA	NFA	
4			Lloyd Road Oil Spill Sites	MA	Low	SSA	NFA	
5			X-Ray Building 731	MA	Medium	SSA	NFA	
6			Building 1349, Hypo Spill	MA	High	RI/FS	NFA	IRA resulted in NFA ROD
7			Building 682, HMX Spill	MA	Medium	SSA	NFA	
8			Building 766, Mercury Deposits	MA	High	SSA	NFA	IRA resulted in NFA DD
9			Patterson Avenue, Oil Spill	MA	Low	SSA	NFA	
10		9	Single-base Propellant Grains Spill	MA	Low	SSA	RI/FS	Included in MRP
11			Caffee Road Landfill	MA	High	RI/FS	RC / LTM	
12			Town Gut Landfill	MA	High	RI/FS	RC / LTM	
13			Paint Solvents Disposal Ground	MA	High	RI/FS	NFA	
14			Waste Acid Disposal Pit	MA	High	SSA	NFA	IC's - Lab Area
15			Mercury Deposits in Manhole, Fluorine Lab	MA	High	RI/FS	NFA	IC's - Lab Area
16			Laboratory Chemical Disposal	MA	High	RI/FS	NFA	IC's - Lab Area
17			Disposed Metal Parts Along Shoreline	MA	High	RI/FS	RA-O	
18			Hog Island	MA	Low	SSA	NFA	
19			Catch Basins at Chip Collection Houses	MA	Low	SSA	NFA	IRA resulted in NFA DD
20			Single-base Powder Facilities	MA	Low	SSA	NFA	
21			Bronson Road Landfill	MA	High	RI/FS	RC / LTM	
22		6	NG Slums Burning Site	MA	Low	SSA	RI/FS	Included in MRP
23			Hydraulic Oil Spill Discharges From Extrusion Plant	MA	Low	SSA	NFA	
24			Abandoned Drain Lines	MA	Medium	SSA	NFA	
25			Hypo Discharge X-Ray Building No. 2	MA	High	RI/FS	NFA	
26			Thermal Destructor 2	MA	Low	SSA	NFA	
27			Thermal Destructor 1	MA	Low	SSA	NFA	IRA resulted in NFA DD
28		8	Original Burning Ground	MA	High Medium	SSA	RC/LTM	NFA for soil. ICs and LTM for GW
29		11	The Valley	MA	Low	SSA	RI/FS	Included in MRP
30	22	10	Stump Neck Impact Area	SN	NE	SSA	RI/FS	Included in MRP
31	23	7	Old Demolition Range	SN	NE	SSA	NFA	Active Range
32	11		Suspected Tool Burial Site	SN	NE	SSA	NFA	
33	7		Scrap Metal Pit	SN	NE	SSA	NFA	
34	8		Tool Burial Site	SN	NE	SSA	NFA	
35	9	12	Torpedo Burial Site	SN	NE	SSA	RI/FS	Included in MRP
36	10		Closed Landfill	SN	NE	SSA	RC / LTM	
37	24	3	Causeway	SN	NE	SSA	NFA	No evidence of waste
38	1		Rum Point Landfill	SN	Medium	SSA	RC/LTM	NFA for soil. ICs and LTM for GW
39			Silver Release to Sediments	MA	High	RI/FS	NFA	
40			Palladium Catalyst in Sediments	MA	Low	RI/FS	NFA	
41		32	Scrap Yard	MA	High	RI/FS	NFA	Included in MRP. ICs for soil. GW re-assigned as IR Site 70.
42			Olsen Road Landfill	MA	High	RI/FS	RC / LTM	
43			Toluene Disposal Site	MA	Low	RI/FS	RI/FS	
44			Soak Out Area	MA	Medium	RI/FS	NFA	
45			Abandoned Drums	MA	Medium	RI/FS	NFA	
46			Cadmium Sandblast Grit	MA	Low	RI/FS	NFA	
47			Mercuric Nitrate Disposal Area	MA	High	RI/FS	RA-O	
48			Nitroglycerin Plant Disposal Area	MA	Low	RI/FS	NFA	
49			Chemical Disposal Pit	MA	High	RI/FS	NFA	IC's - Lab Area
50			Building 103, Crawl Space	MA	High	RI/FS	NFA	IC's - Lab Area
51			Building 101, Dry Well	MA	NE		NFA	
52			Building 102, Dry Well	MA	NE		NFA	
53			Mercury Contamination of the Sewage System	MA	High	RI/FS	NFA	IC's - Lab Area
54			Building 101	MA	High	RI/FS	NFA	IC's - Lab Area
55			Building 102	MA	High	RI/FS	NFA	IC's - Lab Area
56			IW87 - Lead Contamination	MA	Low	RI/FS	NFA	
57			TCE Building 292 Area	MA	High	RI/FS	RA-O	
58	2		Range 3 Burn Point	SN	High	SSA	NFA	Active Range
59	3		Chicamuxen Creek's Edge Site A	SN	High	SSA	NFA	Active Range
60	4		Chicamuxen Creek's Edge Site B	SN	Medium	SSA	NFA	
61	5		Range 6	SN	Medium	SSA	NFA	Active Range
62	6	1	Air Blast Pond	SN	Medium	SSA	RI/FS	Included in MRP
63	25	2	Area 8	SN	Medium	SSA	RI/FS	Included in MRP
64	26	4	IED (+SN SWMU 19)	SN	Medium	SSA	RI/FS	Included in MRP

**TABLE 1-1**  
**INSTALLATION RESTORATION PROGRAM SITES AND SWMUs**  
**MAIN AREA AND STUMP NECK ANNEX**  
**NSFIH, INDIAN HEAD, MARYLAND**  
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IR Site ID	SWMU or AOC ID	MRP UXO ID	Name	Main Area (MA) / Stump Neck (SN)	Relative Risk	FFA Group	Status	Comments
65	27	5	IOD	SN	Medium	SSA	RI/FS	Included in MRP
66			Turkey Run Disposal Area	MA	Medium	SSA	RI/FS	
67			Hog-Out Facility	MA	Medium	RI/FS	RI/FS	
68			Former Building 259 Contamination	MA	Low	SSA	SSI	Formerly AOC 31
69			Building 1018 - Oxidizer Process Building	MA	Medium	SSA	RI/FS	
70			Groundwater Contamination Along Water Works Way	MA	Medium	RI/FS	RI/FS	
71			PFAS Area of Concern	MA/SN	NE	NA	SSI	
<b>AOCs / SWMUs</b>								
	6		Used Battery Accumulation Area (Bldg. 766)	MA	NE	AOC	NFA	
	12		Waste Oil Storage Site	SN	NE	AOC	NFA	
	13		Pink Water Treatment Tank	SN	NE	AOC	RCRA	
	14		Photographic Lab Septic Tank System	SN	NE	AOC	RI/FS	SWMU 14 now an IR Site
	15		Spent Photographic Solution Storage	SN	NE	AOC	NFA	
	16		Thermal Treatment Tank	SN	NE	AOC	NFA	Active Range
	17		Bldg. 2015 – Chem Lab Accumulation Area	SN	NE	AOC	NFA	
	18		Waste Pile	SN	NE	AOC	NFA	
	19	4	Disposal Area #1	SN	NE	AOC	RI/FS	Included in MRP with Site 64
	20	20	Safety Thermal Treatment Point	MA	Medium	AOC	RI/FS	Re-assigned as UXO 20
	20	15	Disposal Area #2	SN	NE	AOC	RI/FS	Investigate with Stump Neck SWMU 28, Included in MRP
	21		Caffee Road Decontamination Burn Point	MA	NE	AOC	LTM	Investigate with Site 11
	21		Drum Storage Area	SN	NE	AOC	NFA	
	27		Waste Oil Storage Area (Goddard Power Plant)	MA	Low	AOC	NFA	
	28	15	Old Skeet and Trap Range	SN	NE	AOC	IRA	Included in MRP
	29	17	Small Arms Range (Pistol Range)	SN	NE	AOC	NFA	Included in MRP
	30		Bldg. 2015 Dry Well	SN	NE	AOC	NFA	SWMU 30
	38		Caffee Road Waste Oil Storage Area	MA	Low	AOC	LTM	Investigate with Site 11
	69		Temp Accumulation Dumpster for Explosive Scrap	MA	Low	AOC	NFA	
	70		Temp Accum Areas for Drummed Explosive Scrap	MA	Low	AOC	NFA	
	72		Oil/Water Separators	MA	Low	AOC	NFA	
	74		Unlined Overland Drainage Ditches	MA	Low	AOC	NFA	
	4,5		Underground Storage Tanks (Bldg. 290 and 525)	MA	NE	AOC	NFA	
	40-46		Wastewater Collection/Treatment Tanks (Moser Plant)	MA	Low	AOC	NFA	
	47-51		Spent Acid Storage/Treatment Tanks (Moser Plant)	MA	Low	AOC	NFA	
	64-66		Waste Water Storage Tanks (Bldg. 1596)	MA	Low	AOC	NFA	
	AOC G		Sand Blasting Sand Storage Area	MA	Low	AOC	NFA	
	AOC H		Drum at Fuel Storage Area	MA	Low	AOC	NFA	
<b>ADDITIONAL MRP SITES</b>								
		13	FDR Skeet Range	MA	Low	NA	RI/FS	
		14	Marine Rifle Range	SN	Low	NA	IRA	
		16	Rum Point Skeet Range	SN	Low	NA	NFA	
		18	Battle Range Firing	SN	NE	NA	RI/FS	Water Area Munitions Site
		19	Igniter Area	MA	NE	NA	RI/FS	Water Area Munitions Site
		21	Test Area 1	SN	Low	NA	RI/FS	
		22	Test Area 2	SN	Low	NA	NFA	
		23	Torpedo Casing Disposal Area	SN	Low	NA	RI/FS	
		25	Roach Road Rifle Range	SN	Low	NA	NFA	
		26	The Valley Impact Area	SN	Medium	NA	RI/FS	
		27	Sonar Training Area	SN	NE	NA	RI/FS	Water Area Munitions Site
		28	EOD School Demo Area	SN	Medium	NA	RI/FS	
		29	Southwestern Pistol Range	MA	Low	NA	NFA	
		30	Gate 3 Burning Ground	MA	Medium	NA	RI/FS	
		31	Pope's Creek	--	NE	NA	RI/FS	Water Area Munitions Site
		33	Water Impact Area	MA	NE	NA	RI/FS	Water Area Munitions Site

AOC - Area of Concern  
IC - Institutional Control  
ID - Identification  
IR - Installation Restoration [Program]  
IRA - Interim Removal Action (or Removal Action)  
LTM - Long Term Monitoring  
MRP - Munitions Response Program  
NA - Not Applicable  
NE - Not Evaluated  
NFA - No Further Action

RA - Remedial Action  
RA-O - Remedial Action-Operation  
RC - Response Complete  
RCRA - Resource Conservation and Recovery Act  
RD - Remedial Design  
RI/FS - Remedial Investigation/Feasibility Study  
SSA - Site Screening Assessment  
SSI - Site Screening Investigation  
SSP - Site Screening Process  
SWMU - Solid Waste Management Unit

**TABLE 1-2**  
**SUMMARY OF DESKTOP AUDIT FOR AREAS OF CONCERN (AOCs)**  
**MAIN AREA**  
**NSFIH, INDIAN HEAD, MARYLAND**

AOC	NAME	DECISION
Main Area SWMUs 4 and 5	Underground Storage Tanks (Buildings 290/525)	No action required
Main Area SWMU 6	Used Battery Accumulation Area (Building 290)	No action required
Main Area SWMU 27	Waste Oil Storage Area (Goddard Power)	No action required
Main Area SWMU 38	Caffee Road Waste Oil Storage Area	Investigate with Site 11 Remedial Investigation
Main Area SWMUs 40-46	Wastewater Collection/Treatment Tanks	No action required
Main Area SWMUs 47-51	Spent Acid Storage/Treatment Tanks	No action required
Main Area SWMUs 64-66	Wastewater Storage Tanks (Building 1596)	No action required
Main Area SWMU 69	Temporary Dumpster for Explosive Scrap	No action required
Main Area SWMU 70	Temporary Areas for Drummed Explosive Scrap	No action required
Main Area SWMU 72	Oil/Water Separators	No action required
Main Area SWMU 74 <sup>(1)</sup>	Unlined Overland Drainage Ditches	Retain as an AOC pending further investigation
Main Area AOC G	Sand-Blasting Sand Storage Area	No action required
Main Area AOC H	Drum at Fuel Storage Area	No action required
Main Area SWMU 20 <sup>(2)</sup>	Safety Thermal Treatment Point	Conduct a Remedial Investigation
Main Area SWMU 21	Caffee Road Decontamination Burn Point	Investigate with Site 11 Remedial Investigation

**Notes**

AOC – Area of Concern

SWMU – Solid Waste Management Unit

1. After the initial desktop audit was finished, the Indian Head Installation Restoration Team (IHIRT) signed a concurrence letter for no further action at this AOC.
2. This SWMU has been moved to the Munitions Response Program (MRP).

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**TABLE 1-3**  
**SUMMARY OF DESKTOP AUDIT FOR AREAS OF CONCERN (AOCs)**  
**STUMP NECK ANNEX**  
**NSFIH, INDIAN HEAD, MARYLAND**

AOC	NAME	DECISION
Stump Neck SWMU 12	Waste Oil Storage Site	No action required
Stump Neck SWMU 13	Pink Water Treatment Tank	Manage under the RCRA program
Stump Neck SWMU 14 <sup>(1)</sup>	Photographic Lab Septic System	Retain as an AOC pending further investigation
Stump Neck SWMU 15	Spent Photographic Solution Storage	No action required
Stump Neck SWMU 16 <sup>(2)</sup>	Thermal Treatment Tank	Investigate with Site 58 Remedial Investigation
Stump Neck SWMU 17	Building 2015 – Chemical Lab Accumulation Area	No action required
Stump Neck SWMU 18	Waste Pile	No action required
Stump Neck SWMU 19 <sup>(3)</sup>	Disposal Area No. 1	Investigate with Site 64 Remedial Investigation
Stump Neck SWMU 20 <sup>(3)</sup>	Disposal Area No. 2	Investigate with Stump Neck SWMU 28
Stump Neck SWMU 21	Drum Storage Area	No action required
Stump Neck SWMU 28 <sup>(3)</sup>	Old Skeet and Trap Range	Investigate with the Site Screening Process
Stump Neck SWMU 29 <sup>(3)</sup>	Small Arms Range (Pistol Range)	Retain as an AOC pending further investigation
Stump Neck SWMU 30 <sup>(4)</sup>	Building 2015 Dry Well	Retain as an AOC pending further investigation

**Notes**

AOC – Area of Concern

SWMU – Solid Waste Management Unit

RCRA – Resource Conservation and Recovery Act

1. Currently undergoing a Remedial Investigation.
2. Designated as an active range and will not be addressed under the Installation Restoration (IR) program.
3. SWMUs that have been transferred to the Munitions Response Program (MRP).
4. No Further Action Required.

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TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
All Sites						
	Update Site Management Plan FY19-20 (Draft)		Jun-2019		Jun-2019	
	Update Site Management Plan FY19-20 (Final)	90	Aug-2019		Sep-2019	
	Fourth Five-Year Review (Pre-Draft)		Jun-2021			
	Fourth Five-Year Review (Draft)		Aug-2021			
	Fourth Five-Year Review (Final)		Aug-2022			Mission Cleanup milestone
	Sign Fourth Five-Year Review		Oct-2022			
	Update Master Project Plans (Draft)		TBD			Note: Current Master UFP-SAP was finalized in May 2009.
	Update Master Project Plans (Final)		TBD			
	Update Community Relations Plan (Draft)		TBD			
	Update Community Relations Plan (Final)	150	TBD			Last updated- May 2014
	Preliminary Closeout Report		Jan-2028	Dec-2030		Updated to reflect last site with a RACR in the year 2028. (May be different than EPA SEMS date.)
Site 11	OU 12 - Caffee Road Landfill					Major contaminants: potential metals in GW; Exit strategy: LTM; Last milestone: Final RACR-6/14; NORM RC Date: 5/30/12
	Long-Term Monitoring					
	Complete LTM Events		Sep-2020			Site undergoing semiannual LTM for groundwater
Site 12	OU 02 - Town Gut Landfill					Major contaminants: Metals in GW; Exit strategy: LTM; Last milestone: Completed sampling event #29 in 7/13; NORM RC Date: 1/6/04
	Long-Term Monitoring					
	Complete LTM Events		Sep-2020			Site undergoing LTM for groundwater and landfill inspections every 15 months
Sites (14, 15, 16, 49, 50, 53, 54, 55)	OU 9 - Lab Area					Major contaminants: Mercury in soil and sediment; Exit strategy: removal; Last milestone: Final RACR- 9/14; NORM RC Date: 6/16/14
	Five-Year Review (FY22)					ICs in place; site included in Five-Year Review
SWMU 14	OU 27 - Photographic Lab Septic Tank System					Major contaminants: Cobalt in GW; Probable exit strategy: TBD; Last milestone: RI Work Plan- 6/12; NORM RC Date: 9/9/32
	SWMU 14 Remedial Investigation/Feasibility Study					
	Complete Final FS	90	Nov-2018		Feb-2019	Delayed. On 11/5/18, RTC were submitted to EPA's Round 1 comments. Received round 2 comments from EPA. Sent RTC on 12/5/18 after discussions with the IHIRT during the partnering meeting on 11/28/18.
	Complete Proposed Plan					
	Complete Draft PP				Oct-2018	Note: Another draft version was submitted in Feb. 2019 for EPA legal counsel and MDE review.
	Complete Final PP	270	Jul-2019	Oct-2019		Mission Cleanup milestone
	Complete RoD					
	Complete Pre-Draft RoD		Aug-2019	Nov-2019		Delay due to reconciliation of EPA's comments on the Proposed Plan.
	Complete Draft RoD		Oct-2019	Jan-2020		
	Complete Final RoD	270	Jul-2020	Oct-2020		
	RoD Signed	60	Sep-2020	Dec-2020		May be delayed due to newly discovered PCBs in nearby manholes.
	Complete Remedial Design					
	Complete 35% RD		Sep-2020			
	Complete 100% RD	60	Nov-2020			
	Complete Final RD	90	Feb-2021			
	Complete Remedial Action					
	Award Remedial Action		Mar-2021			Award date based on availability of funding
	Complete Draft RA Work Plan	60	May-2021			
	Complete Final RA Work Plan	90	Aug-2021			
	Start Construction	30	Sep-2021			
	Complete Construction - RIP	60	Nov-2021			
	Complete Closeout Report	120	Mar-2022			
	Complete RACR					
	Complete Final RACR		Sep-2022			
	Sign RACR		Nov-2022			
	Complete LUC RD					
	Complete Final LUC RD		May-2020			
	Complete LTMP					
	Complete Final LTMP		May-2020			Start of actual monitoring depends on the completion of the remedial action
Site 17	OU 14 - Disposed Metal Parts Along Shoreline					Major contaminants: TCE in GW; Exit strategy: Soil mixing, LTM, MNA, Last milestone: Final Soil Mixing Completion Report- 6/13; NORM RC Date: 4/1/47
	Complete Remedial Action					
	Complete Draft Tech Memo (soil in South Plume)	120	Mar-2018		May-2018	Soil sampling in soil mixing area (South Plume)
	Complete Final Tech Memo (soil in SP)	30	Nov-2018		Nov-2018	
	Draft Year 6 (2018) Annual Monitoring Report		Dec-2018		Dec-2018	
	Final Year 6 (2018) Annual Monitoring Report		Jun-2019	Sep-2019		Delayed due to acceptance of RTCs.
	Complete 2019 annual monitoring fieldwork				Apr-2019	
	Draft Year 7 (2019) Annual Monitoring Report		Dec-2019			
	Final Year 7 (2019) Annual Monitoring Report		May-2020			
	Complete 2020 annual monitoring fieldwork		Apr-2020			
	Draft Year 8 (2020) Annual Monitoring Report		Dec-2020			
	Final Year 8 (2020) Annual Monitoring Report		May-2021			
	Complete North Plume Pilot Study Monitoring					"Grout-bombing" technology installed within North Plume to accelerate remedial timeframes for the high concentrations of TCE discovered within the relatively tight clay formation beneath the perched water-table, which has potential tidal influence from the Potomac River. The technology has an estimated remedial timeframe of 5-10 years of observable efficacy, however the achievement of SRG endpoints needs to be modelled after sufficient performance monitoring, analysis, and modelling have occurred.
	Complete Pre-Draft UFP-SAP		Oct-2019			Based on acceptance of PQOs during the June 2019 partnering meeting.
	Complete Draft UFP-SAP		Dec-2019			
	Complete Final UFP-SAP		Mar-2020			
	Complete fieldwork		Dec-2022			Consists of HRSC (2 sampling events), gas monitoring ( 2 sampling events), ZVI passivation/reactivity testing (2 events), and performance monitoring (3 years/ 6 events). Assumes fieldwork starts in April 2020.
	Pre-draft Tech Memo #1		Oct-2020			For HRSC and ZVI Passivation Test 1
	Draft Tech Memo #1		Dec-2020			
	Final Tech Memo #1		Mar-2020			
	Pre-draft Tech Memo #2		Apr-2021			For Performance Groundwater Sampling Event 1, and GCM Event 1
	Draft Tech Memo #2		Jun-2021			
	Final Tech Memo #2		Sep-2021			
	Pre-draft Tech Memo #3		Oct-2021			For Performance Groundwater Sampling Event 2, and RCGM Event 2
	Draft Tech Memo #3		Dec-2021			
	Final Tech Memo #3		Mar-2022			
	Pre-draft Tech Memo #4		Apr-2022			For Performance Groundwater Sampling Event 3, and ZVI Passivation Test 2
	Draft Tech Memo #4		Jun-2022			
	Final Tech Memo #4		Sep-2022			
	Pre-draft Tech Memo #5		Oct-2022			For Performance Groundwater Sampling Event 4 and Initial Performance Modeling Results
	Draft Tech Memo #5		Dec-2022			





**TABLE 4-1**  
**SCHEDULE (FY19-FY20)**  
**NSFIH, INDIAN HEAD, MARYLAND**



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	Final Tech Memo #5		Mar-2023			For Performance Groundwater Sampling Event 5, and evaluation of fit to model
	Pre-draft Tech Memo #6		Apr-2023			
	Draft Tech Memo #6		Jun-2023			For Performance Groundwater Sampling Event 6
	Final Tech Memo #6		Sep-2023			
	Pre-draft End-cap tech memo		Oct-2023			
	Draft End-cap tech memo		Dec-2023			
	Final End-cap tech memo		Mar-2024			
	<b>Complete Focused Feasibility Study (GW)</b>					New to schedule
	Complete Pre-Draft FS		May-2024			Planned to pre-draft once modeling has been performed and work in parallel to the finalization of the pilot test.
	Complete Draft FS	60	Jul-2024			FFS are limited in scope and review times are estimated to be substantially shorter than a "full" FS.
	Complete Final FS	60	Oct-2024			
	<b>Complete Revised Proposed Plan</b>					
	Complete Draft PP (revised)		Nov-2024			Date is based on assumption of completion of a new ESTCP demonstration (grout bomber) in north plume (1 yr post implementation), which is Dec 2018.
	Complete Final PP (revised)	60	Aug-2025			Dates revised to reflect the 9-month period of PP/ROD review required by EPA.
	<b>Complete RoD Amendment</b>					
	Complete Draft RoD Amendment	60	Sep-2025			Assumed that a RoD Amendment is needed based on fundamental changes to the selected remedy for groundwater in the north plume.
	Complete Final RoD Amendment	60	Jun-2025			Dates pushed due to Pilot Test completion, and reflect 9-mo review period. ROD amendment completion will not be done prior to the finalization of the 4th 5-Year Review.
	RoD Amendment Signed		Aug-2025			
	<b>Complete LTMP</b>					
	Complete Pre-Draft LTM UFP-SAP		Nov-2025			LTMP Plan schedule depends on implementation of new remedy in the North Plume, revised PRAP, and ROD amendment.
	Complete Draft LTM UFP-SAP		Jan-2026			
	Complete Final LTM UFP-SAP		Apr-2026			
	Complete Draft LTMP	60	Sep-2025			Depends on completion of the ESTCP demonstration, revised PP, ROD amendment, and implementation of a new remedy in the North Plume.
	Complete Final LTMP		Dec-2025			
	<b>Complete RACR</b>					
	Complete Final RACR (North Plume)		Oct-2025			Draft IRACR (South Plume) completed in June 2014
	Sign RACR		Dec-2025			Final RACR to be completed after north plume work and ROD Amendment are complete.
Site 21	<b>OU 15 - Bronson Road Landfill</b>					Major contaminants: potential metals in GW; Exit strategy: Capping, LTM; Last milestone: Final RACR- 6/14; NORM RC Date: 2/26/14
	<b>Long-Term Monitoring</b>					
	Complete LTM Events		Sep-2020			Site undergoing semiannual LTM for groundwater
Site 28	<b>OU 21 - Original Burning Ground</b>					Major contaminants: Zinc in soil & GW; Exit strategy: Removal & LTM; Last milestone: Final ROD- 6/14; NORM RC Date: 8/10/09
	<b>Long-Term Monitoring</b>					
	Pre-draft SAP		Dec-2018		Mar-2019	New LTM well installation in FY18 under ESS DR. MWs were installed in Dec 2017. To analyze the GW samples from the MW requires a Tier II SAP, which will be prepared following approved contract from the Navy.
	Draft SAP		Feb-2019		May-2019	Delayed by CH b/c of prioritization of other deliverables for Dec 2018.
	Final SAP		Jun-2019		Sep-2019	see note above
	Complete Fieldwork		May-2020			4 rounds of sampling (for one year Aug 2019, Nov 2019, Feb 2020, May 2020). Assumes sampling starts in August 2019.
	Tech Memo (Sampling event #1)		Jan-2020			Does not require IHIRT review; will be submitted for information only
	Tech Memo (Sampling event #2)		Apr-2020			Does not require IHIRT review; will be submitted for information only
	Tech Memo (Sampling event #3)		Jul-2020			Does not require IHIRT review; will be submitted for information only
	Draft Annual Report		Nov-2020			
	Final Annual Report		Feb-2021			
Site 36	<b>OU 22 - Closed Landfill</b>					Major contaminants: potential metals in GW; Exit strategy: LTM; Last milestone: Final RACR- 9/14; NORM RC Date: 6/16/14
	<b>Long-Term Monitoring</b>					
	Complete LTM Events		Sep-2020			Site undergoing semiannual LTM for groundwater
Site 38	<b>OU 24 - Rum Point Landfill</b>					Major contaminants: Mn in groundwater; Probable exit strategy: landfill excavation & LTM; Last milestone- Final RD- 7/14; NORM RC Date: 9/15/17
	<b>Long-Term Monitoring</b>					
	Complete Draft UFP-SAP		Nov-2017		Jul-2018	Three Post-Remedy groundwater investigation events required by MDE ARAR.
	Complete Final UFP-SAP		Nov-2018		Oct-2018	
	Complete LTM Event #1		Sep-2018		Jul-2018	
	Complete Data Report #1		Nov-2018		Feb-2019	
	Complete LTM Event #2		Jun-2019		Jun-2019	
	Complete Data Report #2		Oct-2019			
	Complete LTM Event #3		Jan-2020			
	Complete Groundwater Evaluation Report		Jun-2020			Includes evaluation of LTM Events 1-3.
	Complete RACR for GW		Mar-2021			
	Sign RACR for GW		May-2021			
Site 42	<b>OU 05 - Olsen Road Landfill</b>					Major contaminants: Metals in GW; Exit strategy: Capping & LTM; Last milestone: LTM Report- 11/13; NORM RC Date: 12/20/06
	<b>Long-Term Monitoring</b>					
	Complete LTM Events		Sep-2020			Site undergoing LTM for groundwater every 9 months
Site 43	<b>OU 25 - Toluene Disposal</b>					Major contaminants: TCE in GW; Probable exit strategy: TBD; Last milestone- Draft RI Report- 2/14; NORM RC Date: 3/24/61
	<b>Complete Feasibility Study</b>					Will incorporate results of Pre-Design Investigation (PDI); PP/ROD will address PDI results.
	Complete Revised Draft FS	60	Dec-2019	Jun-2020		PDI data gaps identified by Team; add'l PDI fieldwork required in fall 2019 before completing Rev Draft FS.
	Complete Final FS	60	Mar-2020	Sep-2020		
	<b>Complete Pre-Design Investigation</b>					
	Complete PDI Field Work		Nov-2017		Nov-2017	Add'l PDI fieldwork for cobalt groundwater and TCE soil sampling required based on comments on Draft PDI Tech Memo.
	Complete Draft PDI Tech Memo	90	Nov-2018		Nov-2018	Team comments indicated add'l investigation is needed.
	Complete PDI Data Gaps Fieldwork		Oct-2019	Dec-2019		Added new PDI Data Gaps fieldwork and a Draft Final version PDI Tech Memo. Subject to site access around explosive operations schedule.
	Complete Draft Final PDI Tech Memo	90	Mar-2020	May-2020		Added new PDI Tech Memo version for add'l fieldwork reporting.
	Complete Final PDI Tech Memo	90	May-2020	Jul-2020		
	<b>Complete Proposed Plan</b>					Delayed by add'l PDI fieldwork.
	Complete Draft PP		Aug-2020			EPA indicates 9-month legal review for PP.
	Complete Final PP	270	Apr-2021			Mission Cleanup milestone



TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	<b>Complete RoD</b> Complete Pre-Draft RoD Complete Draft RoD Complete Final RoD RoD Signed	60 270	Mar-2021 May-2021 Jan-2022 Feb-2022			Delayed by add'l PDI fieldwork. EPA indicates 9-month legal review for ROD.
	<b>Complete Remedial Design</b> Complete 35% RD Complete 100% RD Complete Final RD	120 60	Jun-2022 Dec-2022 Feb-2023			
	<b>Complete LUC RD</b> Draft LUC RD Final LUC RD	90	Dec-2022 Feb-2023			
	<b>Complete LTMP</b> Draft LTM Plan Final LTM Plan	90	Dec-2022 Feb-2023			
	<b>Complete Remedial Action</b> Award Remedial Action Complete Draft RA Work Plan Complete Final RA Work Plan	60 90	Apr-2023 May-2023 Aug-2023			Award date could be sooner or later depending on availability of funds. (RA currently funded in FY20.)
	Start Construction Complete Construction - RIP	30 180	Sep-2023 Mar-2024			
	Complete Closeout Report	120	Jul-2024			
	<b>Complete IRACR</b> Complete Final IRACR Sign Final IRACR	180	Dec-2024 Feb-2025			
Site 47	<b>OU 07 - Mercuric Nitrate Disposal Area</b>					Major contaminants: TCE in groundwater; Exit strategy: ISCO injection with MNA; Last milestone: 9-mo. Post-injection RA-O- 8/14; NORM RC Date: 3/25/57
	<b>Complete Short-term Performance Monitoring</b> Complete Year 4 (2017) Monitoring Fieldwork Draft Annual Monitoring Report (Yr 4 - 2017) Final Annual Monitoring Report (Yr 4 - 2017) Complete Year 5 (2018) Monitoring Fieldwork Draft Annual Monitoring Report (Yr 5 - 2018) Final Annual Monitoring Report (Yr 5 - 2018) Complete Year 6 (2019) Monitoring Fieldwork Draft Annual Monitoring Report (Yr 6 - 2019) Final Annual Monitoring Report (Yr 6 - 2019)		Dec-2017 Oct-2018 Jan-2019 Dec-2018 Jul-2019 Oct-2019 Dec-2019 Jul-2020 Oct-2020		Jan-2018 Oct-2018 Mar-2019 Dec-2018 Jul-2019	DPT soil sampling was completed in January 2018. Delayed by extended regulatory review This is new for FY2020
	<b>MNA Evaluation</b> Pre-draft SAP Draft SAP Final SAP Complete Fieldwork - Round 1 Complete Fieldwork - Round 2 Draft Tech Memo Final Tech Memo		Nov-2018 Dec-2018 Jul-2019 Aug-2019 Feb-2020 Aug-2020 Sep-2020	Sep-2019 Oct-2019 Mar-2020 Sep-2020 Oct-2020	Nov-2018 Feb-2019	Evaluate effectiveness of ISCO and considerations to enhancing MNA to improve remedial timeframes. Navy chemist reviewed and provided comments in Jan 2019 Delayed b/c of Navy chemist review time. Further delay due to MDE's review time.
	<b>Complete LTMP</b> Complete Draft LTMP Complete Final LTMP	90	Aug-2020 Nov-2020			
Site 57	<b>OU 01 - Building 292 TCE Contamination</b>					Major contaminants: TCE in groundwater; Exit strategy: ISCR with LTM & MNA; Last milestone: Final PRT Evaluation Report- 11/13; NORM RC Date: 3/24/57
	<b>VI Evaluation</b> Draft TM Final TM		Nov-2018		May-2018 Apr-2019	Performed by Tetra Tech Delay for team concurrence on RTCs.
	Pre-draft SAP Draft SAP Final SAP	60	Jun-2019 Jul-2019 Oct-2019	Sep-2019 Dec-2019	Aug-2019	EPA requested VI fieldwork prelim building survey occur before the Draft SAP. Delayed by construction (changing conditions) within Building 292.
	Complete fieldwork Draft VI Report Final VI Report	60	Dec-2019 Mar-2020 May-2020	Feb-2020 May-2020 Aug-2020		EPA requested indoor air sampling occur during winter/heating season.
	<b>RA-O/Long-Term Monitoring Optimization</b> Complete RA-O Optimization Field Work Draft Optimization Tech Memo Final Optimization Tech Memo		Sep-2018 Feb-2020 May-2020		Oct-2018	Continue RA-O for groundwater. Performed by Meadows. Post-injection Tech Memo Date pushed to accommodate post-injection sampling in the early fall 2018.
	<b>RA-O Investigation</b> Pre-draft SAP Draft SAP Final SAP Complete fieldwork Pre-draft Tech Memo Draft Tech Memo Final Tech Memo		Dec-2019 Feb-2020 Jun-2020 Sep-2020 Apr-2021 Jun-2021 Oct-2021			Contaminated Clay Layer Delineation. Performed by CH2M HILL.
	<b>Complete EE/CA</b> Pre-Draft EE/CA Draft EE/CA Final EE/CA		Apr-2022 Jun-2022 Oct-2022			An RAA will be prepared and approved by the Navy before start of the EE/CA
	<b>Complete Action Memo</b> Pre-draft Action Memo Draft Action Memo Final Action Memo Sign Final Action Memo		Jan-2023 Mar-2023 Jul-2023 Sep-2023			Ad and public meeting
	<b>Complete IRACR</b> Complete Draft IRACR Complete Final IRACR		Sep-2020 Nov-2020	Aug-2023 Oct-2023		ROD Amendment to follow
	<b>Complete Focused Feasibility Study (GW)</b> Complete Pre-Draft FS Complete Draft FS Complete Final FS	60 60	Jan-2021 Mar-2021 Jun-2021	Jan-2024 Mar-2024 Jun-2024		New to schedule
	<b>Complete Revised Proposed Plan</b> Complete Draft PP (revised) Complete Final PP (revised)	270	Sep-2021 Jun-2022	Sep-2024 Jun-2025		Revised PP if necessary (not necessary if ESD instead of ROD Amendment). ESD specified by team in June 2017; EPA review of 5YR led to PP/Amendment directive...



TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	<b>Complete RoD Amendment</b>					
	Complete Draft RoD Amendment		Jul-2022	Jun-2025		Assuming that a RoD Amendment vs ESD is needed (see above)
	Complete Final RoD Amendment	270	Apr-2023	Apr-2026		RoD amendment completion will not be done prior to the finalization of the 4th 5-Year Review.
	RoD Amendment Signed		Jun-2023	Jun-2026		
	<b>LUC RD</b>					
	Draft		Aug-2023	Aug-26		
	Final	90	Nov-2023	Nov-26		
Site 66	<b>OU 17 - Turkey Run Disposal Area</b>					Major contaminants: metals in soil and subsurface soil; Probable exit strategy: capping or removal; Last milestone: Final RI Report- 2/12; NORM RC Date: 12/4/24
	<b>Complete Phase III RI</b>					
	Complete Pre-Draft UFP-SAP		Sep-2019	Oct-2019		Based on acceptance of sampling and analytical plan including PQOs at the June 2019 partnering meeting.
	Complete Draft UFP-SAP	60	Nov-2019	Jun-2020		Review time of pre-draft increase by 9-month to account for RASO's review.
	Complete Final UFP-SAP	120	Mar-2020	Oct-2020		
	Complete Additional RI Phase Fieldwork		Oct-2021	Jun-2022		Includes surface clearing, test-pits, additional soil borings, and monitoring wells.
	Complete Draft Phase III RI Report		Jun-2022	Dec-2022		Involves modeling and tech memo reports, which will be included as an appendix to the RI report.
	Complete Final Phase III RI Report	90	Sep-2022	Mar-2023		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Mar-2023	Sep-2023		An RAA will be prepared and approved by the Navy. An FS may be delayed if investigations of nearby buildings are warranted to determine the source of contamination.
	Complete Draft FS	60	May-2023	Nov-2023		see note above
	Complete Final FS	90	Aug-2023	Aug-2024		see note above
	<b>Complete Proposed Plan</b>					
	Complete pre-Draft PP		Oct-2023	Oct-2024		See note above
	Complete Draft PP		Dec-2023	Dec-2024		9-month review, previously estimated at a 60-day duration
	Complete Final PP	270	Sep-2024	Sep-2025		
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Nov-2024	Nov-2025		See note above
	Complete Draft RoD	30	Jan-2025	Jan-2026		
	Complete Final RoD	270	Oct-2025	Oct-2026		May be some delay cross fiscal years.
	RoD Signed	30	Dec-2025	Dec-2026		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Mar-2026	Mar-2027		Will request variance from MDE
	Complete 100% RD	120	May-2026	May-2027		
	Complete Final RD	90	Aug-2026	Aug-2027		
	<b>Complete LUC RD</b>					
	Draft LUC RD		May-2026	May-2027		
	Final LUC RD	90	Aug-2026	Aug-2027		
	<b>Complete LTMP</b>					
	Draft LTM Plan		May-2026	May-2027		
	Final LTM Plan	90	Aug-2026	Aug-2027		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Oct-2026	Oct-2027		
	Complete Draft RA Work Plan	60	Dec-2026	Dec-2027		
	Complete Final RA Work Plan	90	Mar-2027	Mar-2028		
	Start Construction	30	Apr-2027	Apr-2028		
	Complete Construction - RIP	360	Apr-2028	Apr-2029		
	Complete Closeout Report	120	Jul-2028	Jul-2029		
	<b>Complete RACR</b>					
	Complete Final RACR	180	Jan-2029	Jan-2030		
	Sign Final RACR		Mar-2030			
Site 67	<b>OU 28 - Hog Out Facility</b>					Major contaminants: Perchlorate in groundwater; Metals in soil. Probable exit strategy: Source(s) treatment, bioremediation, and MNA; Last milestone: RI Fieldwork(s) completed- 12/15; NORM RC Date: 10/29/28
	<b>Complete Remedial Investigation</b>					
	Complete Draft RI Report		Jun-2019	Sep-2019		Add'l stormsewer utility identification and measurements required for preferential pathway / CSM.
	Complete Final RI Report	120	Aug-2019	Jan-2020		Additional review time afforded to Team due to site complexity.
	<b>Complete EE/CA (Soil &amp; Sediment)</b>					
	Complete Draft EE/CA		Jun-2019		Jun-2019	Team completing an NTCRA as an interim removal action to address soil and sediment followed by a FS for groundwater only.
	Complete Final EE/CA	120	Jul-2019		Jul-2019	Add'l stormsewer utility identification and measurements required to estimate sewer rehab scope and cost.
	<b>Complete Action Memo</b>					
	Draft		Jun-2019		Jun-2019	
	Final	45	Aug-2019		Sep-2019	Public notice was from Aug 3 to Sept 2, 2019.
	Sign Action Memo		Sep-2019			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Sep-2019	Oct-2019		
	Complete Draft RA Work Plan	60	Nov-2019	Dec-2019		
	Complete Final RA Work Plan	90	Jan-2020	Feb-2020		
	Start Construction	30	Feb-2020	Mar-2020		May include separate mobilizations for soil and sediment due to phasing of project and availability of funds.
	Complete Construction - RIP	360	Feb-2021			
	Complete Closeout Report	120	Mar-2021			
	<b>Complete Feasibility Study (Groundwater)</b>					
	Complete Pre-Draft FS		Nov-2020			Delayed by interim removal action.
	Complete Draft FS	60	Dec-2020			Includes RAA for Navy.
	Complete Final FS	150	May-2021			
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Jun-2021			EPA indicates 9-month legal review for PP.
	Complete Final PP	270	Mar-2022			May be delayed if NTCRA is implemented.
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Apr-2022			Mission Cleanup milestone
	Complete Draft RoD	60	Jun-2022			Delayed by interim removal action.
	Complete Final RoD	270	Mar-2023			EPA indicates 9-month legal review for ROD.
	RoD Signed		May-2023			
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Jun-2023			
	Complete 100% RD	120	Oct-2023			
	Complete Final RD	60	Dec-2023			
	<b>Complete LUC RD</b>					
	Draft LUC RD		Oct-2023			
	Final LUC RD	90	Jan-2024			



TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	<b>Complete LTMP</b>					LTM Plan or RAO?
	Draft LTM Plan		Oct-2023			
	Final LTM Plan	90	Jan-2024			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Mar-2024			
	Complete Draft RA Work Plan	60	May-2024			
	Complete Final RA Work Plan	90	Aug-2024			
	Start Construction	30	Sep-2024			
	Complete Construction - RIP	120	Jan-2025			
	Complete Closeout Report	120	May-2025			
	<b>Complete RACR</b>					
	Complete Final RACR	180	Nov-2025			
	Sign Final RACR		Jan-2026			
Site 68	<b>OU xx - Former Building 259 Contamination</b>					Major contaminants: mercury and lead in soil; Probable exit strategy: EE/CA and NTCRA; Last milestone: SSP Fieldwork completed- 7/13; NORM RC Date: 5/30/21
	<b>Complete EE/CA</b>				Mar-2018 Jun-2018	Delayed by add'l scoping sessions.
	Pre-Draft SAP for pre-EE/CA Investigation		Nov-2017			
	Draft SAP for pre-EE/CA Investigation		Dec-2017			
	Final SAP for pre-EE/CA Investigation		Oct-2019			Delayed for add'l SAP version (Draft Final) required to change sampling approach based on EPA comments on the Draft SAP.
	<b>Complete Fieldwork for pre-EE/CA Investigation</b>		Nov-2019			
	Draft Results Tech Memo	90	Jan-2020			
	Final Results Tech Memo	60	Mar-2020			
	Complete Draft EE/CA		Feb-2020			
	<b>Complete Final EE/CA</b>	120	May-2020			Mission Cleanup milestone
	<b>Complete Action Memo</b>					
	Complete Draft Action Memo		Apr-2020			
	Complete Final Action Memo	45	May-2020			
	Complete Removal Action	90	Aug-2020			Removal action to be completed when funds available.
	Complete Construction Completion Report	120	Dec-2020			
	<b>Complete RACR</b>					Date will depend on when funding is available
	Complete Final RACR		Mar-2021			
	Sign Final RACR		May-2021			RC for Navy
Site 69	<b>OU 36 - Building 1018</b>					Major contaminants: perchlorate in soil and groundwater; Probable exit strategy: source removal & treatment, plume bioremediation and MNA; Last milestone: RI Fieldwork completed- 7/17; NORM RC Date: 10/12/27
	<b>Complete Remedial Investigation</b>				Jun-2019	
	Complete Draft RI Report	120	Jun-2019			
	<b>Complete Final RI Report</b>	90	Aug-2019	Oct-2019		Delayed by extended MDE review.
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Jul-2019	Oct-2019		
	Complete Draft FS	90	Aug-2019	Nov-2019		Includes RAA for Navy. Delayed by extended MDE review of RI.
	<b>Complete Final FS</b>	150	Nov-2019	Feb-2020		
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Dec-2019			EPA indicates 9-month legal review for PP.
	Complete Final PP	270	Jul-2020			Mission Cleanup milestone
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Aug-2020			
	Complete Draft RoD	60	Sep-2020			
	Complete Final RoD	270	Jun-2021			EPA indicates 9-month legal review for ROD.
	RoD Signed		Aug-2021			
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Oct-2021			
	Complete 100% RD	120	Jan-2022			
	Complete Final RD	90	Apr-2022			
	<b>Complete LUC RD</b>					
	Draft LUC RD		Jan-2022			
	Final LUC RD	90	Apr-2022			
	<b>Complete LTMP</b>					
	Draft LTM Plan		Jan-2022			
	Final LTM Plan	90	Apr-2022			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jun-2022			
	Complete Draft RA Work Plan	60	Aug-2022			
	Complete Final RA Work Plan	90	Nov-2022			
	Start Construction	30	Dec-2022			
	Complete Construction - RIP	60	Apr-2023			
	Complete Closeout Report	120	Jun-2023			
	<b>Complete RACR</b>					Date will depend on when funding is available
	Complete Final RACR		Dec-2023			
	Sign Final RACR		Feb-2024			
Site 70	<b>OU 26 - Groundwater Contamination Along Water Works Way</b>					Major contaminants: <u>Chlorinated</u> TCE, Benzene, and MTBE in groundwater; Probable exit strategy: TBD; Last milestone: RI fieldwork complete- 12/15; NORM RC Date: 1/15/27
	<b>Complete Remedial Investigation</b>					GW investigation to determine source of TCE upgradient of Scrap Yard
	Draft SAP Addendum for Cobalt		Jul-2019	Oct-2019		Delayed by additional scoping sessions, site expansion, and funding on separate contract for supplemental RI fieldwork.
	Final SAP Addendum for Cobalt	60	Sep-2019	Dec-2019		
	Complete Supplemental Cobalt Fieldwork		Nov-2019	Feb-2020		
	Complete Draft RI Report	120	Feb-2020	May-2020		
	Complete Final RI Report	180	May-2020	Aug-2020		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Mar-2020	Aug-2020		Includes RAA for Navy.
	Complete Draft FS	90	Apr-2020	Sep-2020		Fast-track due to expiring funds in FY20.
	Complete Final FS	150	Jul-2020	Dec-2020		
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Oct-2020			EPA indicates 9-month legal review for PP.
	Complete Final PP	270	Jul-2021			Mission Cleanup milestone
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Aug-2021			
	Complete Draft RoD	60	Oct-2021			EPA indicates 9-month legal review for ROD.
	Complete Final RoD	270	Jul-2022			
	RoD Signed	60	Sep-2022			
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Nov-2022			
	Complete 100% RD	120	Feb-2023			
	Complete Final RD	90	May-2023			
	<b>Complete LUC RD</b>					
	Draft LUC RD		Feb-2023			
	Final LUC RD	90	May-2023			



TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	<b>Complete LTMP</b>					
	Draft LTM Plan		Feb-2023			
	Final LTM Plan	90	May-2023			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jul-2023			
	Complete Draft RA Work Plan	60	Sep-2023			
	Complete Final RA Work Plan	90	Dec-2023			
	Start Construction	30	Jan-2024			
	Complete Construction - RIP	60	Mar-2024			
	Complete Closeout Report	120	Jul-2024			
	<b>Complete RACR</b>					Date will depend on when funding is available
	Complete Final RACR		Jan-2025			
	Sign Final RACR		Mar-2025			
Site 71	<b>none - Basewide PFOS Preliminary Assessments/Site Assessment</b>					
	<b>Complete PA Report</b>					Three sites on Main Area and two sites on Stump Neck Annex. Funding in FY18
	Pre-Draft PA		Aug-2019	Dec-2019		
	Draft PA		Oct-2019	Feb-2020		
	Final PA		Jan-2020	May-2020		
	<b>Complete SI SAP and Fieldwork</b>					
	Pre-Draft SAP		Jan-2020	May-2020		
	Draft SAP		Mar-2020	Jul-2020		
	Final SAP		Jun-2020	Oct-2020		
	Complete SI Fieldwork		Aug-2020	Dec-2020		
	<b>Complete SI Reports</b>					
	Complete pre-Draft SI Report		Oct-2020	Feb-2021		
	Complete Draft SI Report		Dec-2020	Apr-2021		
	Complete Final SI Report		Mar-2021	Jul-2021		
UXO 1	<b>OU 37 - Air Blast Pond</b>					Major contaminants: MPPEH in soil; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 4/30/20
	<b>Complete Remedial Investigation</b>					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	Work Plan Includes UXO 1,2,4,5,10,12,21,23,&28 to utilize one field mobilization. (Review of UXO 4,5,12,&21 was completed in the original work plan. UXO 1,2,10,23&28 are newly added and require review.)
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	First phase of fieldwork completed in Nov-2017.
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	90	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Final RI Report (Volume 2-MC)	90	Jul-2019	Oct-2019		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		
	<b>Complete Proposed Plan</b>					Anticipated delay b/c of RI/FS finalization
	Complete Draft PP		Nov-2019	May-2020		
	Complete Final PP	270	Aug-2020	Feb-2021		
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2020	Jan-2021		
	Complete Draft RoD	60	Aug-2020	Feb-2021		
	Complete Final RoD	270	May-2021	Nov-2021		
	RoD Signed		Jul-2021	Jan-2022		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2021	Feb-2022		
	Complete 100% RD	90	Nov-2021	May-2022		
	Complete Final RD	90	Feb-2022	Aug-2022		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2022	Jul-2022		
	Complete Draft RA Work Plan	60	Mar-2022	Sep-2022		
	Complete Final RA Work Plan	60	May-2022	Nov-2022		
	Start Construction	30	Jun-2022	Dec-2022		
	Complete Construction - RIP	120	Oct-2022	Apr-2023		
	Complete Closeout Report	30	Nov-2022	Jun-2023		
	<b>Complete RACR</b>					
	Complete Final RACR		Jan-2023	Aug-2023		
	Sign Final RACR		Sep-2023			
UXO 2	<b>OU 38 - Area 8</b>					Major contaminants: MPPEH & MC in soil and groundwater; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 9/30/21
	<b>Complete Remedial Investigation</b>					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	Work Plan Includes UXO 1,2,4,5,10,12,21,23,&28 to utilize one field mobilization. (Review of UXO 4,5,12,&21 was completed in the original work plan. UXO 1,2,10,23&28 are newly added and require review.)
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	First phase of fieldwork completed in Nov-2017.
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	90	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Final RI Report (Volume 2-MC)	90	Jul-2019	Oct-2019		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		
	<b>Complete Proposed Plan</b>					Anticipated delay b/c of RI/FS finalization
	Complete Draft PP		Nov-2019	May-2020		
	Complete Final PP	270	Aug-2020	Feb-2021		
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2020	Jan-2021		
	Complete Draft RoD	60	Aug-2020	Feb-2021		
	Complete Final RoD	270	May-2021	Nov-2021		
	RoD Signed		Jul-2021	Jan-2022		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2021	Feb-2022		
	Complete 100% RD	90	Nov-2021	May-2022		
	Complete Final RD	90	Feb-2022	Aug-2022		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2022	Jul-2022		
	Complete Draft RA Work Plan	60	Mar-2022	Sep-2022		
	Complete Final RA Work Plan	60	May-2022	Nov-2022		
	Start Construction	30	Jun-2022	Dec-2022		
	Complete Construction - RIP	120	Oct-2022	Apr-2023		
	Complete Closeout Report	30	Nov-2022	Jun-2023		
	<b>Complete RACR</b>					
	Complete Final RACR		Jan-2023	Aug-2023		
	Sign Final RACR		Feb-2023	Sep-2023		



**TABLE 4-1**  
**SCHEDULE (FY19-FY20)**  
**NSFIH, INDIAN HEAD, MARYLAND**



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
UXO 4	OU 29 - IED Area					Major contaminants: MPPEH in soil; Probable exit strategy: Removal & LUCs; Last milestone: Draft RI Work Plan- 2/13; NORM RC Date: 1/30/23
	<b>Complete Remedial Investigation</b>					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	comments received from previous version of work plan
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	Includes surface sweep, DGM, and anomaly excavation
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	60	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Final RI Report (Volume 2-MC)	60	Jul-2019	Oct-2019		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Nov-2019	May-2020		
	Complete Final PP	270	Aug-2020	Feb-2021		Anticipated delay b/c of RI/FS finalization
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2020	Jan-2021		
	Complete Draft RoD	60	Aug-2020	Feb-2021		
	Complete Final RoD	270	May-2021	Nov-2021		
	RoD Signed		Jul-2021	Jan-2022		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2021	Feb-2022		
	Complete 100% RD	90	Nov-2021	May-2022		
	Complete Final RD	90	Feb-2022	Aug-2022		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2022	Jul-2022		
	Complete Draft RA Work Plan	60	Mar-2022	Sep-2022		
	Complete Final RA Work Plan	60	May-2022	Nov-2022		
	Start Construction	30	Jun-2022	Dec-2022		
	Complete Construction - RIP	120	Oct-2022	Apr-2023		
	Complete Closeout Report	30	Nov-2022	Jun-2023		
	<b>Complete RACR</b>					
	Complete Final RACR		Jan-2023	Aug-2023		
	Sign Final RACR		Feb-2023	Sep-2023		
UXO 5	OU 34 - Advanced IED Area					Major contaminants: MPPEH in soil; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 11/1/19
	<b>Complete Remedial Investigation</b>					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	comments received from previous version of work plan
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	Includes surface sweep, DGM, and anomaly excavation
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	60	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Final RI Report (Volume 2-MC)	60	Jul-2019	Oct-2019		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Nov-2019	May-2020		
	Complete Final PP	270	Aug-2020	Feb-2021		Anticipated delay b/c of RI/FS finalization
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2020	Jan-2021		
	Complete Draft RoD	60	Aug-2020	Feb-2021		
	Complete Final RoD	270	May-2021	Nov-2021		
	RoD Signed		Jul-2021	Jan-2022		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2021	Feb-2022		
	Complete 100% RD	90	Nov-2021	May-2022		
	Complete Final RD	90	Feb-2022	Aug-2022		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2022	Jul-2022		
	Complete Draft RA Work Plan	60	Mar-2022	Sep-2022		
	Complete Final RA Work Plan	60	May-2022	Nov-2022		
	Start Construction	30	Jun-2022	Dec-2022		
	Complete Construction - RIP	120	Oct-2022	Apr-2023		
	Complete Closeout Report	30	Nov-2022	Jun-2023		
	<b>Complete RACR</b>					
	Complete Final RACR		Jan-2023	Aug-2023		
	Sign Final RACR		Feb-2023	Sep-2023		
UXO 6	OU 40 - NG Slums Burning Ground					Major contaminants: MC in soil & GW; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 7/27/21
	<b>Complete Remedial Investigation</b>					Newly added to schedule
	Pre-Draft SAP/Work Plan		Aug-2019	Oct-2019		Delayed due to additional sampling and analyses recommended by the IHIRT
	Draft SAP/Work Plan		Oct-2019	Nov-2019		and site visit as well as additional scoping session.
	Final SAP/Work Plan					
	Complete Fieldwork		May-2020			
	Complete Draft RI Report	90	Nov-2020			
	Complete Final RI Report	60	Mar-2021			
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Feb-2021			
	Complete Draft FS	60	Apr-2021			
	Complete Final FS	60	Jul-2021			
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Jun-2021			
	Complete Final PP	270	Feb-2022			
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Feb-2022			
	Complete Draft RoD	60	Apr-2022			
	Complete Final RoD	270	Jan-2023			
	RoD Signed		Mar-2023			
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Apr-2023			
	Complete 100% RD	90	Jul-2023			
	Complete Final RD	90	Oct-2023			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Dec-2023			
	Complete Draft RA Work Plan	60	Mar-2024			
	Complete Final RA Work Plan	60	May-2024			





TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	Start Construction	30	Jun-2024			
	Complete Construction - RIP	120	Oct-2024			
	Complete Closeout Report	30	Nov-2024			
	Complete RACR					
UXO 9	Complete Final RACR		May-2025			
	Sign Final RACR		Jul-2025			
	OU 30 - Single-Base Propellant Grain Spill Area					Major contaminants: Propellant grains in surface and subsurface soil; Probable exit strategy: Removal & LUCs; Last milestone: Draft RI Report- 3/14; NORM RC Date: 4/27/23
	Complete Remedial Investigation					Will be delayed b/c of BERA and additional investigations of propellant grains and arsenic.
	Complete Draft RI Report		Dec-2020			
	Complete Final RI Report	90	Mar-2021			
	Additional Fieldwork - BERA					
	Complete Draft Tech Memo		Dec-2018		Dec-2018	
	Complete Final Tech Memo		Jul-2019		Aug-2019	Delayed due to receipt of comments from Navy and MDE.
	Additional Fieldwork - Propellant Grains & Soil/sediment					
	Pre-draft SAP (for propellant grains)		Jul-2019	Oct-2019		Initially, this SAP was for propellant grains, underlying soil, and sediment sampling and analyses. Based on conversations with the Navy, it is anticipated that two SAPs will be prepared. This schedule is for the propellant grains collection and analysis. Several scoping sessions have been held with the IHIRT, Navy chemist, and CH's program chemist. Delays are due to the following: government shutdown, and communications with the Base lab and Navy chemist. B/c of this delay, the pre-draft SAP will be delayed, which will impact submittals of subsequent documents.
	Draft SAP/Work Plan (for propellant grains)		Sep-2019	Dec-2019		
	Final SAP/Work Plan (for propellant grains)		Dec-2019	Mar-2020		
	Complete Fieldwork		Feb-2020	May-2020		
	Complete Feasibility Study					
	Complete Pre-Draft FS		May-2021			Will be submitted after RAA has been prepared and approved by the Navy. Will be delayed b/c of BERA and additional investigations of propellant grains and arsenic.
	Complete Draft FS	60	Jul-2021			
	Complete Final FS	90	Oct-2021			
	Complete Proposed Plan					
	Complete Draft PP		Nov-2021			9-month review
	Complete Final PP	270	Aug-2022			
	Complete RoD					
	Complete Pre-Draft RoD		Sep-2022			
	Complete Draft RoD	60	Nov-2022			9-month review
	Complete Final RoD	270	Aug-2023			
	RoD Signed		Oct-2023			
	Complete Remedial Design					
	Complete 35% RD		Oct-2023			
	Complete 100% RD	60	Dec-2023			
	Complete Final RD	90	Mar-2024			
	Complete Remedial Action					
	Award Remedial Action		Feb-2024			
	Complete Draft RA Work Plan	30	May-2024			
	Complete Final RA Work Plan	60	Jul-2024			
	Start Construction	30	Oct-2024			
	Complete Construction - RIP	60	Apr-2025			
	Complete Closeout Report	30	Jul-2025			
	Complete LUC RD					
	Complete Draft LUC RD		Dec-2023			
	Complete Final LUC RD	90	Mar-2024			
	Complete LTMP					
	Complete Draft LTMP		Dec-2023			
	Complete Final LTMP	90	Mar-2024			
	Complete RACR					
	Complete Final RACR	180	Sep-2024	Jul-2025		
	Sign Final RACR		Nov-2024	Sep-2025		
UXO 10	OU 41 - Stump Neck Impact Area					Major contaminants: MPPEH in soil; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 3/19/26
	Complete Remedial Investigation					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	60	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Final RI Report (Volume 2-MC)	60	Jul-2019	Oct-2019		
	Complete Feasibility Study					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		
	Complete Proposed Plan					
	Complete Draft PP		Nov-2019	May-2020		Anticipated delay b/c of RI/FS finalization
	Complete Final PP	270	Aug-2020	Feb-2021		
	Complete RoD					
	Complete Pre-Draft RoD		Jul-2020	Jan-2021		
	Complete Draft RoD	60	Aug-2020	Feb-2021		
	Complete Final RoD	270	May-2021	Nov-2021		
	RoD Signed		Jul-2021	Jan-2022		
	Complete Remedial Design					
	Complete 35% RD		Aug-2021	Feb-2022		
	Complete 100% RD	90	Nov-2021	May-2022		
	Complete Final RD	90	Feb-2022	Aug-2022		
	Complete Remedial Action					
	Award Remedial Action		Jan-2022	Jul-2022		
	Complete Draft RA Work Plan	60	Mar-2022	Sep-2022		
	Complete Final RA Work Plan	60	May-2022	Nov-2022		
	Start Construction	30	Jun-2022	Dec-2022		
	Complete Construction - RIP	120	Oct-2022	Apr-2023		
	Complete Closeout Report	30	Nov-2022	Jun-2023		
	Complete RACR					
	Complete Final RACR		Jan-2023	Aug-2023		
	Sign Final RACR		Feb-2023			



**TABLE 4-1**  
**SCHEDULE (FY19-FY20)**  
**NSFIH, INDIAN HEAD, MARYLAND**



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
UXO 11	OU 31 - The Valley					Major contaminants: MPPEH in soil; Probable exit strategy: LUCs; Last milestone: Anomaly Investigation Fieldwork- 5/14; NORM RC Date: 8/30/21
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Jul-2019	Dec-2019		
	Complete Draft FS	60	Sep-2019	Feb-2020		
	Complete Final FS	90	Dec-2019	May-2020		Delay due to finalization of the RAA and completing an EE/CA to perform soil removal at one hot spot location.
	<b>Complete Proposed Plan</b>					
	Complete Pre-Draft PP		Jan-2020	Sep-2020		
	Complete Draft PP		Mar-2020	Nov-2020		
	Complete Final PP	90	Dec-2020	Aug-2021		9-month review. First version for IHIRT and EPA technical review; second version is for EPA for legal review.
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Nov-2020	Nov-2021		
	Complete Draft RoD	60	Jan-2020	Jan-2021		
	Complete Final RoD	270	Oct-2021	Oct-2022		
	RoD Signed		Dec-2021	Dec-2022		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Feb-2022	Feb-2023		
	Complete 100% RD	90	Apr-2022	Apr-2023		
	Complete Final RD	90	Jul-2022	7/1/2023		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Sep-2022	Sep-2023		
	Complete Draft RA Work Plan	30	Nov-2022	Nov-2023		
	Complete Final RA Work Plan	60	Feb-2023	Feb-2024		
	Start Construction	30	Apr-2023	Apr-2024		
	Complete Construction - RIP	60	Jun-2023	Jun-2024		
	Complete Closeout Report	30	Aug-2023	Aug-2024		
	<b>Complete LUC RD</b>					
	Complete Draft LUC RD		Apr-2022	Apr-2023		
	Complete Final LUC RD	60	Jul-2022	Jul-2023		
	<b>Complete LTMP</b>					
	Complete Draft LTMP		Apr-2022	Apr-2023		
	Complete Final LTMP	60	Jul-2022	Jul-2023		
	<b>Complete RACR</b>					
	Complete Final RACR		Jan-2024	Jan-2025		
	Sign Final RACR		Mar-2025			
UXO 12	OU 35 - Torpedo Burial Site					Major contaminants: MPPEH in soil; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 9/25/20
	<b>Complete Remedial Investigation</b>					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	comments received from previous version of work plan
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	Includes surface sweep, DGM, and anomaly excavation
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	60	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	
	Complete Final RI Report (Volume 2-MC)	60	Jul-2019	Oct-2019		RI Report to include two volumes- 1 for MEC, 1 for MC
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Nov-2019	May-2020		
	Complete Final PP	270	Aug-2020	Feb-2021		Anticipated delay b/c of RI/FS finalization
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2020	Jan-2021		
	Complete Draft RoD	60	Aug-2020	Feb-2021		
	Complete Final RoD	270	May-2021	Nov-2021		
	RoD Signed		Jul-2021	Jan-2022		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2021	Feb-2022		
	Complete 100% RD	90	Nov-2021	May-2022		
	Complete Final RD	90	Feb-2022	Aug-2022		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2022	Jul-2022		
	Complete Draft RA Work Plan	60	Mar-2022	Sep-2022		
	Complete Final RA Work Plan	60	May-2022	Nov-2022		
	Start Construction	30	Jun-2022	Dec-2022		
	Complete Construction - RIP	120	Oct-2022	Apr-2023		
	Complete Closeout Report	30	Nov-2022	Jun-2023		
	<b>Complete RACR</b>					
	Complete Final RACR		Jan-2023	Aug-2023		
	Sign Final RACR		Feb-2023	Sep-2023		
UXO 13	OU 43 - FDR Skeet Range					Major contaminants: metals in soil; Probable exit strategy: removal; Last milestone: Final SI Report- 9/10; NORM RC Date: 1/30/21
	<b>Complete Remedial Investigation</b>					
	Pre-Draft SAP/Work Plan		Aug-2019	Oct-2019		
	Draft SAP/Work Plan		Oct-2019	Dec-2019		Newly added to schedule Delayed due to additional sampling and analyses recommended by the IHIRT and site visit as well as additional scoping session.
	Final SAP/Work Plan		Jan-2020	Feb-2020		Further delay due to regulatory review time (comments will be due in Oct. 2019)
	Complete Fieldwork		May-2020			Delay will be due to extended regulatory review time of the draft SAP, which will impact subsequent deliverables.
	Complete Draft RI Report	90	Nov-2020			
	Complete Final RI Report	60	Mar-2021			
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Feb-2021			
	Complete Draft FS	60	Apr-2021			
	Complete Final FS	60	Jul-2021			
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Jun-2021			
	Complete Final PP	270	Feb-2022			
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Feb-2022			
	Complete Draft RoD	60	Apr-2022			
	Complete Final RoD					
	RoD Signed	270	Jan-2023			
			Mar-2023			





TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Apr-2023			
	Complete 100% RD	90	Jul-2023			
	Complete Final RD	90	Oct-2023			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Dec-2023			
	Complete Draft RA Work Plan	60	Mar-2024			
	Complete Final RA Work Plan	60	May-2024			
	Start Construction	30	Jun-2024			
	Complete Construction - RIP	120	Oct-2024			
	<b>Complete RACR</b>					
	Complete Final RACR		May-2025			
	Sign Final RACR		Jul-2025			
UXO 14	<b>OU 44 - Marine Rifle Range</b>					Major contaminants: metals in soil; Probable exit strategy: removal; Last milestone: EE/CA- 11/12; NORM RC Date: 12/30/18
	Refer to Stump Neck MRP Small Arms Ranges below					
UXO 15	<b>OU 54 - Old Skeet &amp; Trap Range</b>					Major contaminants: metals in soil; Probable exit strategy: removal; Last milestone: EE/CA- 11/12; NORM RC Date: 12/30/18
	Refer to Stump Neck MRP Small Arms Ranges below					
UXO 16	<b>OU 55 - Rum Point Skeet Range</b>					Major contaminants: metals in soil; Probable exit strategy: removal; Last milestone: EE/CA- 11/12; NORM RC Date: 12/30/18
	Refer to Stump Neck MRP Small Arms Ranges below					
UXO 17	<b>OU 56 - Small Arms (Pistol) Range</b>					Major contaminants: metals in soil; Probable exit strategy: removal; Last milestone: EE/CA- 11/12; NORM RC Date: 12/30/18
	Refer to Stump Neck MRP Small Arms Ranges below					
UXO 18	<b>OU 45 - Battle Range Firing Area</b>					Major contaminants: MPPEH/water site; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 9/30/24
	Complete Remedial Investigation		Sep-2023			Dependent on funding
UXO 19	<b>OU 46 - Igniter Area</b>					Major contaminants: MPPEH in shallow water; Probable exit strategy: removal & LUCs; Last milestone: DGM Fieldwork- 5/13; NORM RC Date: 11/29/24
	<b>Complete Remedial Investigation</b>					RI to be funded in FY23
	Complete Draft RI UFP-SAP WP & ESS	30	Jan-2023			
	Complete Final RI UFP-SAP WP & ESS		Mar-2023			
	Complete RI Field Work (MEC/MC)	120	Apr-2023			
	Complete Draft RI Report	90	Jun-2023			
	Complete Final RI Report	60	Aug-2023			
UXO 20	<b>OU 32 - Safety Thermal Treatment Point</b>					Major contaminants: MPPEH & MC in soil; Probable exit strategy: removal & LUCs; Last milestone: Fieldwork- 5/14; NORM RC Date: 8/7/19
	<b>Complete Remedial Investigation</b>					
	Complete Draft RI Report	60	Dec-2018		Mar-2019	Delayed due to prioritization of other deliverables for Dec 2018.
	Complete Final RI Report	90	Sep-2019	Oct-2019		In addition to delay noted above, further delay is due to additional time for regulatory review of draft version.
	<b>Additional Investigation</b>					
	Pre-Draft SAP		Mar-2019		Apr-2019	For BERA. Delayed due to preparation of the chemistry worksheets after lab procurement.
	Draft SAP		Jul-2019		Aug-2019	On May 2, 2019, CH checked on status of Navy chemists review; they had no record of receiving the UXO 20 BERA SAP through AMRDEC. It was resent on 5/3/19 and comments are due on 6/4/19.
	Final SAP		Oct-2019			
	Fieldwork		Dec-2019			
	Pre-Draft BERA report		Aug-2020			Include BERA results and datagaps
	Draft BERA report		Sep-2020			
	Final BERA report		Dec-2020			
	<b>Complete Feasibility Study</b>					May be delayed if a BERA is needed.
	Complete Pre-Draft FS	60	Apr-2021			Need to prepare an RAA.
	Complete Draft FS		Jun-2021			
	Complete Final FS	90	Sep-2021			
	<b>Complete Proposed Plan</b>					
	Complete Pre-Draft PP		Oct-2021			
	Complete Draft PP		Dec-2021			
	Complete Final PP	270	Sep-2022			
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Oct-2022			
	Complete Draft RoD	60	Dec-2022			
	Complete Final RoD	270	Sep-2023			
	RoD Signed		Nov-2023			
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Jan-2024			
	Complete 100% RD	90	Mar-2024			
	Complete Final RD	60	Jun-2024			
	<b>Complete Remedial Action</b>					Depends on availability of funding.
	Award Remedial Action					
	Complete Draft RA Work Plan	30	Sep-2024			
	Complete Final RA Work Plan	60	Dec-2024			
	Start Construction	30	Feb-2025			
	Complete Construction - RIP	60	Apr-2025			
	Complete Closeout Report	30	Sep-2025			It is assumed that 2 versions (draft and final) will be prepared.
	<b>Complete LUC RD</b>					
	Complete Draft LUC RD		Mar-2024			
	Complete Final LUC RD	30	Jun-2024			
	<b>Complete LTMP</b>					
	Complete Draft LTMP		Mar-2024			
	Complete Final LTMP	30	Jun-2024			
	<b>Complete RACR</b>					
	Complete Final RACR		Dec-2024	Sep-2025		
	Sign Final RACR		Mar-2025	Oct-2025		
UXO 21	<b>OU 33 - Test Area 1</b>					Major contaminants: MPPEH in soil; Probable exit strategy: Removal & LUCs; Last milestone: Draft Work Plan- 2/13; NORM RC Date: 7/18/19
	<b>Complete Remedial Investigation</b>					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	comments received from previous version of work plan
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	Includes surface sweep, DGM, and anomaly excavation
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	60	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Final RI Report (Volume 2-MC)	60	Jul-2019	Oct-2019		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		



TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Nov-2019	May-2020		
	Complete Final PP	270	Aug-2020	Feb-2021		Anticipated delay b/c of RI/FS finalization
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2020	Jan-2021		
	Complete Draft RoD	60	Aug-2020	Feb-2021		
	Complete Final RoD	270	May-2021	Nov-2021		
	RoD Signed		Jul-2021	Jan-2022		
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2021	Feb-2022		
	Complete 100% RD	90	Nov-2021	May-2022		
	Complete Final RD	90	Feb-2022	Aug-2022		
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2022	Jul-2022		
UXO 23	<b>OU 47 - Torpedo Casing Disposal Area</b>					Major contaminants: MPPEH in soil; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 5/26/20
	<b>Complete Remedial Investigation</b>					
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	Work Plan Includes UXO 1,2,4,5,10,12,21,23,&28 to utilize one field mobilization. (Review of UXO 4,5,12,&21 was completed in the original work plan. UXO 1,2,10,23&28 are newly added and require review.)
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	60	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Final RI Report (Volume 2-MC)	60	Jul-2019	Oct-2019		
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2019	Nov-2019		
	Complete Draft FS	60	Oct-2019	Jan-2020		
	Complete Final FS	90	Dec-2019	Mar-2020		
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Nov-2019	May-2020		
UXO 25	<b>OU 57 - Roach Road Rifle Range</b>					Major contaminants: metals in soil; Probable exit strategy: removal; Last milestone: EE/CA- 11/12; NORM RC Date: 12/30/18
	<b>Refer to Stump Neck MRP Small Arms Ranges below</b>					
	<b>OU 48 - The Valley Impact Area</b>					Major contaminants: MPPEH in soil; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 9/9/25
	<b>Complete Remedial Investigation</b>					
	Complete Pre-Draft RI UFP-SAP WP & ESS		Nov-2018		May-2019	
	Complete Draft RI UFP-SAP WP & ESS	60	Jun-2019	Sep-2019		
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2019			
	Complete RI Field Work (MEC/MC)	120	Jan-2020			
	Complete Draft RI Report	60	Mar-2020			
	Complete Final RI Report	60	May-2020			
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2020			
	Complete Draft FS	60	Oct-2020			
	Complete Final FS	90	Dec-2020			
UXO 26	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Nov-2020			
	Complete Final PP	270	Aug-2021			
	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2021			
	Complete Draft RoD	60	Aug-2021			
	Complete Final RoD	270	May-2022			
	RoD Signed		Jul-2022			
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2022			
	Complete 100% RD	90	Nov-2022			
	Complete Final RD	90	Feb-2023			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2023			
UXO 27	<b>OU 49 - Sonar Training Area</b>					Major contaminants: MPPEH/water site; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 7/28/25
	<b>Complete Remedial Investigation</b>					
	Complete Pre-Draft RI UFP-SAP WP & ESS		Nov-2018			
	Complete Draft RI UFP-SAP WP & ESS	60	Jun-2019			
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2019			
	Complete RI Field Work (MEC/MC)	120	Jan-2020			
	Complete Draft RI Report	60	Mar-2020			
	Complete Final RI Report	60	May-2020			
	<b>Complete Feasibility Study</b>					
	Complete Pre-Draft FS		Aug-2020			
	Complete Draft FS	60	Oct-2020			
	Complete Final FS	90	Dec-2020			
	<b>Complete Proposed Plan</b>					
	Complete Draft PP		Nov-2020			
	Complete Final PP	270	Aug-2021			
UXO 27	<b>Complete RoD</b>					
	Complete Pre-Draft RoD		Jul-2021			
	Complete Draft RoD	60	Aug-2021			
	Complete Final RoD	270	May-2022			
	RoD Signed		Jul-2022			
	<b>Complete Remedial Design</b>					
	Complete 35% RD		Aug-2022			
	Complete 100% RD	90	Nov-2022			
	Complete Final RD	90	Feb-2023			
	<b>Complete Remedial Action</b>					
	Award Remedial Action		Jan-2023			
	Complete Draft RA Work Plan	60	Mar-2023			
	Complete Final RA Work Plan	60	May-2023			
	Start Construction	30	Aug-2023			
	Complete Construction - RIP	120	Dec-2023			
	Complete Closeout Report	30	Jan-2024			
	<b>Complete RACR</b>					
	Complete Final RACR		Jan-2024			
	Sign Final RACR		Mar-2024			



TABLE 4-1  
SCHEDULE (FY19-FY20)  
NSFIH, INDIAN HEAD, MARYLAND



SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
UXO 28	OU 50 - EOD School Demo Area					Major contaminants: MPPEH in soil; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 7/25/21
	Complete Remedial Investigation					Work Plan Includes UXO 1,2,4,5,10,12,21,23,&28 to utilize one field mobilization. (Review of UXO 4,5,12,&21 was completed in the original work plan. UXO 1,2,10,23&28 are newly added and require review.)
	Complete Final RI UFP-SAP WP & ESS	60	Nov-2017		Jan-2018	
	Complete RI Field Work (MEC/MC)	120	Sep-2018		Sep-2018	
	Complete Draft RI Report (Volume 1-MEC)	60	Oct-2018		Dec-2018	
	Complete Final RI Report (Volume 1-MEC)	60	Jul-2019	Oct-2019		
	Complete Draft RI Report (Volume 2-MC)	60	Dec-2018		Mar-2019	
	Complete Final RI Report (Volume 2-MC)	60	Jul-2019	Oct-2019		RI Report to include two volumes- 1 for MEC, 1 for MC
	Complete Feasibility Study					
	Complete Pre-Draft FS		Aug-2019		Nov-2019	
	Complete Draft FS	60	Oct-2019		Jan-2020	
	Complete Final FS	90	Dec-2019		Mar-2020	
	Complete Proposed Plan					
	Complete Draft PP		Nov-2019		May-2020	
	Complete Final PP	270	Aug-2020	Feb-2021		Anticipated delay b/c of RI/FS finalization
	Complete RoD					
	Complete Pre-Draft RoD		Jul-2020		Jan-2021	
	Complete Draft RoD	60	Aug-2020		Feb-2021	
	Complete Final RoD	270	May-2021		Nov-2021	
	RoD Signed		Jul-2021		Jan-2022	
	Complete Remedial Design					
	Complete 35% RD		Aug-2021		Feb-2022	
	Complete 100% RD	90	Nov-2021		May-2022	
	Complete Final RD	90	Feb-2022		Aug-2022	
	Complete Remedial Action					
	Award Remedial Action		Jan-2022		Jul-2022	
	Complete Draft RA Work Plan	60	Mar-2022		Sep-2022	
	Complete Final RA Work Plan	60	May-2022		Nov-2022	
	Start Construction	30	Jun-2022		Dec-2022	
	Complete Construction - RIP	120	Oct-2022		Apr-2023	
	Complete Closeout Report	30	Nov-2022		Jun-2023	
	Complete RACR					
	Complete Final RACR		Jan-2023		Aug-2023	
	Sign Final RACR		Feb-2023		Sep-2023	
UXO 30	OU 51 - Gate 3 Burning Ground					Major contaminants: MPPEH & MC in soil & GW; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 9/28/20
	Complete Remedial Investigation					
	Complete Pre-draft RI UFP-SAP		Nov-2018		Nov-2018	
	Complete Draft RI UFP-SAP		Jun-2019		Jul-2019	
	Complete Final RI UFP-SAP		Sep-2019	Oct-2019		Will be delayed b/c of Navy chemist review time (comments on pre-draft received in Jan 2019), submitting RTCs, and obtaining approval of RTCs. See note above
	Complete Pre-draft ESS		Nov-2018		Nov-2018	
	Complete Draft ESS		Jul-2019		Aug-2019	
	Complete Final ESS		Dec-2019			Was delayed b/c of LANT's initial review time of the pre-draft version. RTCs were submitted on 5/20/19. Received additional comments from LANT; responding to additional comments. This version will be reviewed by NOSSA. See note above
	Complete Draft RI MEC QAPP		Nov-2018		Oct-2018	
	Complete Final RI MEC QAPP		Feb-2019		Feb-2019	
	Complete RI Field Work (MEC/MC)	120	Apr-2020			Work will be done under 2 phases. Phase 1 will be DGM and MC sampling under an ESSDR, and Phase 2 will be intrusive investigation under an ESS. It is assumed that it may take up to 9 months to obtain DDESB approval, but it is further assumed that a waiver will be granted by NOSSA to do the intrusive investigation.
	Complete Draft RI Report	90	Nov-2020			
	Complete Final RI Report	90	Feb-2021			
	Complete Feasibility Study					
	Complete Pre-Draft FS		May-2021			
	Complete Draft FS	60	Jul-2021			The FS report will be initiated after approval of the SRG tech memo by the IHIRT and the RAA by the Navy.
	Complete Final FS	90	Oct-2021			
	Complete Proposed Plan					
	Complete Pre-Draft PP		Nov-2021			
	Complete Draft PP		Jan-2022			
	Complete Final PP	90	Oct-2022			
	Complete RoD					
	Complete Pre-Draft RoD		Nov-2022			
	Complete Draft RoD	60	Jan-2023			
	Complete Final RoD	60	Oct-2023			
	RoD Signed		Dec-2023			
	Complete Remedial Design					
	Complete 35% RD		Jan-2024			
	Complete 100% RD	90	Mar-2024			
	Complete Final RD	60	Jun-2024			
	Complete Remedial Action					
	Award Remedial Action		Sep-2024			Depends on availability of funding.
	Complete Draft RA Work Plan	30	Dec-2024			
	Complete Final RA Work Plan	60				
	Start Construction	30	Feb-2025			
	Complete Construction - RIP	60	May-2025			
	Complete Closeout Report	30	Oct-2025			It is assumed that 2 versions (draft and final) will be prepared.
	Complete LUC RD					
	Complete Draft LUC RD		Mar-2024			
	Complete Final LUC RD	30	Jun-2024			
	Complete LTMP					
	Complete Draft LTMP		Mar-2024			
	Complete Final LTMP	30	Jun-2024			
	Complete RACR					
	Complete Final RACR		Dec-2024			
	Sign Final RACR		Feb-2025			
UXO 31	OU 52 - Pope's Creek					Major contaminants: MPPEH/water site; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 9/16/26
	Complete Remedial Investigation		Sep-2023			
UXO 33	OU 53 - Water Impact Area					Major contaminants: MPPEH/water site; Probable exit strategy: removal & LUCs; Last milestone: Final SI Report- 9/10; NORM RC Date: 9/30/28
	Complete Remedial Investigation		Sep-2024			

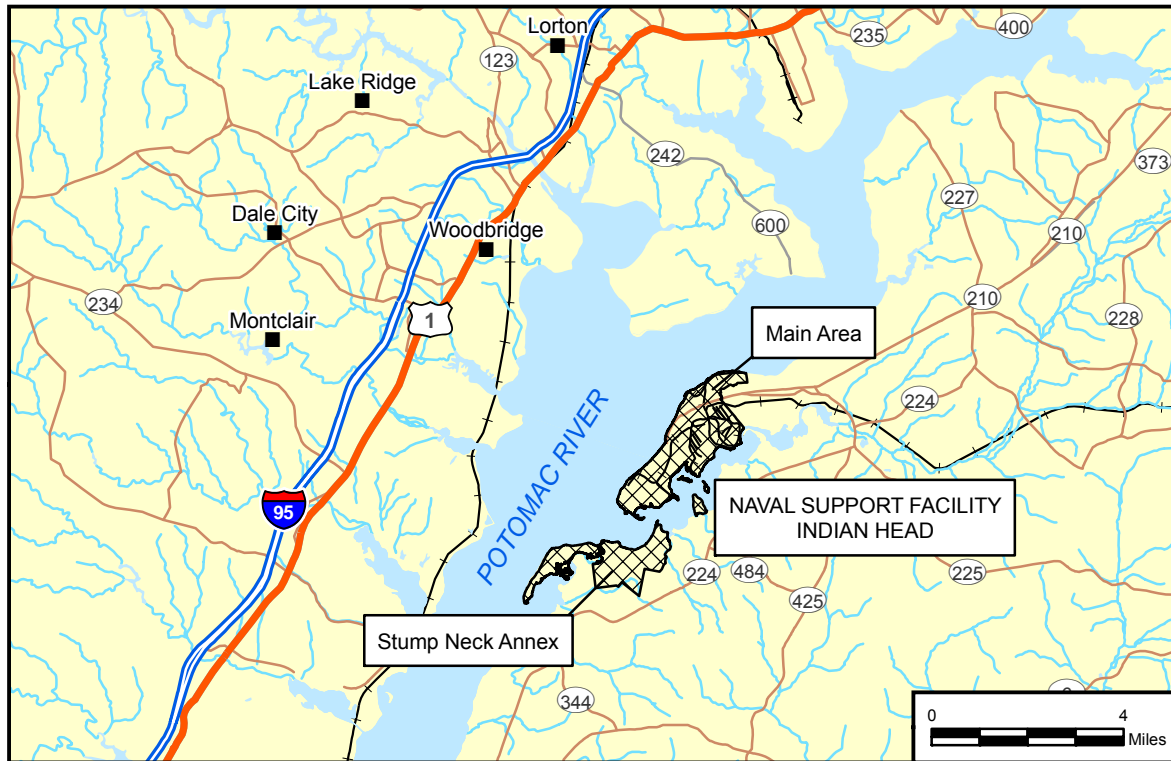
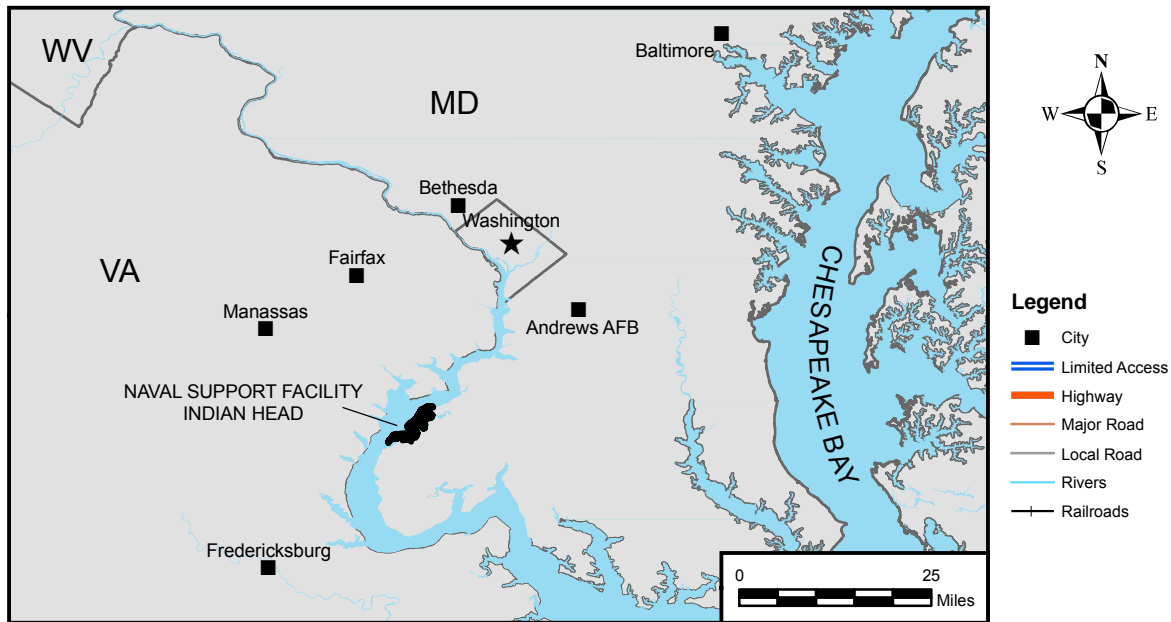



**TABLE 4-1**  
**SCHEDULE (FY19-FY20)**  
**NSFIH, INDIAN HEAD, MARYLAND**



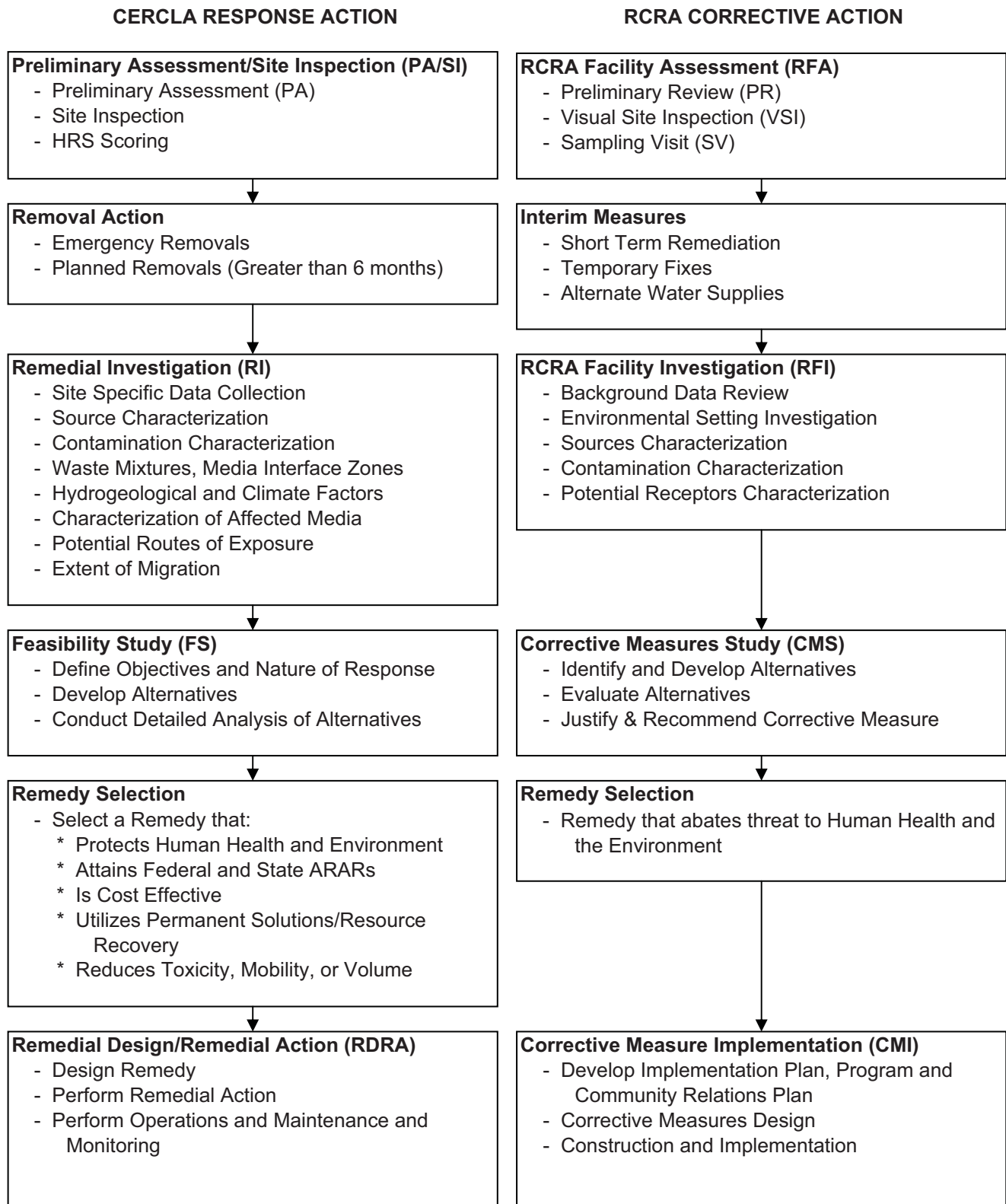
SITE	GOAL/MILESTONE	DUR <sup>(1)</sup>	PLANNED DATE	REVISED DATE	ACTUAL DATE	COMMENTS
Stump Neck MRP Small Arms Ranges	UXO 16-Rum Point Skeet Range, UXO 17-Small Arms (Pistol Range), & UXO 25-Roach Road Rifle Range					Major contaminants: Metals in soil; Probable exit strategy: removal Last milestone: Action Memo- 7/17
	Complete Remedial Action					
	Start Construction	30	May-2018		Aug-2018	
	Complete Removal Action		Jan-2019		Mar-2019	Mission Cleanup milestone
	Complete Closeout Document					
	Complete Draft Removal Action Closeout Report		Jun-2019		Jul-2019	
	Complete Final Removal Action Closeout Report	60	Aug-2019		Sep-2019	
	Complete Draft Decision Document		Aug-2019		Aug-2019	Will be prepared after Closeout Report
	Complete Final Decision Document	30	Sep-2019		Sep-2019	Navy RC goal for FY19
	UXO 14-Marine Rifle Range & UXO 15 Old Skeet & Trap Range					Major contaminants: Metals in soil; Probable exit strategy: removal Last milestone: Action Memo- 7/17
	Complete Draft ESS		Jun-2019		Aug-2019	ESS required for UXO 14 & 15.
	Complete Final ESS		Dec-2019			
	Complete Remedial Action					
	Start Construction	30	Jan-2020			
	Complete Removal Action		Jun-2020			Mission Cleanup milestone
	Complete Closeout Document					
	Complete Draft Closeout Report		Aug-2020			
	Complete Final Closeout Report	60	Oct-2020			
	Complete Draft Decision Document		Nov-2020			Will be prepared after Closeout Report
	Complete Final Decision Document	30	Jan-2021			Navy RC goal for FY21
Update MRSPP Rankings	Complete MRSPP Rankings					
	Complete Draft MRSPP		TBD			
	Complete Public Notice		TBD			May be updated, as needed, depending on investigation results.
	Complete Final MRSPP		TBD			

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DRAWN BY K. MOORE	DATE 03/20/09	<div>TETRA TECH</div> <div>FACILITY LOCATION MAP NAVAL SUPPORT FACILITY INDIAN HEAD INDIAN HEAD, MARYLAND</div>	CONTRACT NUMBER CTO JU14		
CHECKED BY E. CORACK	DATE 06/20/11		APPROVED BY E. CORACK	DATE 06/20/11	
DRAWN BY J. ENGLISH	DATE 06/21/11		APPROVED BY —	DATE —	
SCALE AS NOTED			FIGURE NO.	FIGURE 1-1	REV 0

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**FIGURE 1-2**  
**CERCLA PROCESS VS. RCRA PROCESS**  
**NAVAL SUPPORT FACILITY INDIAN HEAD**  
**INDIAN HEAD, MARYLAND**





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**Water Area Munitions Study  
NDW, Indian Head, Maryland**



**MALCOLM  
PIRNIE**

**Figure 1-3  
Area Location Map**

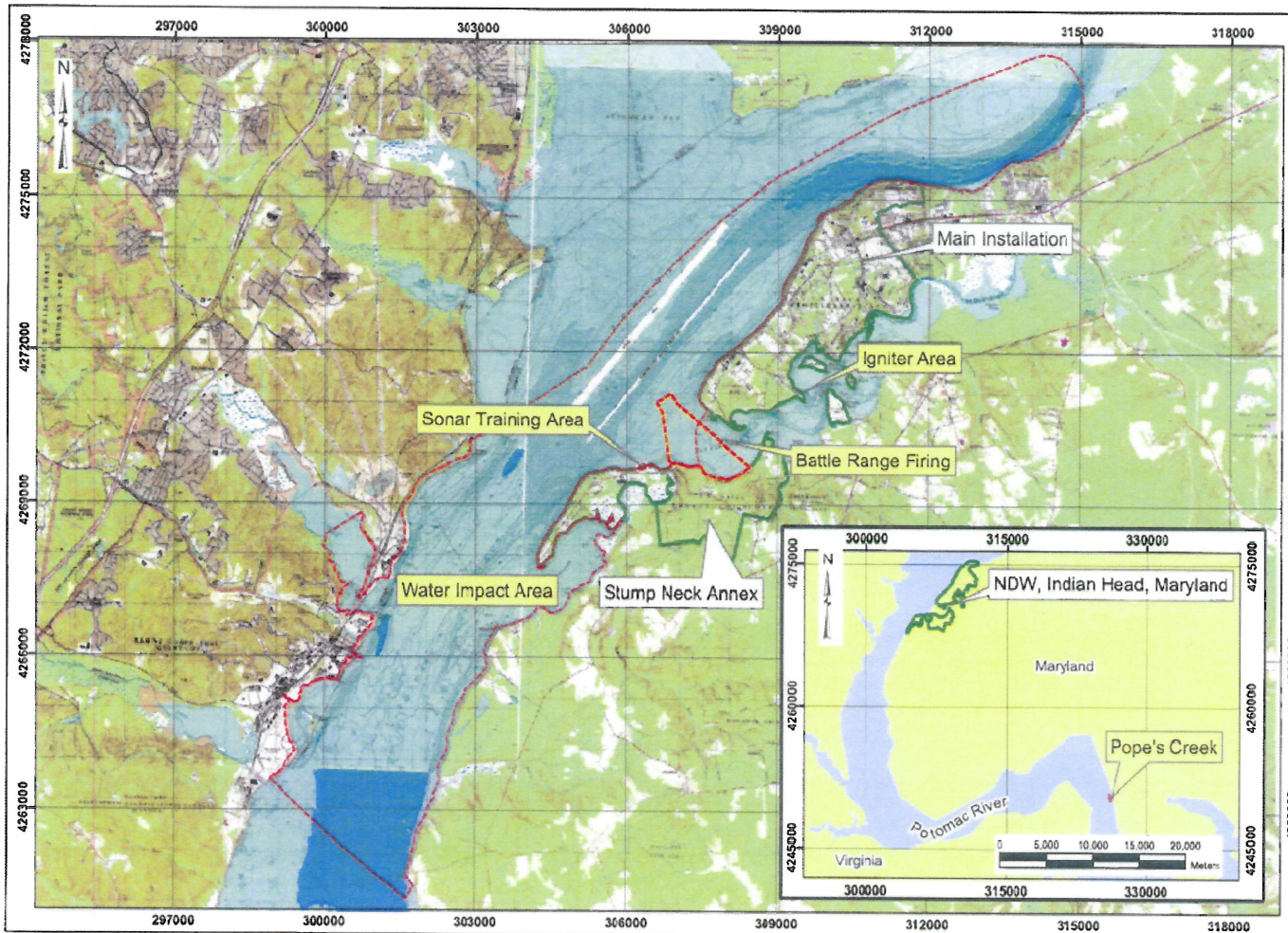
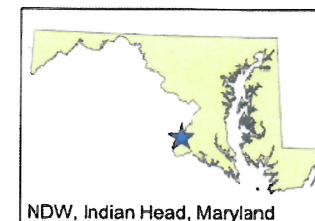
-  Installation Boundary
-  Sonar Training Area
-  Battle Range Firing
-  Water Impact Area
-  Igniter Area
-  Popes Creek

0 1,250 2,500 3,750 5,000 Meters

Data Source: USGS, 7.5 Minute Series  
Topographic Survey - Bathymetric Map  
Indian Head, MD-VA, 1981  
Quantico, VA-MD, 1981

Coordinate System: UTM Zone 18N  
Datum: NAD 83  
Units: Meters

Contract: N62472-02-D-130C  
Edition: Final Water Area Munitions Study  
Date: February 2005



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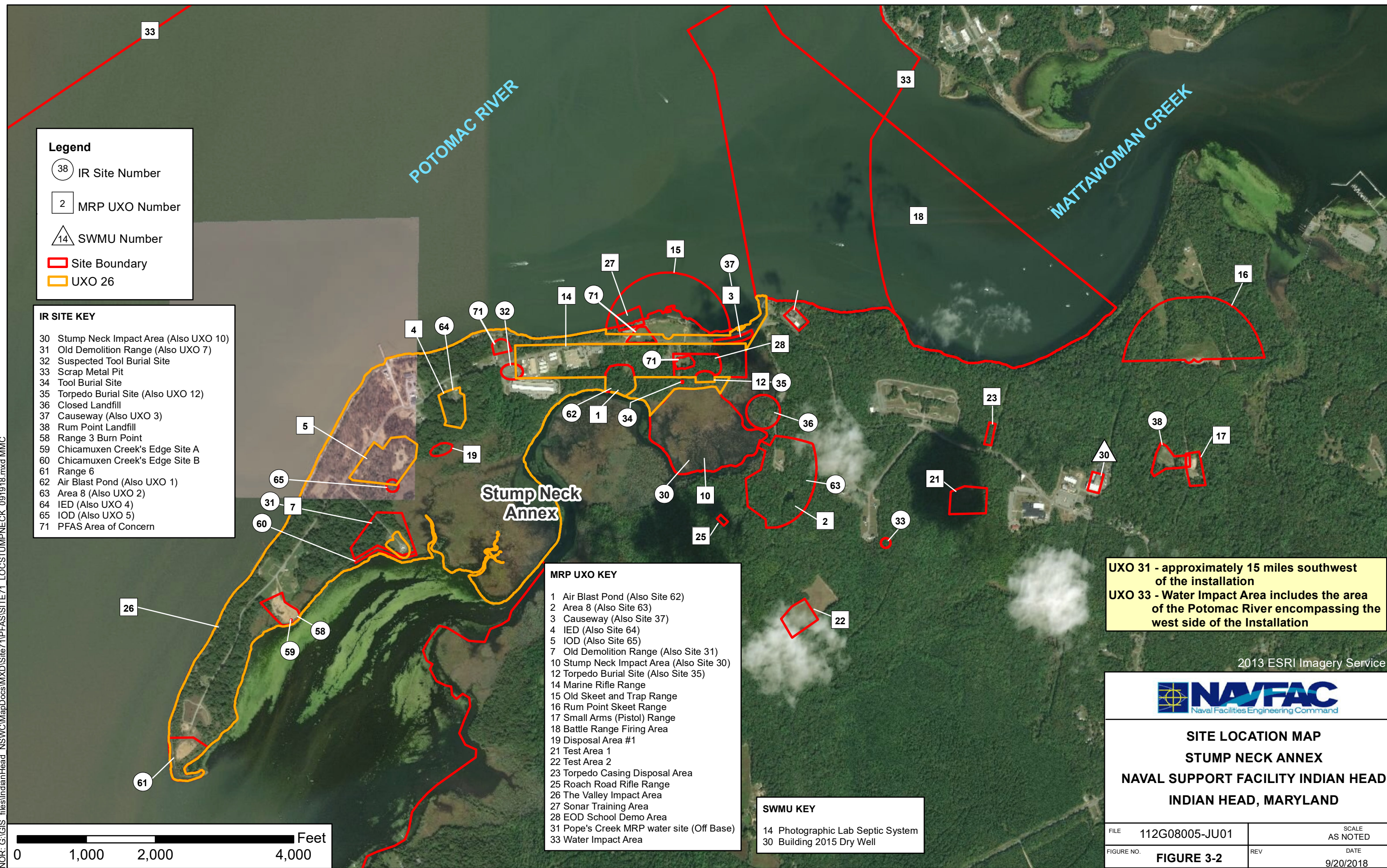




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**APPENDIX A**  
**NSFIH – Main Area Site Figures**



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**TABLE A-1**  
**FIGURE INDEX**  
**INSTALLATION RESTORATION (IR) PROGRAM SITES**  
**MAIN AREA**  
**NSF-IH, INDIAN HEAD, MARYLAND**

IR Site ID	AOC / SWMU ID	MRP UXO ID	Name of IR Site	Figure No.
NA			IR Sites, Main Area	A-1
1			Thorium Spill	A-2
2			Waste Crank Case Oil Applied to Torrence Road	A-3
3			Nitroglycerin Explosion, Nitration Building Area	A-4
4			Lloyd Road Oil Spill Sites	A-5
5			X-Ray Building 731	A-6
6			Building 1349, Hypo Spill, Radiographic Facility Accelerator	A-7
7			Building 682, HMX Spill	A-4
8			Building 766, Mercury Deposits	A-8
9			Patterson Avenue, Oil Spill	A-5
10		9	Single-base Propellant Grains Spill	A-9
11			Caffee Road Landfill	A-10
12			Town Gut Landfill	A-11
13			Paint Solvents Disposal Ground	A-12
14			Waste Acid Disposal Pit	A-13
15			Mercury Deposits in Manhole, Fluorine Lab	A-13
16			Laboratory Chemical Disposal	A-13
17			Disposed Metal Parts Along Shoreline	A-14
18			Hog Island	A-15
19			Catch Basins at Chip Collection Houses	A-16
20			Single-base Powder Facilities	A-17
21			Bronson Road Landfill	A-15
22		6	NG Slums Burning Site	A-18
23			Hydraulic Oil Spill Discharges From Extrusion Plant	A-19
24			Abandoned Drain Lines	A-17
25			Hypo Discharge X-Ray Building No. 2	A-20
26			Thermal Destructor 2	A-21
27			Thermal Destructor 1	A-22
28		8	Original Burning Ground	A-23
29		11	The Valley	A-3
39			Silver Release to Sediments	A-24
40			Palladium Catalyst in Sediments	A-24

IR Site ID	AOC / SWMU ID	MRP UXO ID	Name of IR Site	Figure No.
41		32	Scrap Yard	A-22
42			Olsen Road Landfill	A-6
43			Toluene Disposal Site	A-25
44			Soak Out Area	A-26
45			Abandoned Drums	A-26
46			Cadmium Sandblast Grit	A-27
47			Mercuric Nitrate Disposal Area	A-27
48			Nitroglycerin Plant Disposal Area	A-8
49			Chemical Disposal Pit	A-13
50			Building 103, Crawl Space	A-13
51			Building 101, Dry Well	A-13
52			Building 102, Dry Well	A-13
53			Mercury Contamination of the Sewage System	A-13
54			Building 101	A-13
55			Building 102	A-13
56			IW87 - Lead Contamination	A-8
57			TCE Building 292 Area	A-17
66			Turkey Run Disposal Area	A-28
67			Hog Out Facility	A-29
		20	Safety Thermal Treatment Point	A-31
		13	FDR Skeet Range	A-30
		19	Igniter Area - (Water Site)	none
		29	Southwestern Pistol Range	A-32
		30	Gate 3 Burning Ground	A-33
		31	Pope's Creek (Water Site)	none
		33	Water Impact Area - (Water Site)	none
69			Building 1018 (Oxidizer Process Building)	A-34
68	31		Former Building 259 Contamination	A-35
70			Scrap Yard Groundwater	A-36
71	*		PFAS Areas of Concern (1 of 2 on Main Area)	A-37
71	*		PFAS Areas of Concern (2 of 2 on Main Area)	A-38

\* New "Site 71" is an Area of Concern (AOC) consisting of five potential PFAS sites: two on the Main Area (Figure A-1) and three on the Stump Neck Annex (Figure B-1).

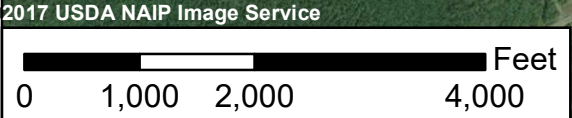




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Legend

- 6 IR Site Number
- 20 MRP UXO Number
- 21 SWMU Number
- Site Boundary



SWMU KEY

- 21 Caffee Road Decontamination Burn Point
- 38 Caffee Road Waste Oil Storage Area

MRP UXO KEY

- 6 NG Slums Burning Site (also IR Site 22)
- 8 Original Burning Ground (also IR Site 28)
- 9 Single-base Propellant Grains Spill (also IR Site 10)
- 11 The Valley (also IR Site 29)
- 13 FDR Skeet Range
- 19 Igniter Area
- 20 Safety Thermal Treatment Point
- 29 Southwestern Pistol Range
- 30 Gate 3 Burning Ground
- 32 Scrap Yard (also IR Site 41)
- 33 Water Impact Area

IR SITE KEY

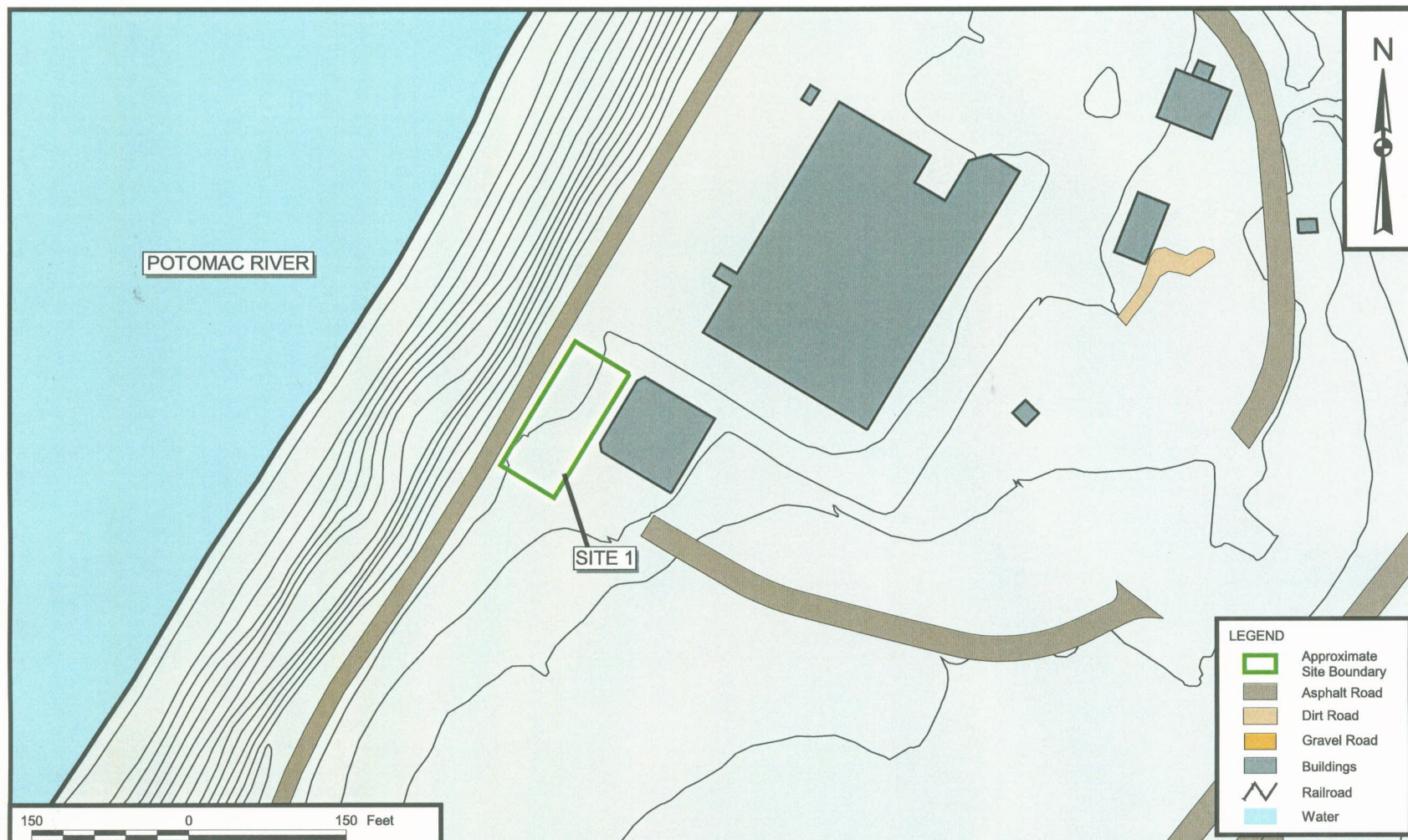
- 1 Thorium Spill
- 2 Waste Crank Case Oil Applied to Torrence Road
- 3 Nitroglycerin Explosion, Nitration Building Area
- 4 Lloyd Road Oil Spill Sites
- 5 X-Ray Building 731
- 6 Building 1349, Hypo Spill
- 7 Building 682, HMX Spill
- 8 Building 766, Mercury Deposits
- 9 Patterson Avenue, Oil Spill
- 11 Caffee Road Landfill
- 12 Town Gut Landfill
- 13 Paint Solvents Disposal Ground
- 14 Waste Acid Disposal Pit
- 15 Mercury Deposits in Manhole, Fluorine Lab
- 16 Laboratory Chemical Disposal
- 17 Disposed Metal Parts Along Shoreline
- 18 Hog Island
- 19 Catch Basin at Chip Collection Houses
- 20 Single-based Powder Facility
- 21 Bronson Road Landfill
- 23 Hydraulic Oil Spill Discharges from Extrusion Plant
- 24 Abandoned Drain Lines
- 25 Hypo Discharge X-Ray Building No.2
- 26 Thermal Destructor 2
- 27 Thermal Destructor 1
- 28 Original Burning Ground
- 39 Silver Release to Sediments
- 40 Palladium Catalyst in Sediments
- 42 Olsen Road Landfill
- 43 Toluene Disposal Site
- 44 Soak Out Area
- 45 Abandoned Drums
- 46 Cadmium Sandblast Grit
- 47 Mercuric Nitrate Disposal Area
- 48 Nitroglycerine Plant Disposal Area
- 49 Chemical Disposal Pit
- 50 Building 103, Crawl Space
- 51 Building 101, Dry Well
- 52 Building 102, Dry Well
- 53 Mercury Contamination of the Sewage System
- 54 Building 101
- 55 Building 102
- 56 IW87 - Lead Contamination
- 57 TCE Building 292 Area
- 66 Turkey Run Disposal Area
- 67 Hog-Out Facility
- 68 Former Building 259 Contamination
- 69 Building 1018 (Oxidizer Process Building)
- 70 Groundwater Contamination Along Water Works Way
- 71 PFAS Area of Concern



SITE LOCATION MAP  
MAIN AREA  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND

FILE	112G08005-JU01	SCALE	AS NOTED
FIGURE NO.	FIGURE A-1	REV	DATE
			9/20/2018





DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
GJL	12/29/06
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 1 - THORIUM SPILL  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
GJL

DATE  
12/29/06

APPROVED BY

DATE

DRAWING NO.  
FIGURE A-2

REV  
0





DRAWN BY K. PEILA		DATE 8/7/02		Tetra Tech NUS, Inc.		CONTRACT NUMBER 4020		OWNER NUMBER —	
CHECKED BY GJL		DATE 8/7/02				APPROVED BY GJL		DATE 6/27/05	
COST/SCHEDULE-AREA				SITE 2 - WASTE CRANK CASE OIL APPLIED TO TORRENCE ROAD AND SITE 29 - THE VALLEY MAIN AREA NAVAL DISTRICT WASHINGTON, INDIAN HEAD INDIAN HEAD, MARYLAND					
SCALE AS NOTED									
				DRAWING NO. FIGURE A-3				REV 0	





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CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 3 - NITRATION BUILDING AREA AND  
SITE 7 - HMX SPILL, SLURRY MIX BUILDING 682  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
G.JL

DATE  
12/29/06

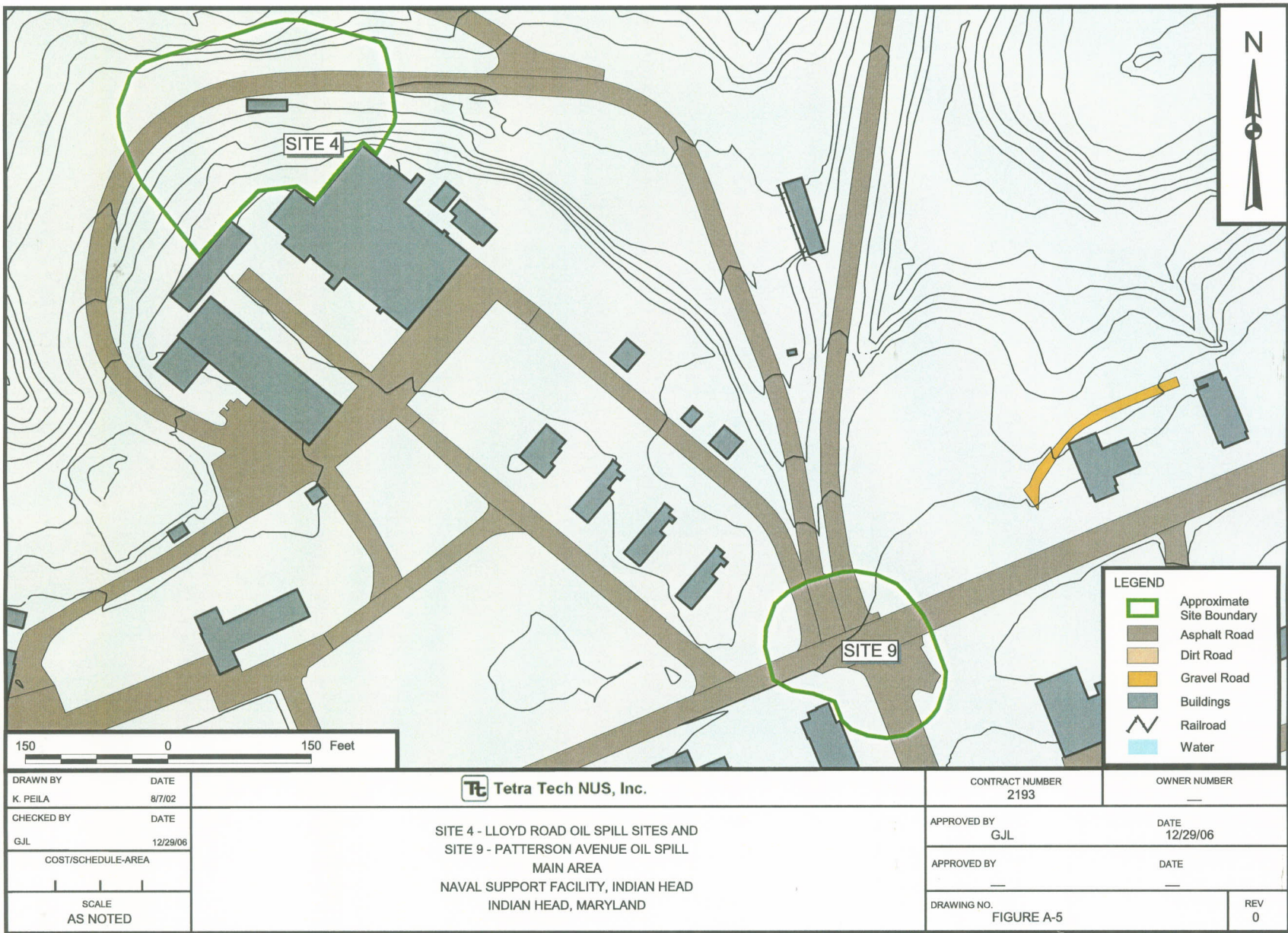
APPROVED BY

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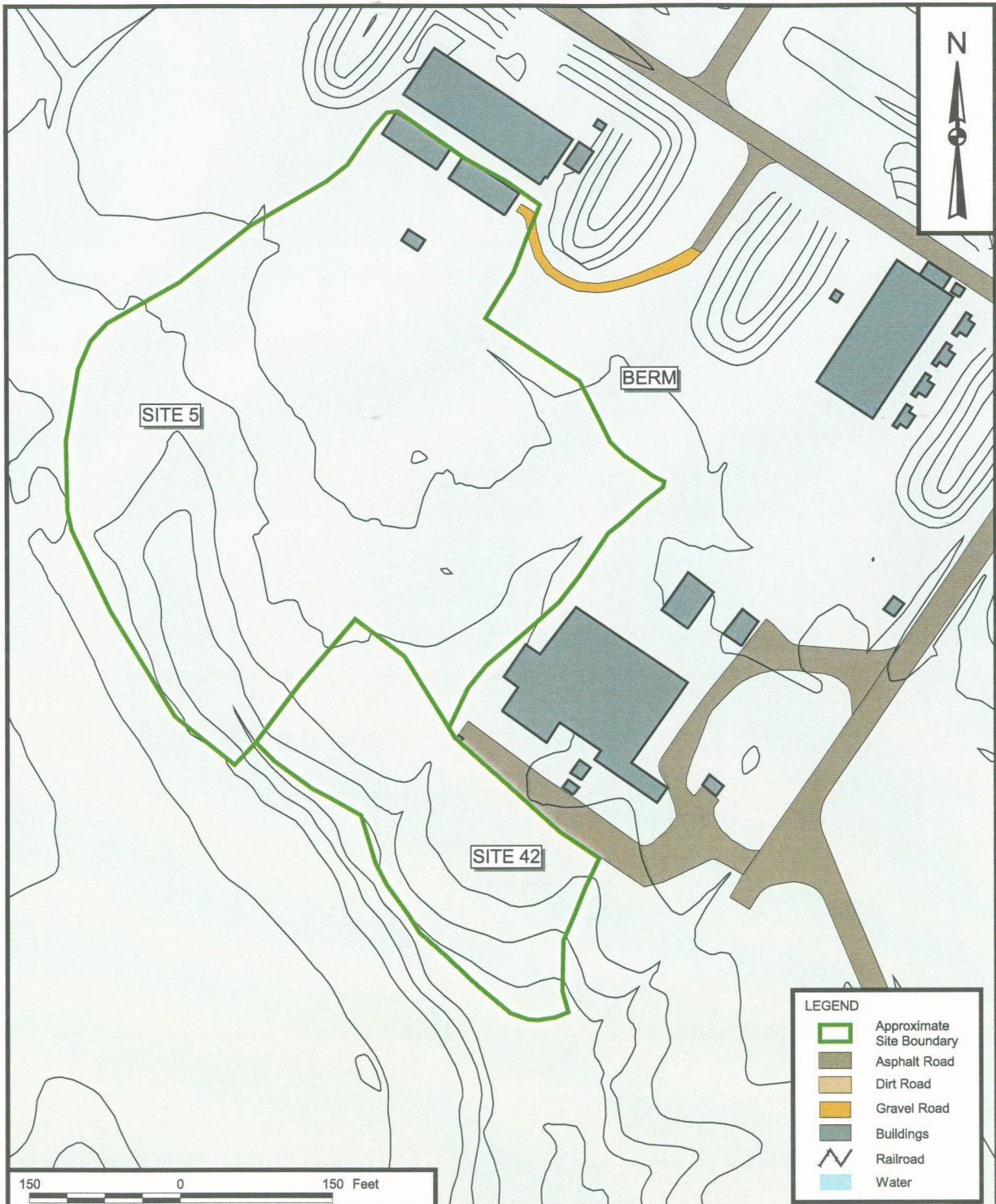
DRAWING NO.  
FIGURE A-4

REV  
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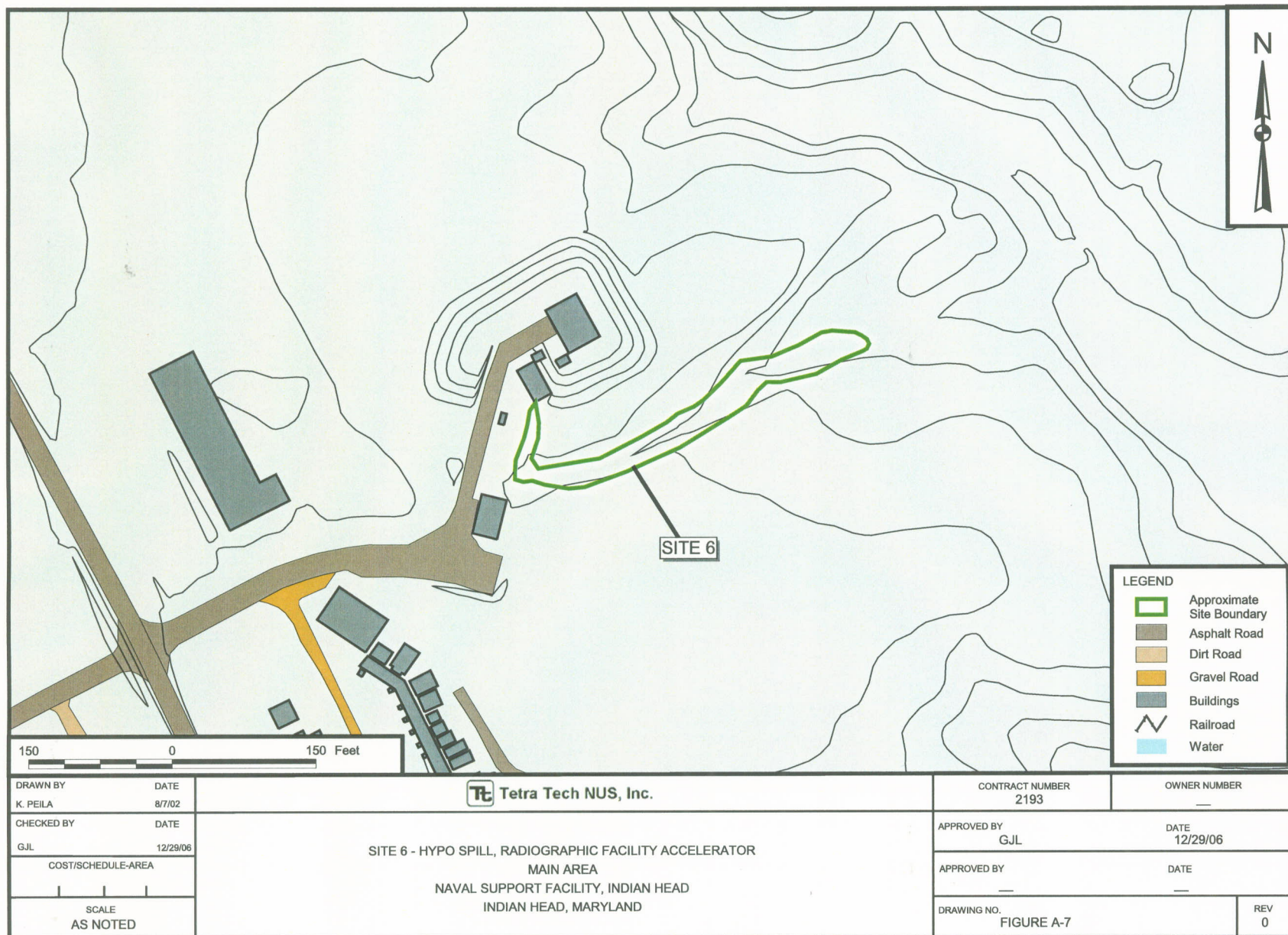




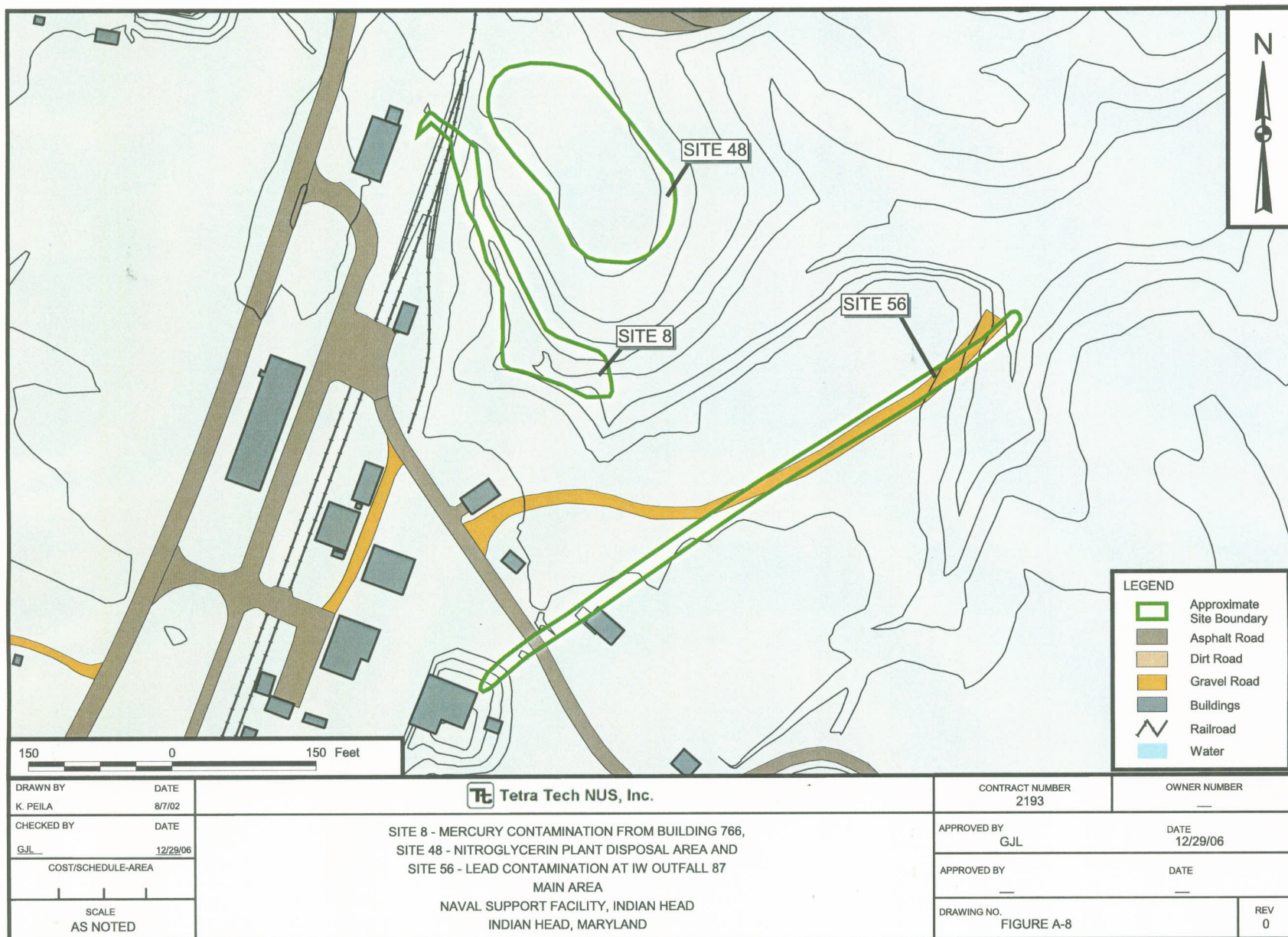


DRAWN BY K. PEILA DATE 8/7/02		Tetra Tech NUS, Inc.  SITE 5 - X-RAY BUILDING 731 AND SITE 42 - OLSEN ROAD LANDFILL MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND	CONTRACT NUMBER 2193		OWNER NO. —	
CHECKED BY G.J.L. DATE 12/29/06			APPROVED BY G.J.L. DATE 12/29/06		DATE 12/29/06	
COST/SCHEDULE-AREA —			APPROVED BY —		DATE —	
SCALE AS NOTED			DRAWING NO. FIGURE A-6		REV 0	

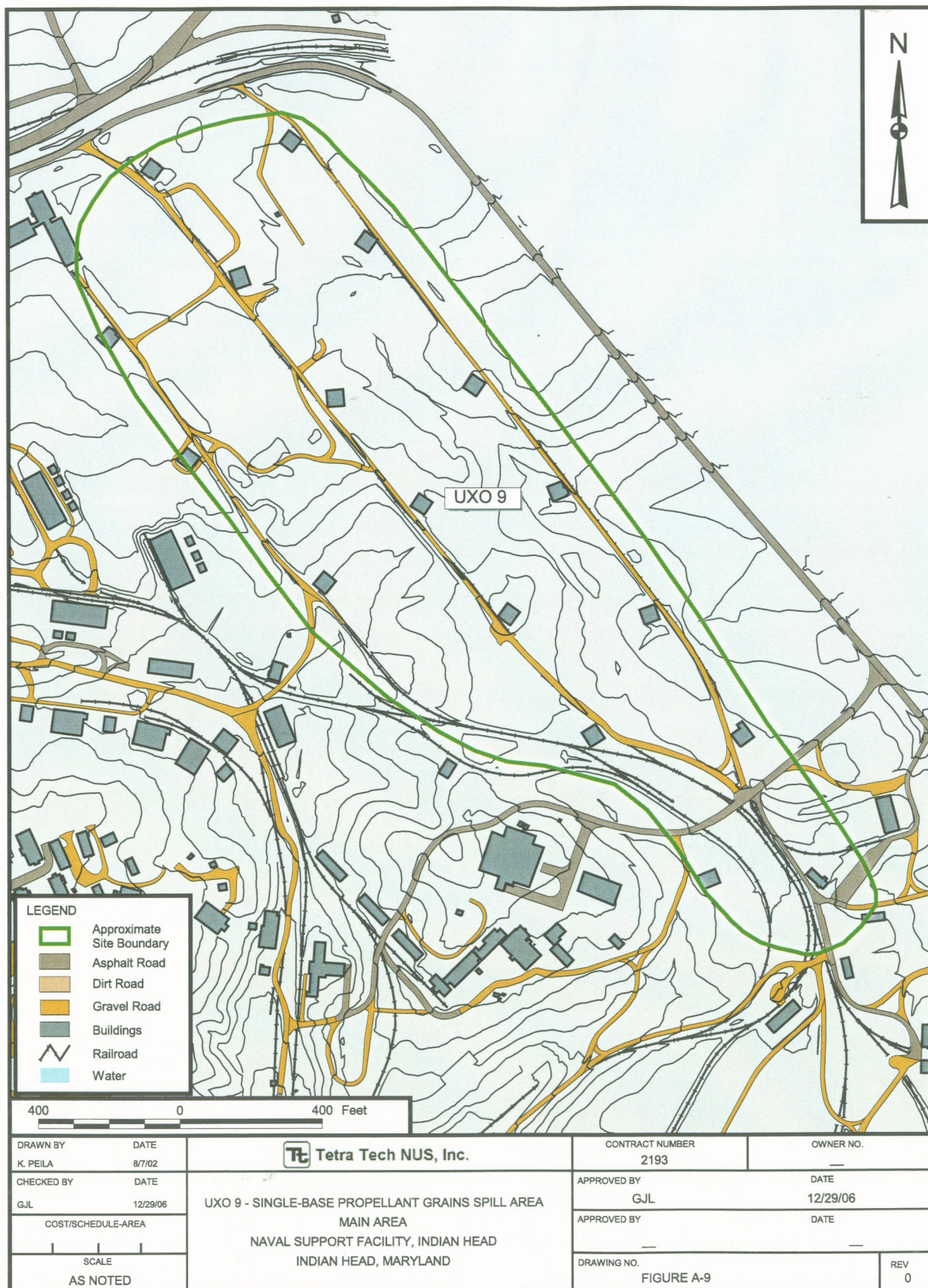
















LEGEND	
	Approximate Site Boundary
	Asphalt Road
	Dirt Road
	Gravel Road
	Buildings
	Railroad
	Water



DRAWN BY K. PEILA	DATE 8/7/02	Tetra Tech NUS, Inc.  SITE 11 - CAFFEE ROAD LANDFILL MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND	CONTRACT NUMBER 2193	OWNER NUMBER —
CHECKED BY GJL	DATE 12/29/06		APPROVED BY GJL	DATE 12/29/06
COST/SCHEDULE-AREA			APPROVED BY —	DATE —
SCALE AS NOTED			DRAWING NO. FIGURE A-10	REV 0









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K. PEILA	8/7/02
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G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 13 - PAINT SOLVENTS DISPOSAL GROUND  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
G.JL

DATE  
12/29/06

APPROVED BY

DATE

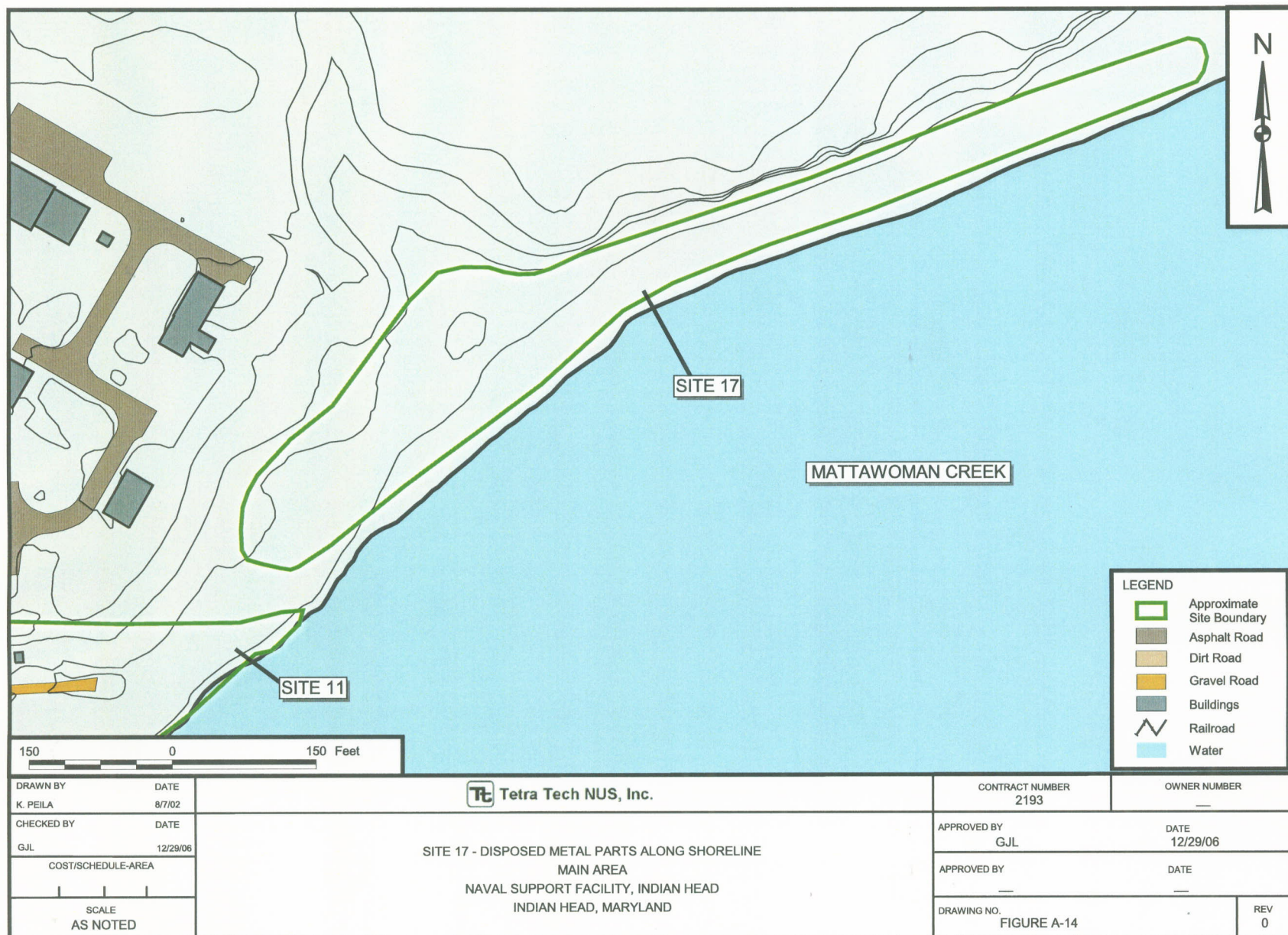
DRAWING NO.  
FIGURE A-12

REV  
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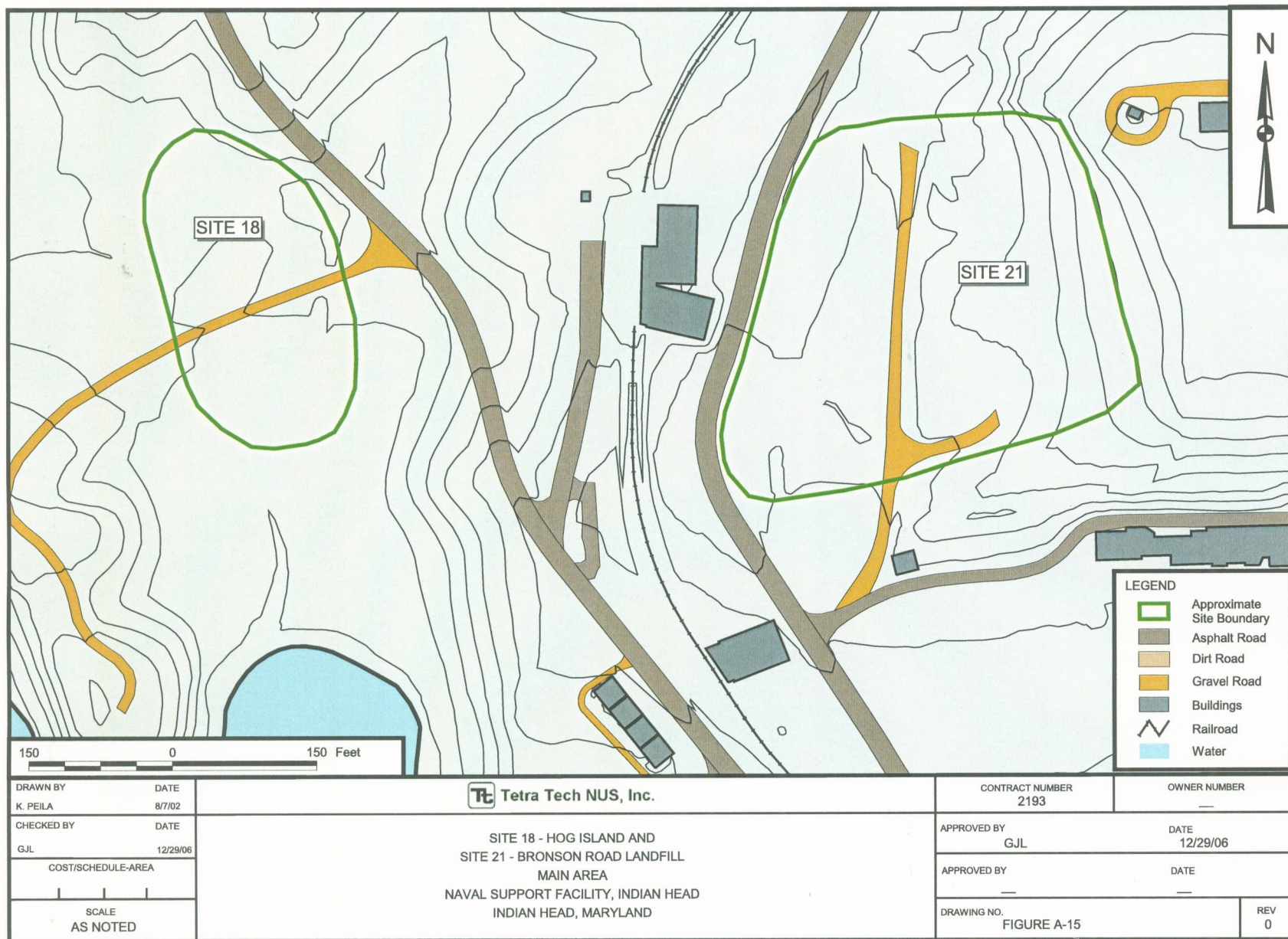




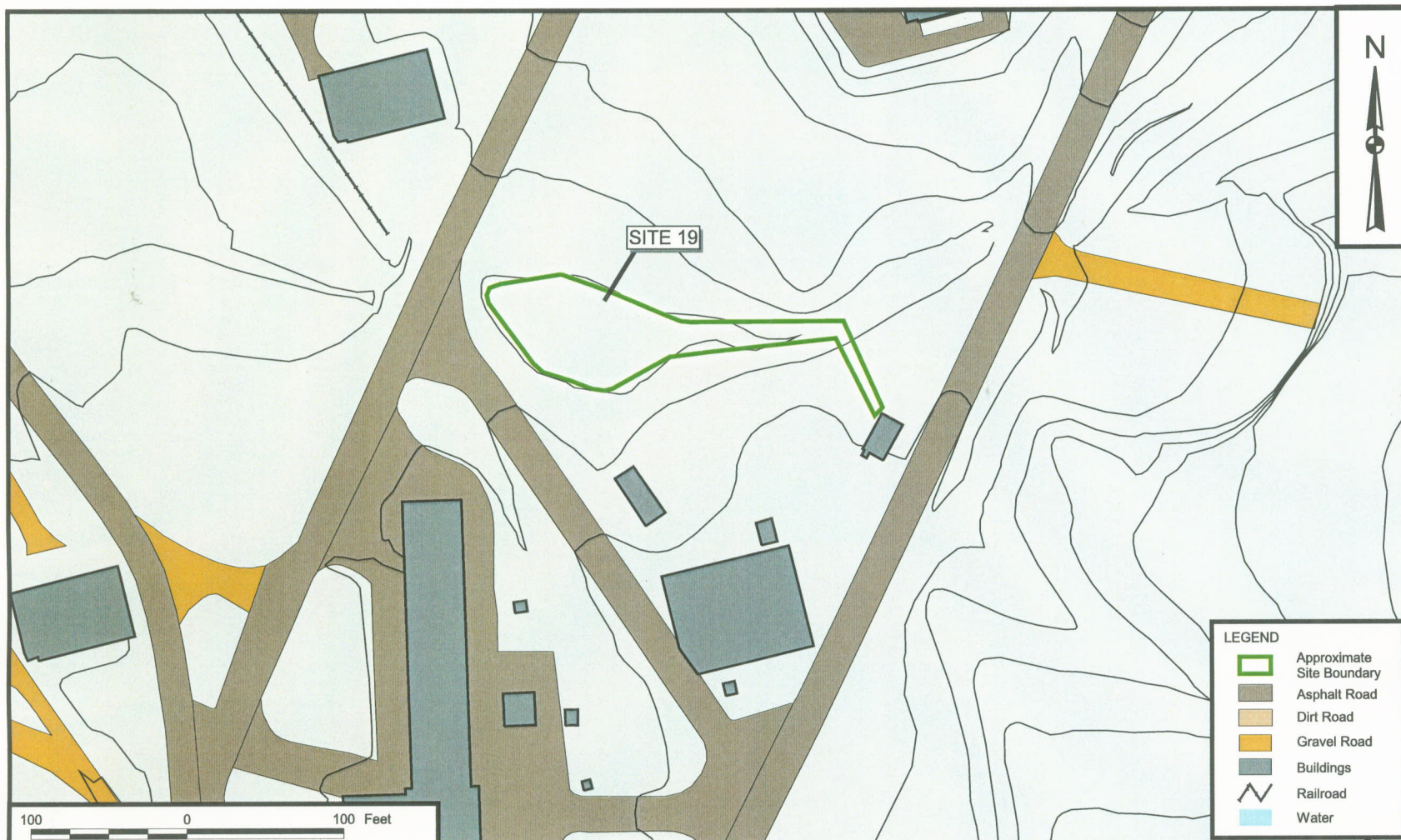












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CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 19 - CATCH BASINS AT CHIP COLLECTION HOUSES (1051)  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
G.JL

DATE  
12/29/06

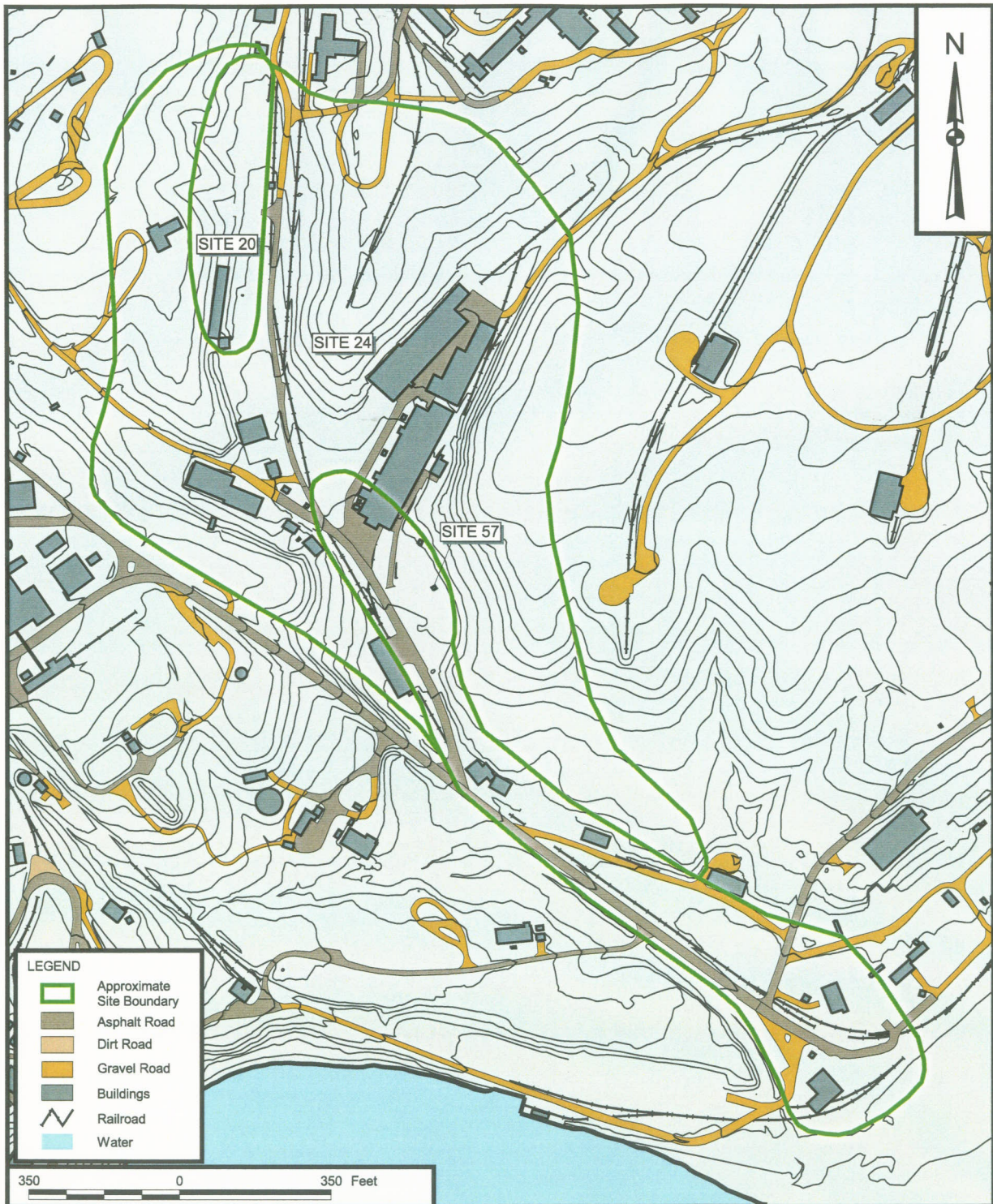
APPROVED BY

DATE

DRAWING NO.  
FIGURE A-16

REV  
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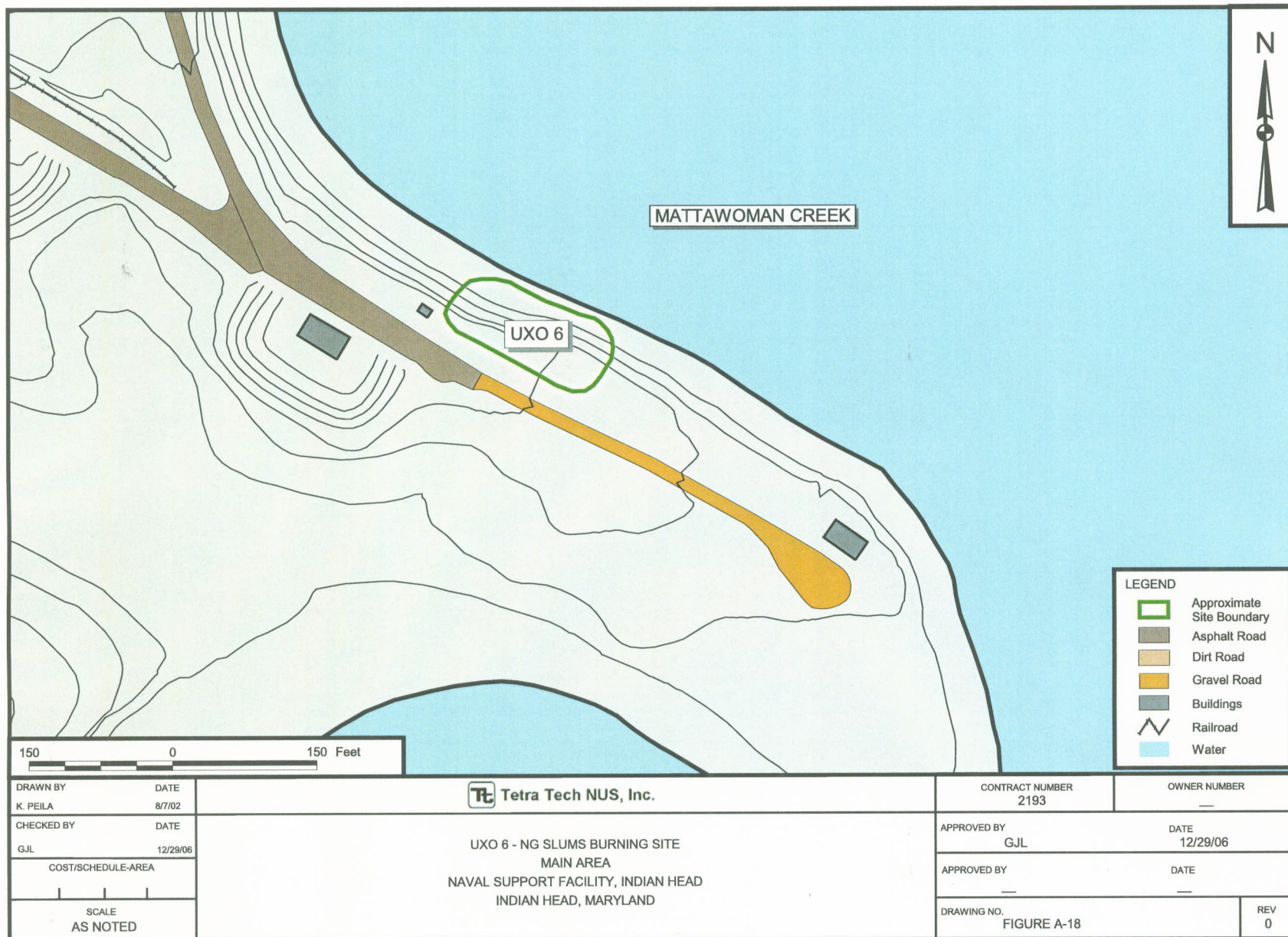




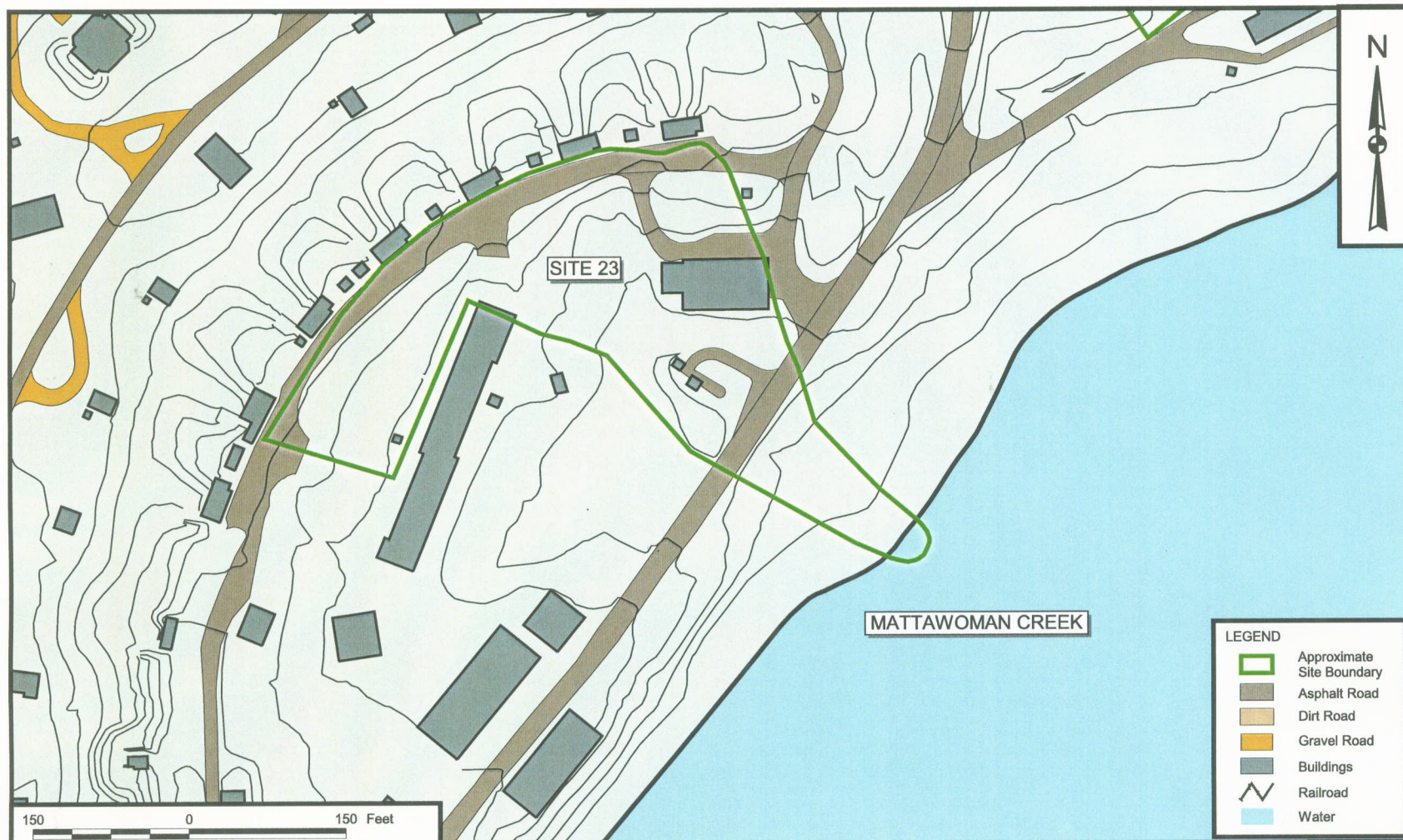
DRAWN BY K. PEILA	DATE 8/7/02	Tetra Tech NUS, Inc.  SITE 20 - SINGLE-BASED POWDER FACILITY, SITE 24 - ABANDONED DRAIN LINES AND SITE 57 - BUILDING 292 TCE CONTAMINATION MAIN AREA  NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND	CONTRACT NUMBER 2193	OWNER NO. —
CHECKED BY G.J.L.	DATE 12/29/06		APPROVED BY G.J.L.	DATE 12/29/06
COST/SCHEDULE-AREA			APPROVED BY —	DATE —
SCALE AS NOTED			DRAWING NO. FIGURE A-17	REV 0

P:\GIS\INDIANHEAD\_NSWC\APRIS\ITEMANAGEMENT\PLAN.APR SITE 20/SITE 24/SITE 57 1/09/07 SS









DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 23 - HYDRAULIC OIL DISCHARGES FROM EXTRUSION PLANT  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER  
—

APPROVED BY  
G.JL

DATE  
12/29/06

APPROVED BY  
—

DATE  
—

DRAWING NO.  
FIGURE A-19

REV  
0





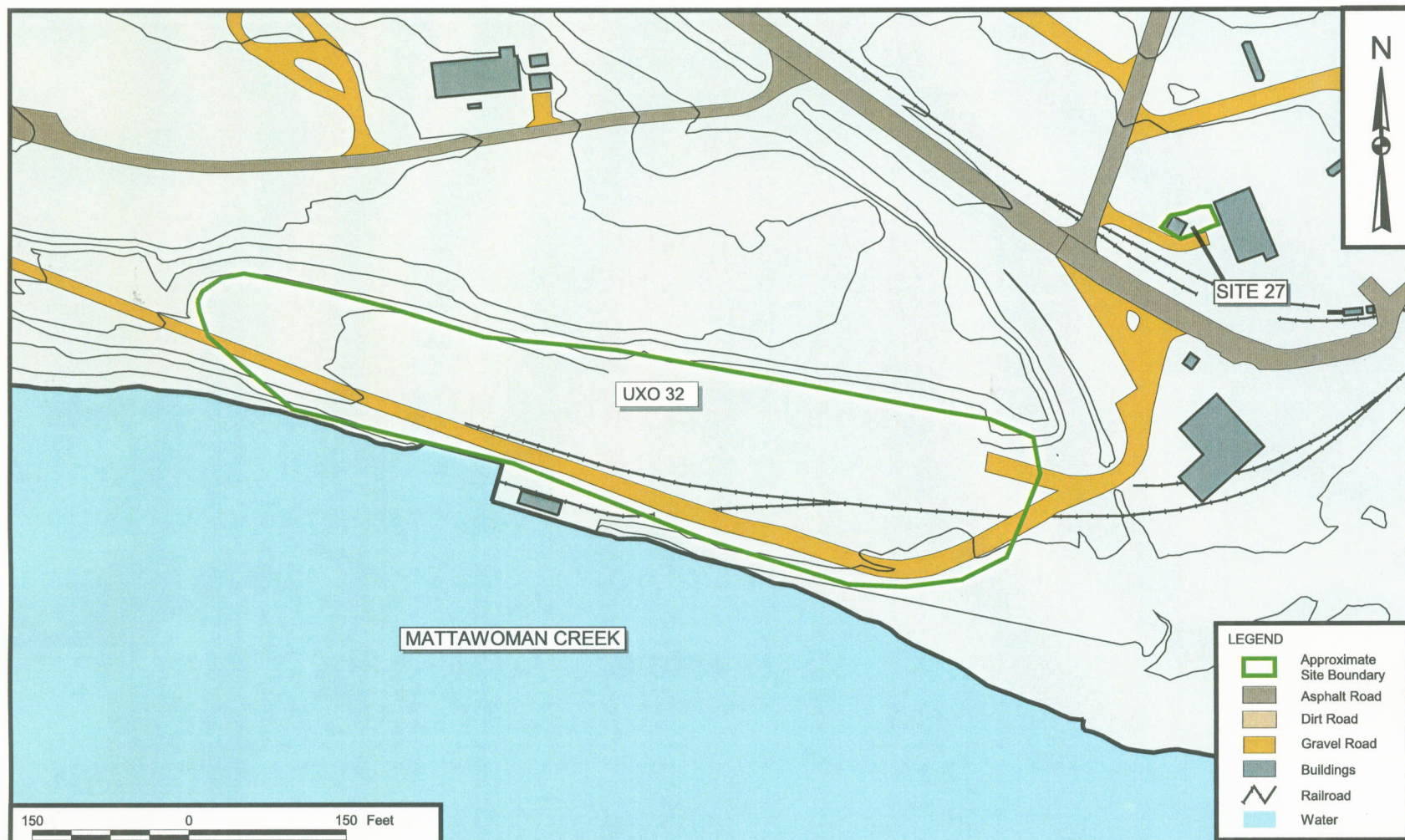
DRAWN BY K. PEILA DATE 8/7/02		Tetra Tech NUS, Inc.		CONTRACT NUMBER 2193	OWNER NUMBER —
CHECKED BY G.JL DATE 12/29/06		SITE 25 - HYPO DISCHARGE X-RAY BUILDING NO. 2 MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND		APPROVED BY GJL DATE 12/29/06	
COST/SCHEDULE-AREA <div style="display: flex; justify-content: space-around; width: 100px;"> <div></div> <div></div> <div></div> </div> SCALE AS NOTED				APPROVED BY — DATE —	
				DRAWING NO. FIGURE A-20	REV 0






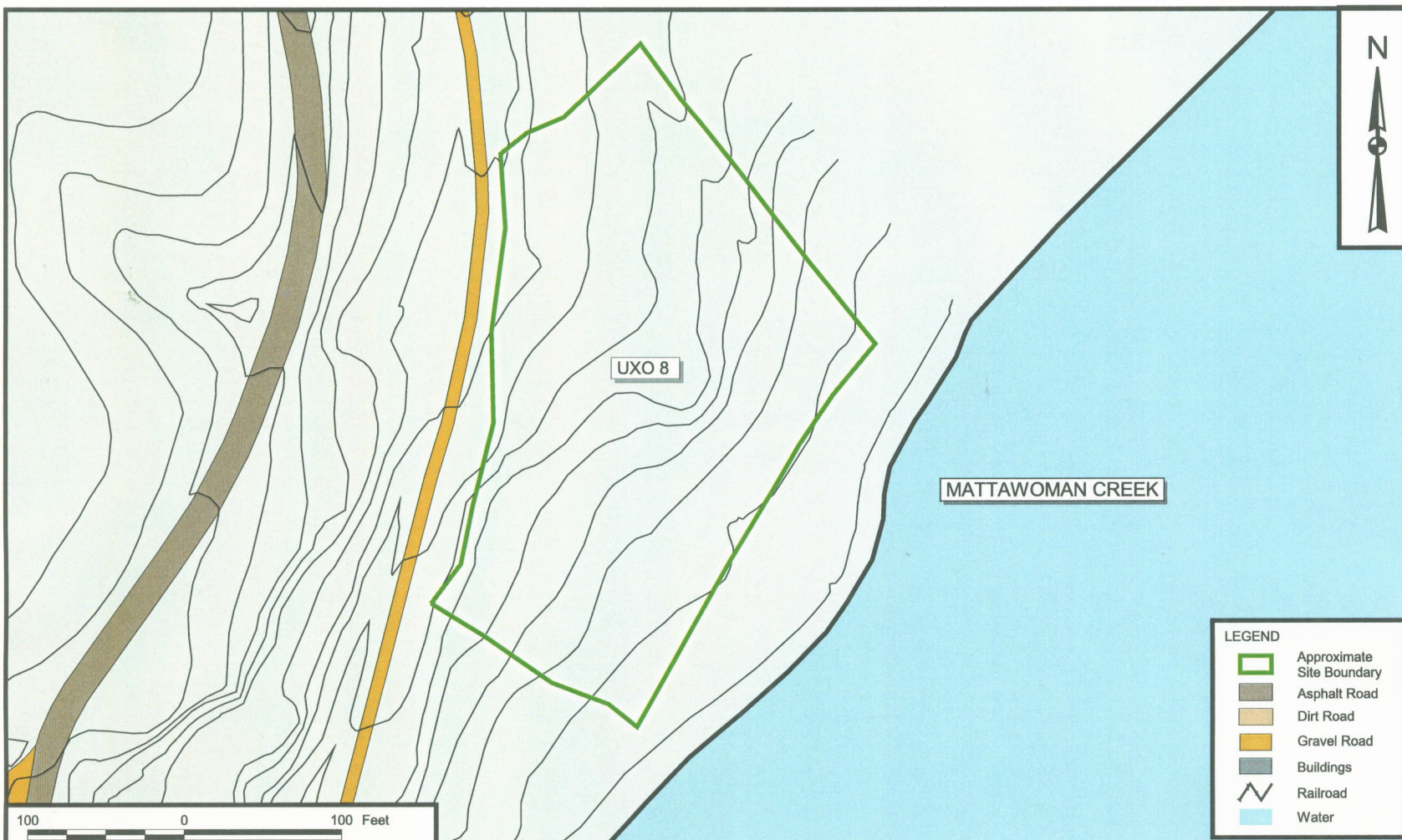
DRAWN BY K. PEILA DATE 8/7/02		<b>Tetra Tech NUS, Inc.</b>  SITE 26 - THERMAL DESTRUCTOR 2 MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND	CONTRACT NUMBER 2193		OWNER NUMBER —	
CHECKED BY G.JL DATE 12/29/06			APPROVED BY G.JL DATE 12/29/06		APPROVED BY — DATE —	
COST/SCHEDULE-AREA SCALE AS NOTED			DRAWING NO. FIGURE A-21		REV 0	





DRAWN BY K. PEILA DATE 8/7/02		 <b>Tetra Tech NUS, Inc.</b>	CONTRACT NUMBER 2193		OWNER NUMBER —	
CHECKED BY G.JL DATE 12/29/06			APPROVED BY G.JL DATE 12/29/06		DATE —	
COST/SCHEDULE-AREA <div style="display: flex; justify-content: space-around; width: 100px;"> <div style="width: 30px; height: 10px; border: 1px solid black;"></div> <div style="width: 30px; height: 10px; border: 1px solid black;"></div> <div style="width: 30px; height: 10px; border: 1px solid black;"></div> </div>			APPROVED BY — DATE —		DATE —	
SCALE AS NOTED			DRAWING NO. FIGURE A-22		REV 0	





LEGEND	
	Approximate Site Boundary
	Asphalt Road
	Dirt Road
	Gravel Road
	Buildings
	Railroad
	Water

DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

UXO 8 - ORIGINAL BURNING GROUND  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER 2193	OWNER NUMBER —
APPROVED BY G.JL	DATE 12/29/06
APPROVED BY —	DATE —
DRAWING NO. FIGURE A-23	REV 0





DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 39 - SILVER RELEASE TO SEDIMENT AND  
SITE 40 - PALLADIUM CATALYST IN SEDIMENT  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
G.JL

DATE  
12/29/06

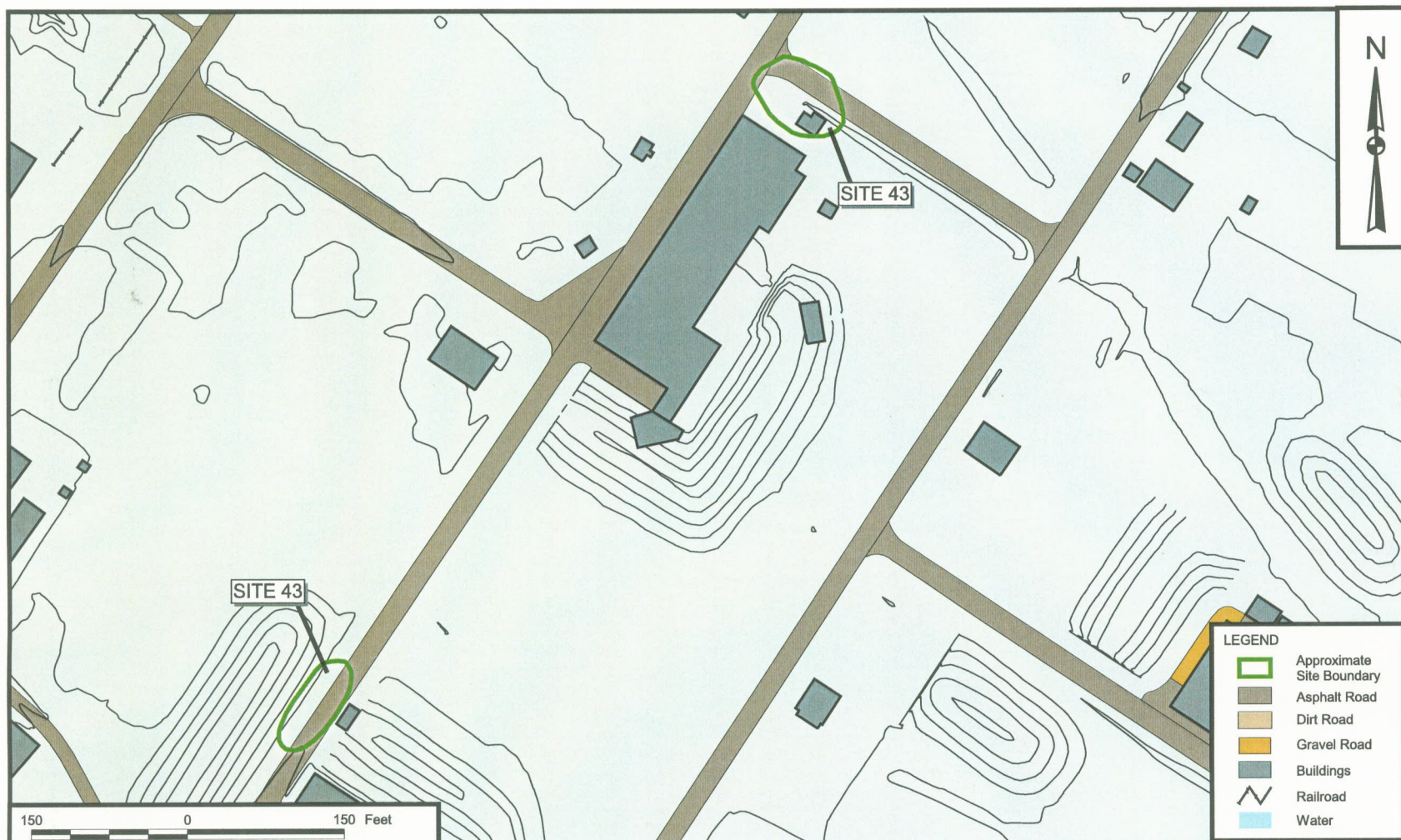
APPROVED BY

DATE

DRAWING NO.  
FIGURE A-24

REV  
0





LEGEND	
	Approximate Site Boundary
	Asphalt Road
	Dirt Road
	Gravel Road
	Buildings
	Railroad
	Water

DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 43 - TOLUENE DISPOSAL SITE  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER  
—

APPROVED BY  
G.JL

DATE  
12/29/06

APPROVED BY  
—

DATE  
—

DRAWING NO.  
FIGURE A-25

REV  
0





DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

**Tetra Tech NUS, Inc.**

SITE 44 - SOAK OUT AREA AND  
SITE 45 - ABANDONED DRUMS  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
G.JL

DATE  
12/29/06

APPROVED BY

DATE

DRAWING NO.  
FIGURE A-26

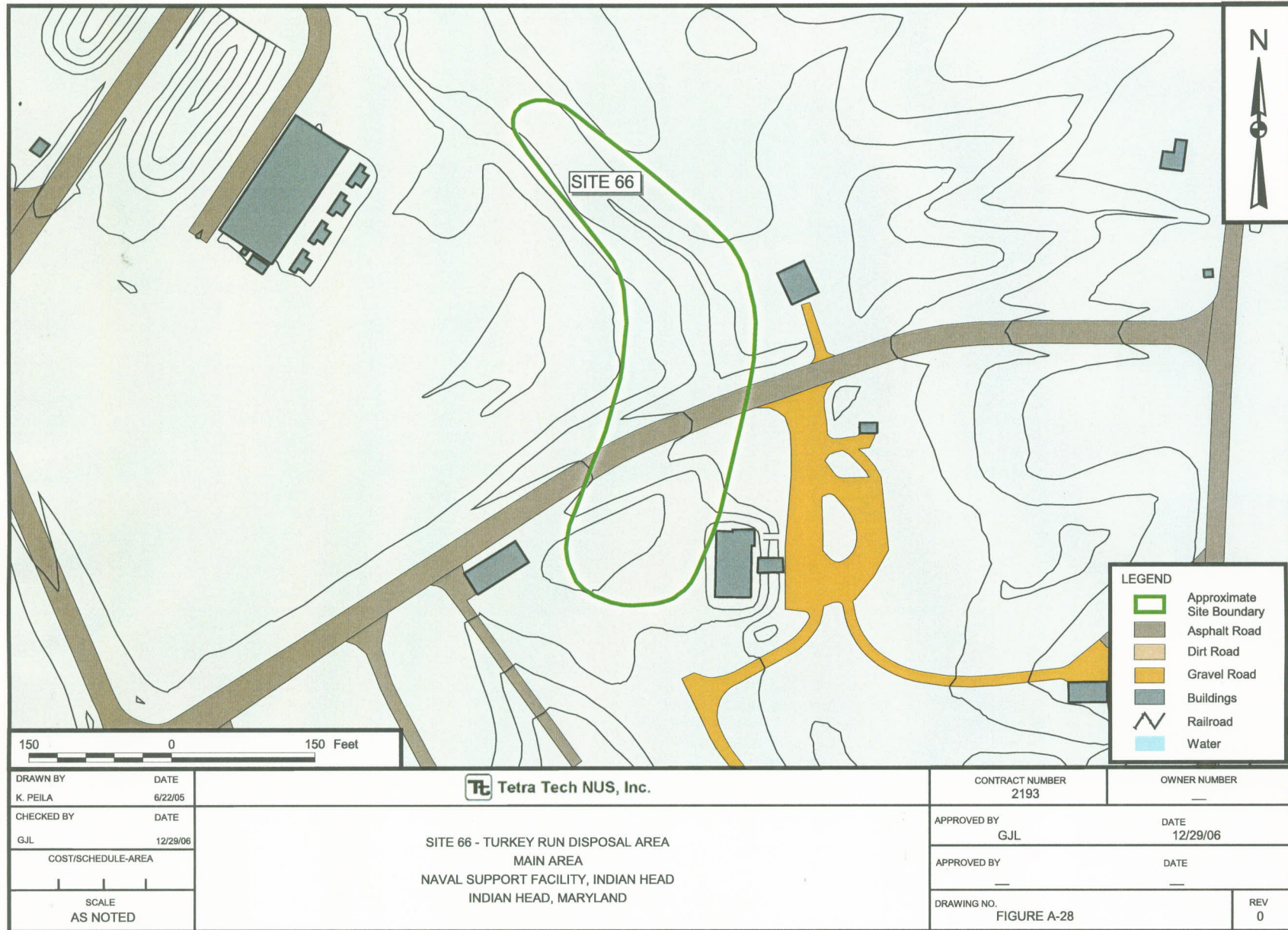
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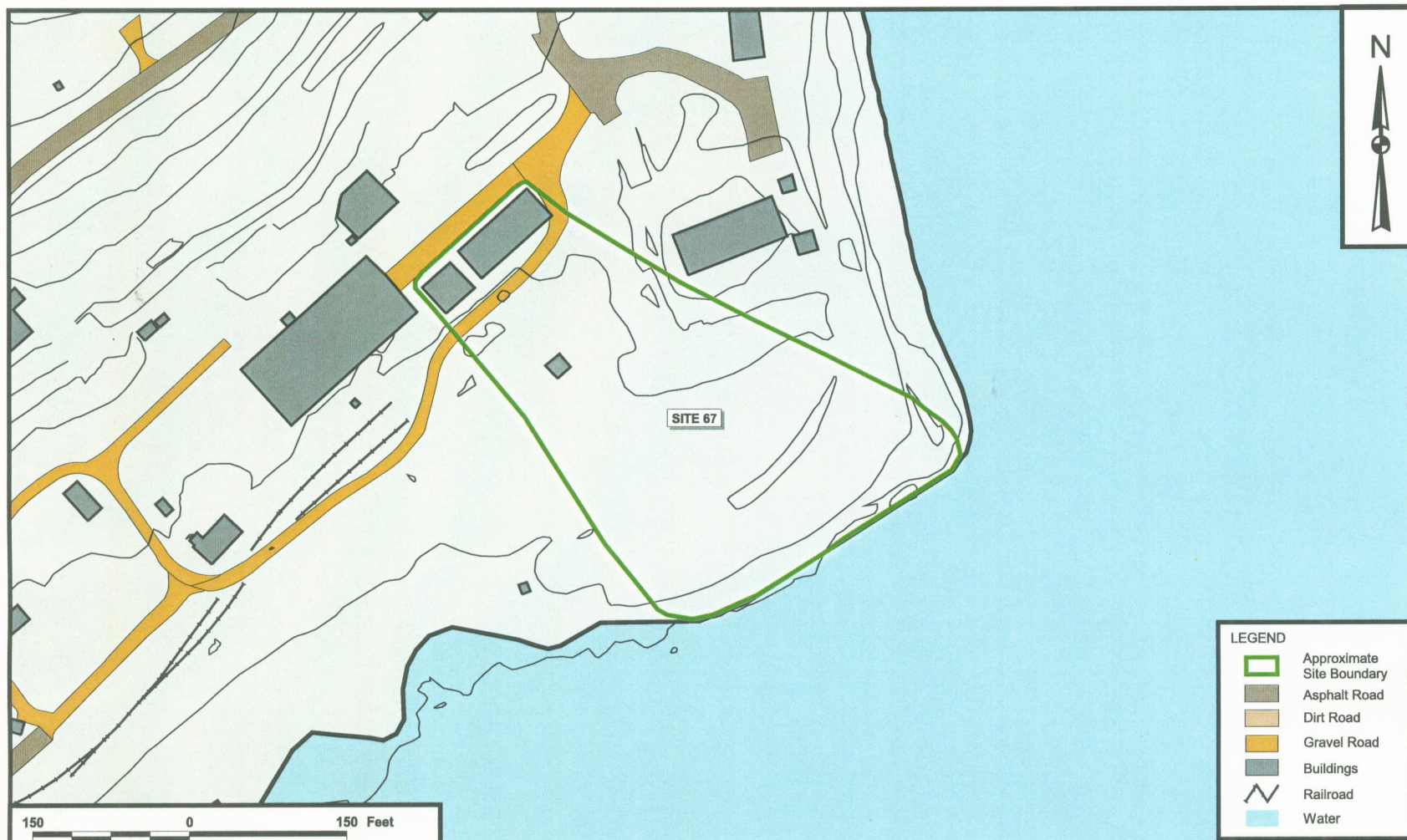


DRAWN BY K. PEILA	DATE 8/7/02	Tetra Tech NUS, Inc.  SITE 46 - CADMIUM SANDBLAST GRIT AREA AND SITE 47 - MERCURIC NITRATE DISPOSAL AREA MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND	CONTRACT NUMBER 2193	OWNER NUMBER —
CHECKED BY G.JL	DATE 12/29/06		APPROVED BY G.JL	DATE 12/29/06
COST/SCHEDULE-AREA			APPROVED BY —	DATE —
SCALE AS NOTED			DRAWING NO. FIGURE A-27	REV 0










LEGEND	
	Approximate Site Boundary
	Asphalt Road
	Dirt Road
	Gravel Road
	Buildings
	Railroad
	Water



DRAWN BY K. PEILA		DATE 6/22/05	<div> Tetra Tech NUS, Inc.</div>	CONTRACT NUMBER 2193		OWNER NUMBER —	
CHECKED BY GJL		DATE 12/29/06		APPROVED BY GJL			
COST/SCHEDULE-AREA			SITE 67 - HOG OUT FACILITY MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND	APPROVED BY —		DATE —	
SCALE AS NOTED				DRAWING NO. FIGURE A-29		REV 0	

P:\GIS\INDIANHEAD\_NSWC\APR\SITEMANAGEMENTPLAN.APR SITE 67 1/09/07 SS





DRAWN BY K. PEILA DATE 8/7/02		Tetra Tech NUS, Inc.  UXO 13 - FDR SKEET RANGE MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND	CONTRACT NUMBER 2193		OWNER NUMBER —	
CHECKED BY G.JL DATE 12/29/06			APPROVED BY G.JL		DATE 12/29/06	
COST/SCHEDULE-AREA SCALE AS NOTED			APPROVED BY —		DATE —	
			DRAWING NO. FIGURE A-30		REV 0	





DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
GJL	12/29/06

COST/SCHEDULE-AREA

SCALE  
AS NOTED

**Tt Tetra Tech NUS, Inc.**

UXO 20 - SAFETY THERMAL TREATMENT POINT  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
GJL

DATE  
12/29/06

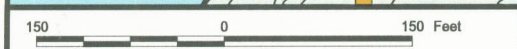
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DATE  
—

DRAWING NO.  
FIGURE A-31

REV  
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DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
G.JL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

UXO 29 - SOUTHWESTERN PISTOL RANGE  
MAIN AREA  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
G.JL

DATE  
12/29/06

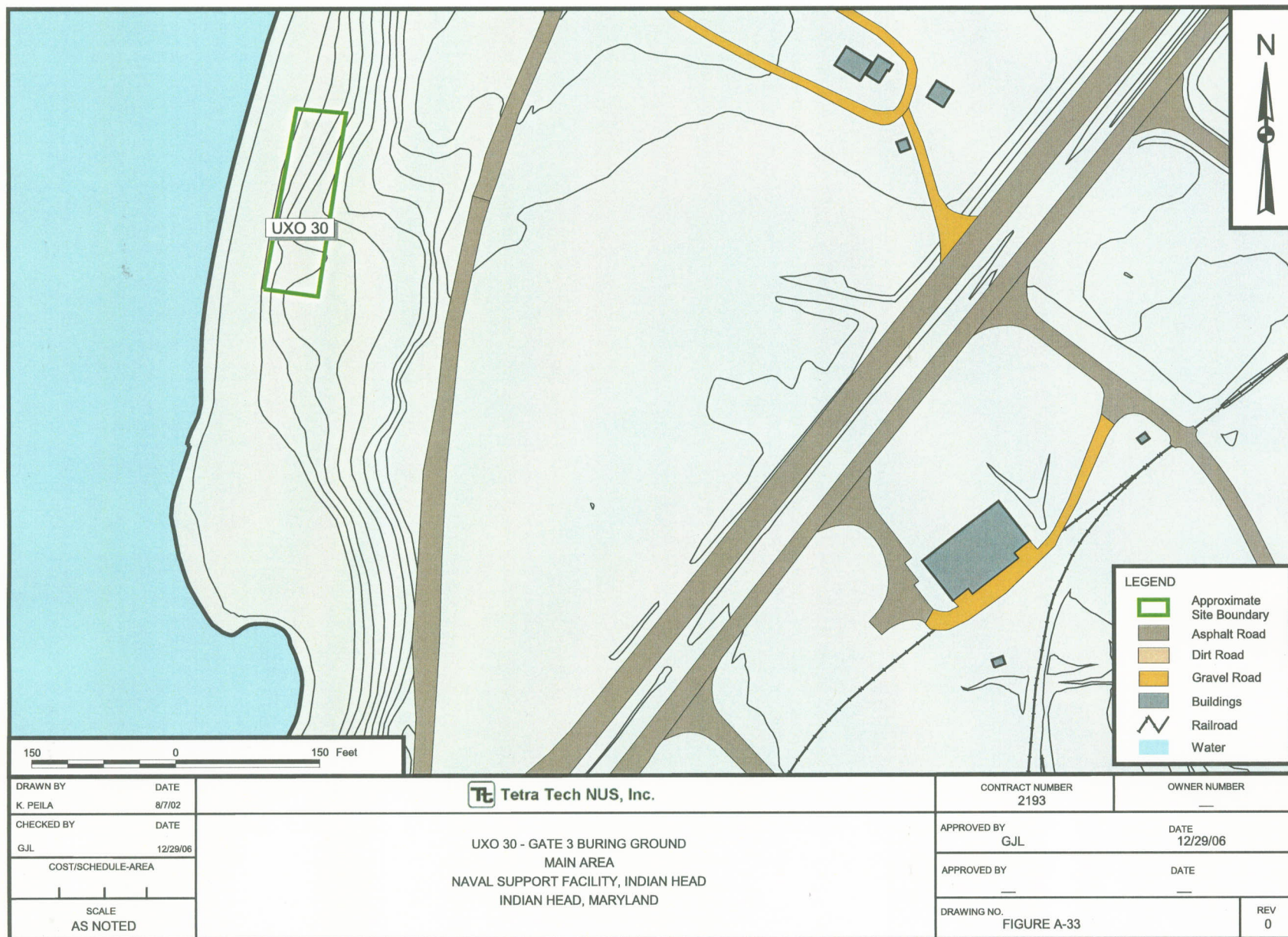
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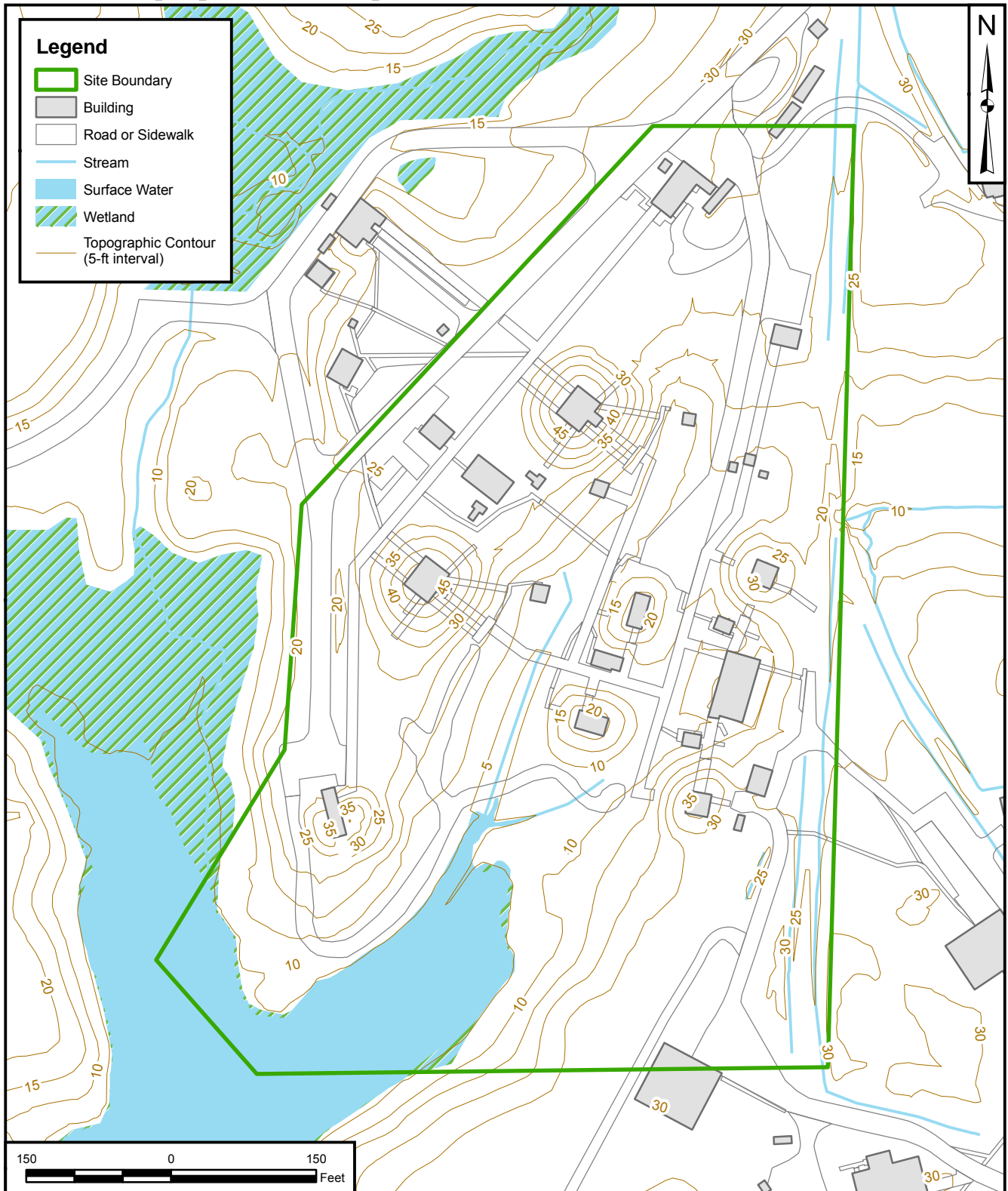
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DRAWING NO.  
FIGURE A-32

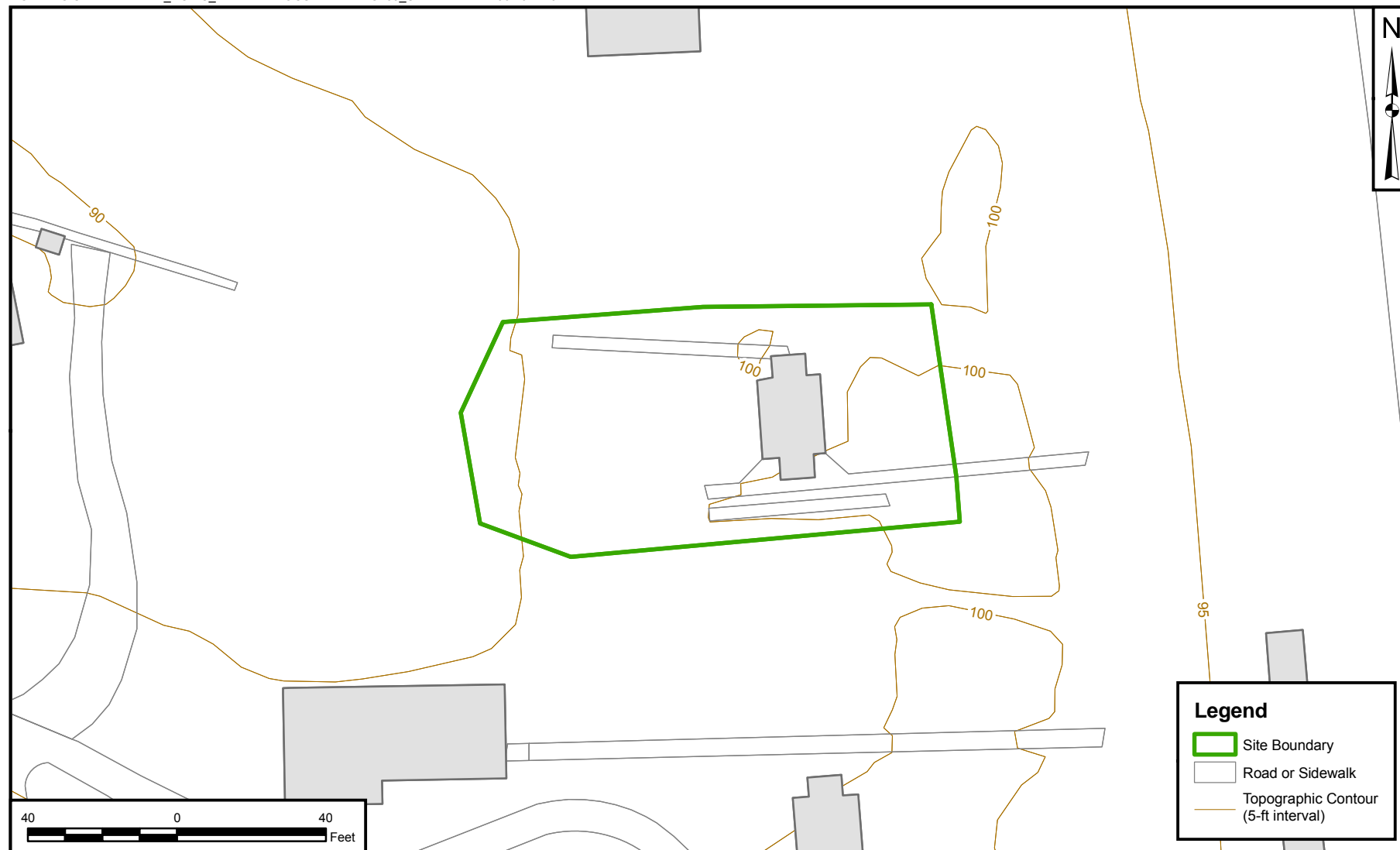
REV  
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DRAWN BY J. ENGLISH	DATE 06/20/11	<p><b>TETRA TECH</b></p> <p><b>SITE 69 - BUILDING 1018 (OXIDIZER PROCESS BUILDING)</b></p> <p><b>MAIN AREA</b></p> <p><b>NAVAL SUPPORT FACILITY INDIAN HEAD</b></p> <p><b>INDIAN HEAD, MARYLAND</b></p>	CONTRACT NUMBER _____	CTO NUMBER _____
CHECKED BY E. CORACK	DATE 06/20/11		APPROVED BY _____	DATE _____
REVISED BY _____	DATE _____		APPROVED BY _____	DATE _____
SCALE AS NOTED			FIGURE NO. A-34	REV 0

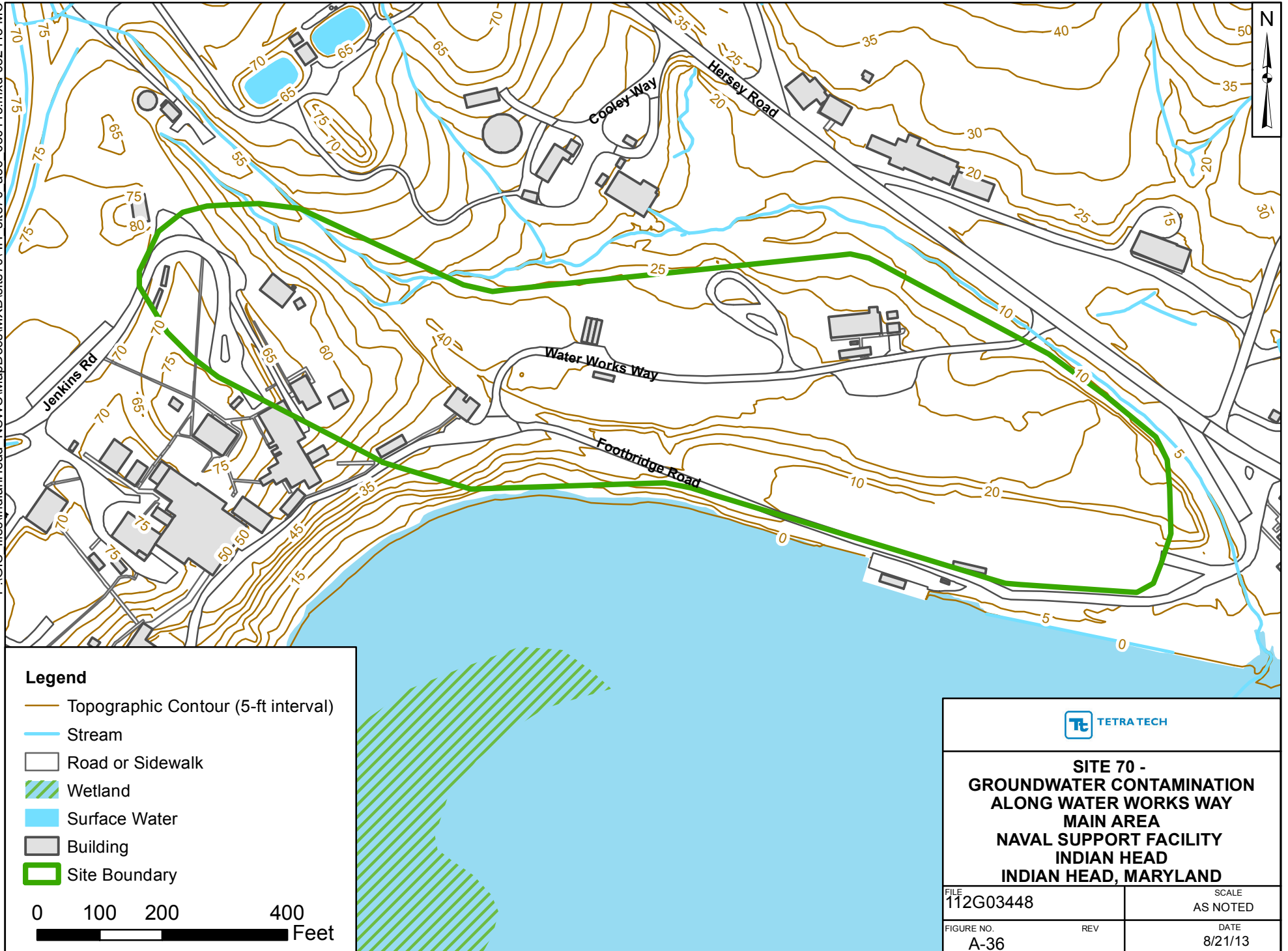


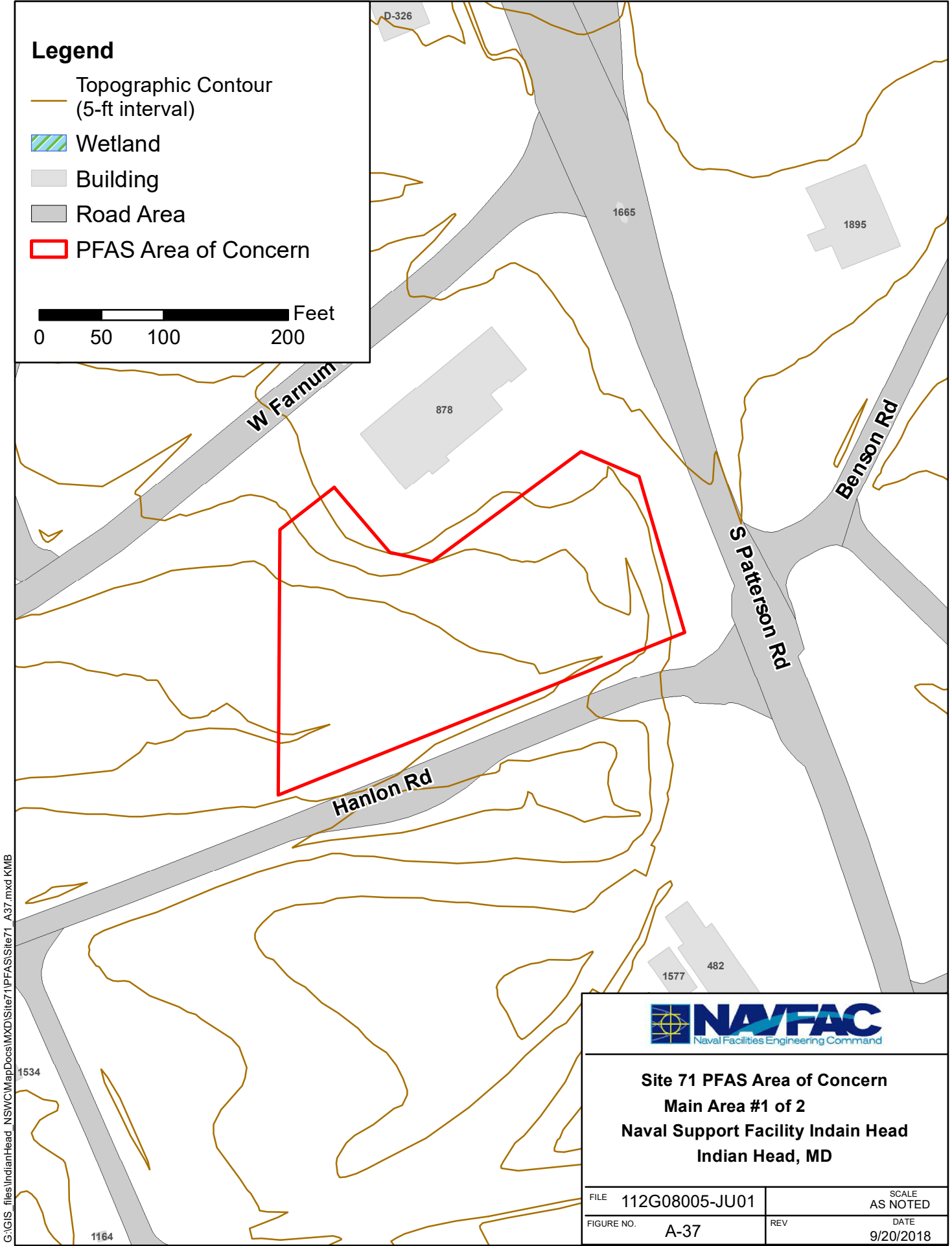
**Legend**

- Site Boundary
- Road or Sidewalk
- Topographic Contour (5-ft interval)

DRAWN BY J. ENGLISH DATE 06/20/11	<div style="text-align: center;">   <b>SITE 68 - FORMER BUILDING 259 CONTAMINATION</b>  <b>MAIN AREA</b>  <b>NAVAL SUPPORT ACTIVITY INDIAN HEAD</b>  <b>INDIAN HEAD, MARYLAND</b> </div>	CONTRACT NUMBER _____	CTO NUMBER _____
CHECKED BY E. CORACK DATE 10/27/17		APPROVED BY _____ DATE _____ _____ DATE _____	
REVISED BY _____ DATE _____		APPROVED BY _____ DATE _____	
SCALE AS NOTED		FIGURE NO. A-35	REV 1







G:\GIS files\IndianHead\_NSWC\MapDocs\MXD\Site71\PFAS\Sie71\_A37.mxd KMB



**Site 71 PFAS Area of Concern  
Main Area #1 of 2  
Naval Support Facility Indian Head  
Indian Head, MD**

FILE	112G08005-JU01	SCALE	AS NOTED
FIGURE NO.	A-37	REV	DATE
			9/20/2018



## Legend

Topographic Contour  
(5-ft interval)

Wetland

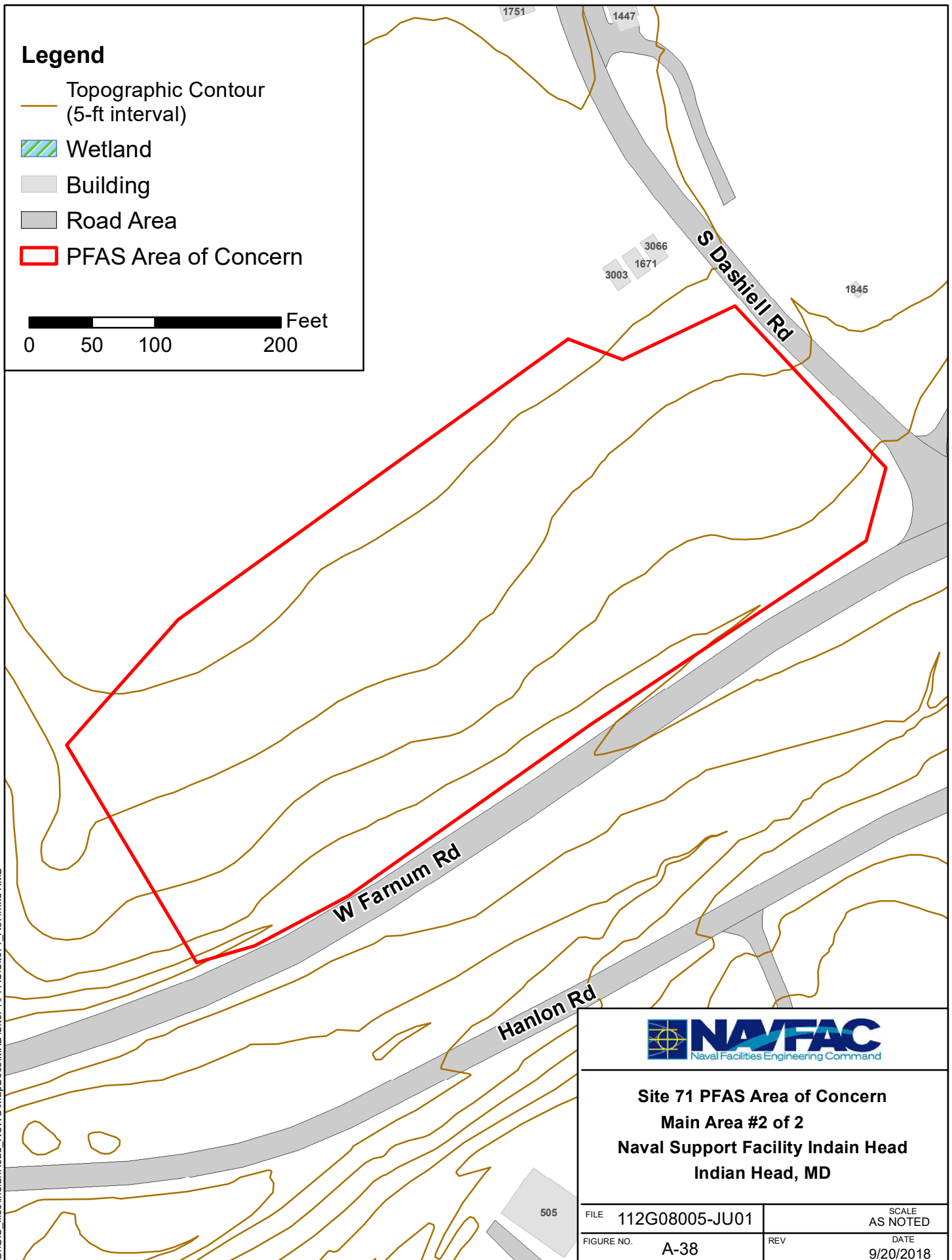
Building

Road Area

PFAS Area of Concern

0 50 100 200 Feet

G:\GIS files\IndianHead\_NSWC\MapDocs\MXD\Siter71\PFAS\Siter71\_A37.mxd KMB



**Site 71 PFAS Area of Concern**  
**Main Area #2 of 2**  
**Naval Support Facility Indian Head**  
**Indian Head, MD**

FILE 112G08005-JU01

FIGURE NO. A-38

SCALE  
AS NOTED

REV DATE  
9/20/2018

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**APPENDIX B**  
**NSFIH – Stump Neck Annex Site Figures**

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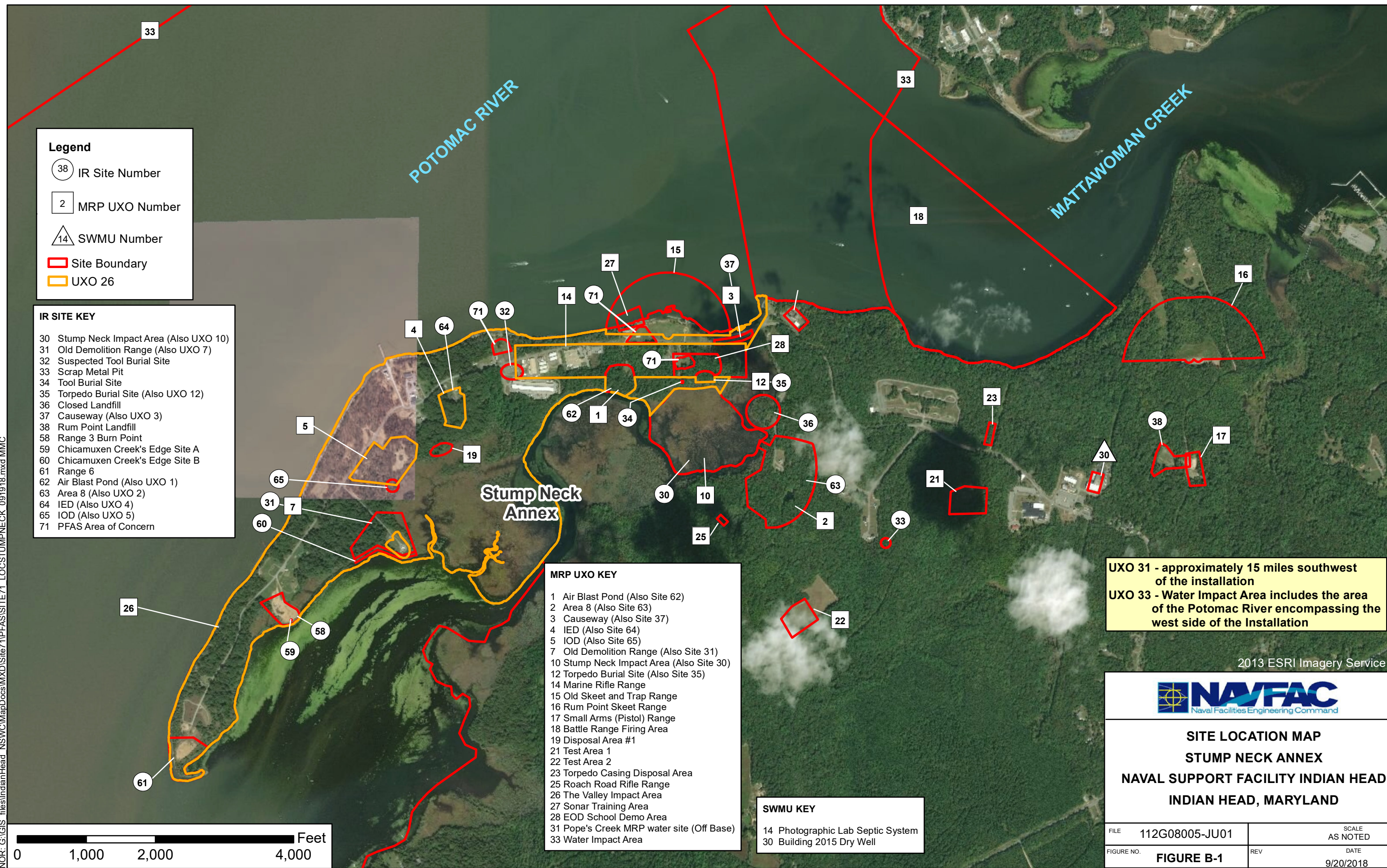
**TABLE B-1**  
**FIGURE INDEX**  
**INSTALLATION RESTORATION (IR) PROGRAM SITES**  
**STUMP NECK ANNEX**  
**NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND**

IR Site ID	SWMU ID	MRP UXO ID	Name of IR Site	Figure No.
NA			IR Sites, Stump Neck Annex	B-1
30	22	10	Stump Neck Impact Area	B-2
31	23	7	Old Demolition Range	B-3
32	11		Suspected Tool Burial Site	B-4
33	7		Scrap Metal Pit	B-5
34	8		Tool Burial Site	B-2
35	9	12	Torpedo Burial Site	B-2
36	10		Closed Landfill	B-6
37	24	3	Causeway	B-7
38	1		Rum Point Landfill	B-8
58	2		Range 3 Burn Point	B-9
59	3		Chicamuxen Creek's Edge Site A	B-9
60	4		Chicamuxen Creek's Edge Site B	B-3
61	5		Range 6	B-10
62	6	1	Air Blast Pond	B-11
63	25	2	Area 8	B-12
64	26	4	IED (+SN SWMU 19)	B-13
65	27	5	IOD	B-14
	14		Photographic Lab Septic System	B-21
	28	15	Old Skeet and Trap Range (+SN SWMU 20)	B-11
	29	17	Small Arms (Pistol) Range	B-8
	30		Building 2015 Dry Well	B-22
		14	Marine Rifle Range	B-11
		16	Rum Point Skeet Range	B-15
		16	Rum Point Skeet Range	B-15
		18	Battle Range Firing (Water Site)	none
		21	Test Area 1	B-16
		22	Test Area 2	B-17
		23	Torpedo Casing Disposal Area	B-18
		25	Roach Road Rifle Range	B-19
		26	The Valley Impact Area	B-20
		27	Sonar Training Area (Water Site)	none
		28	EOD School Demo Area	B-11
		31	Pope's Creek (Water Site)	B-23
71	*		PFAS Area of Concern (1 of 3 on Stump Neck)	B-24
71	*		PFAS Area of Concern (2 of 3 on Stump Neck)	B-25
71	*		PFAS Area of Concern (3 of 3 on Stump Neck)	B-26

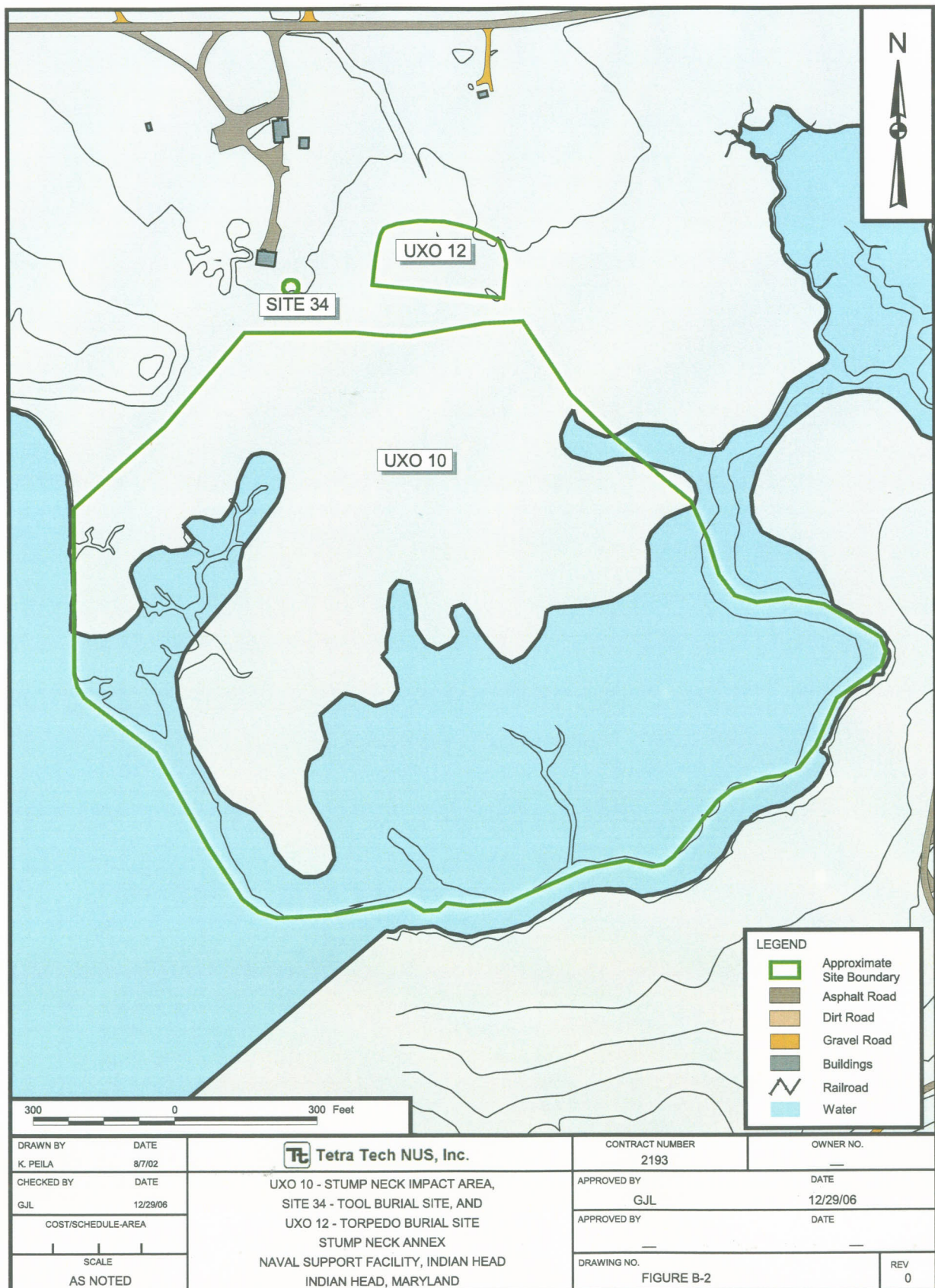
\* New "Site 71" is an Area of Concern (AOC) consisting of five potential PFAS sites: two on the Main Area (Figure A-1) and three on the Stump Neck Annex (Figure B-1).



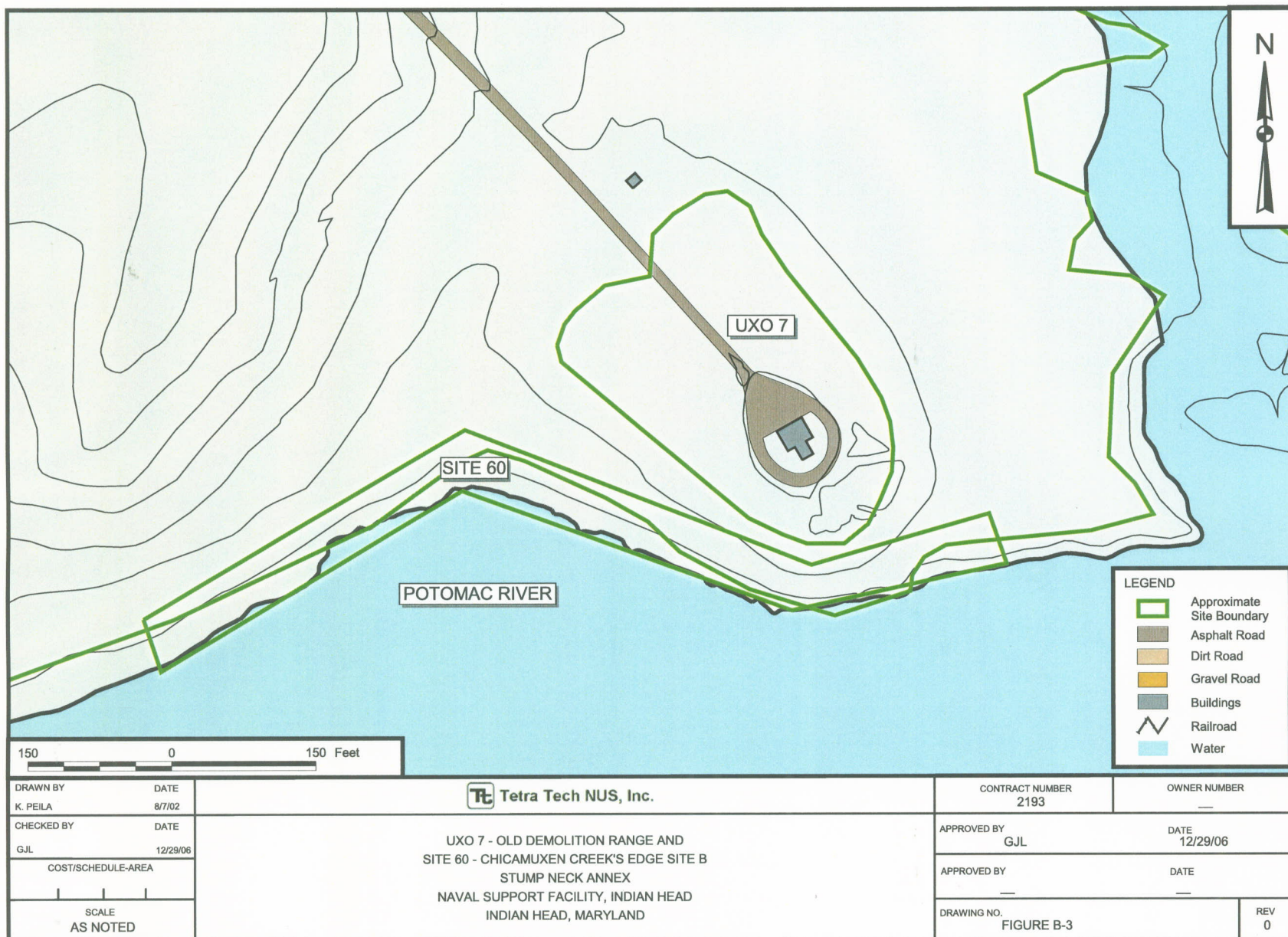
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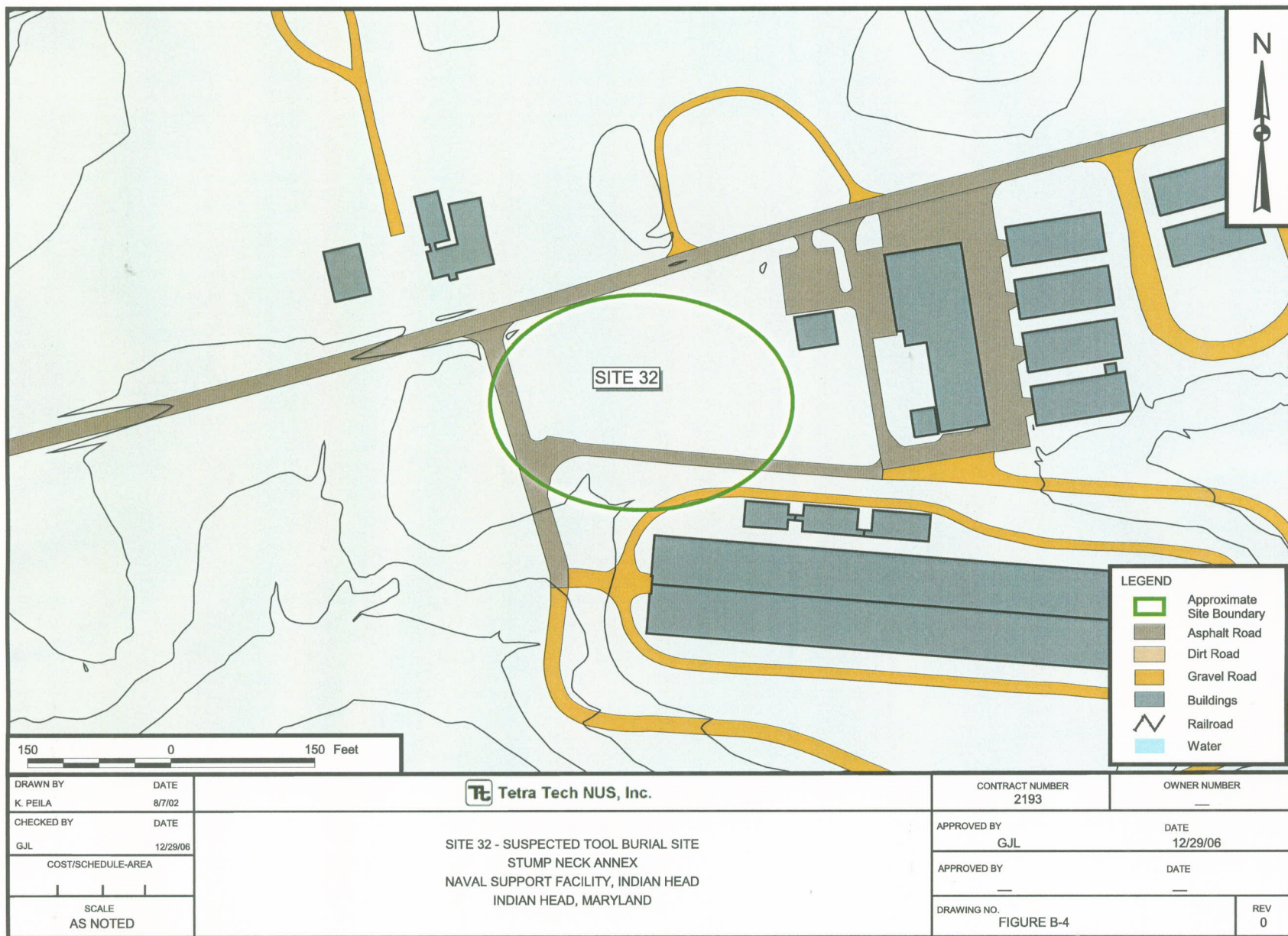


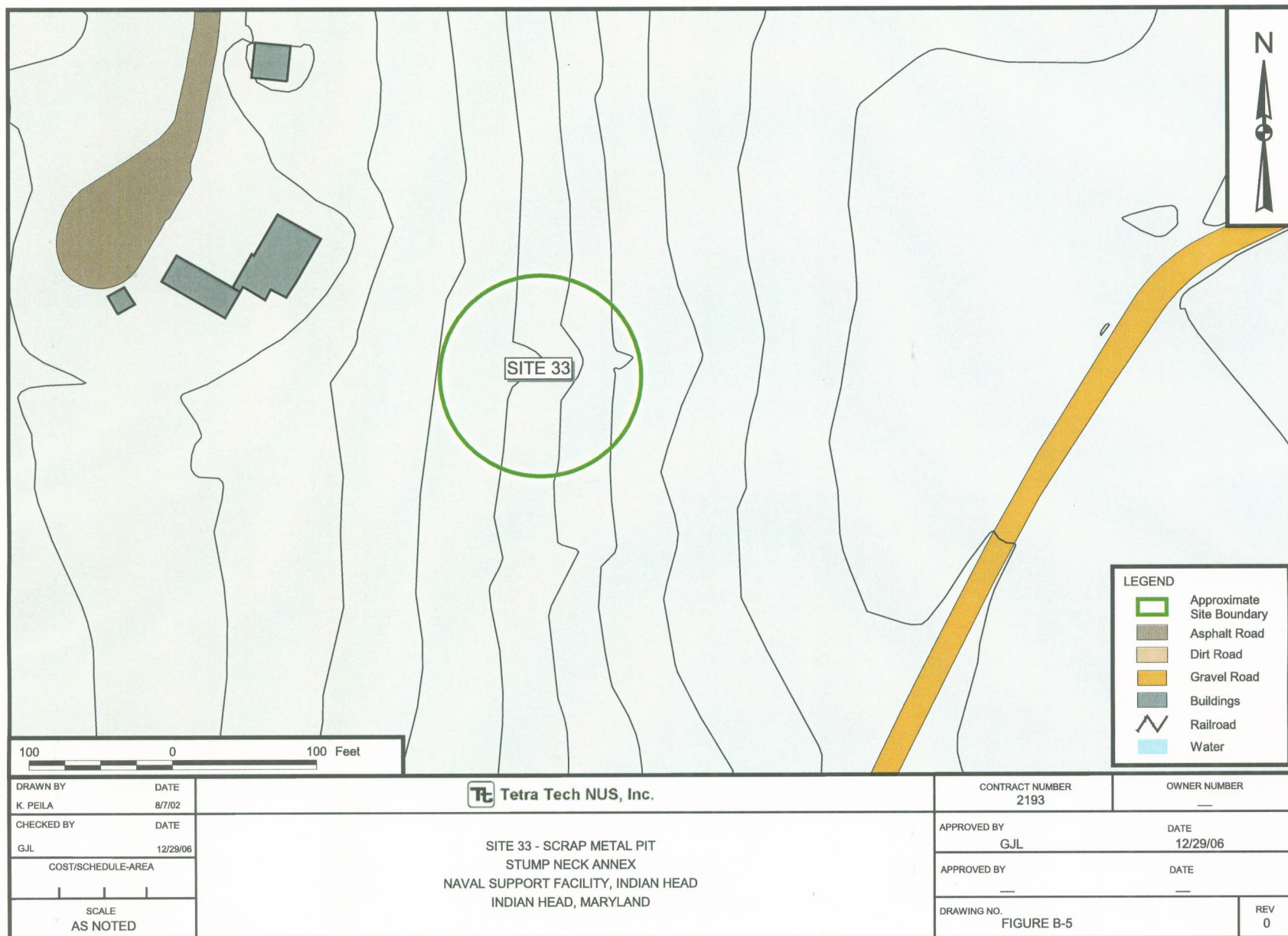








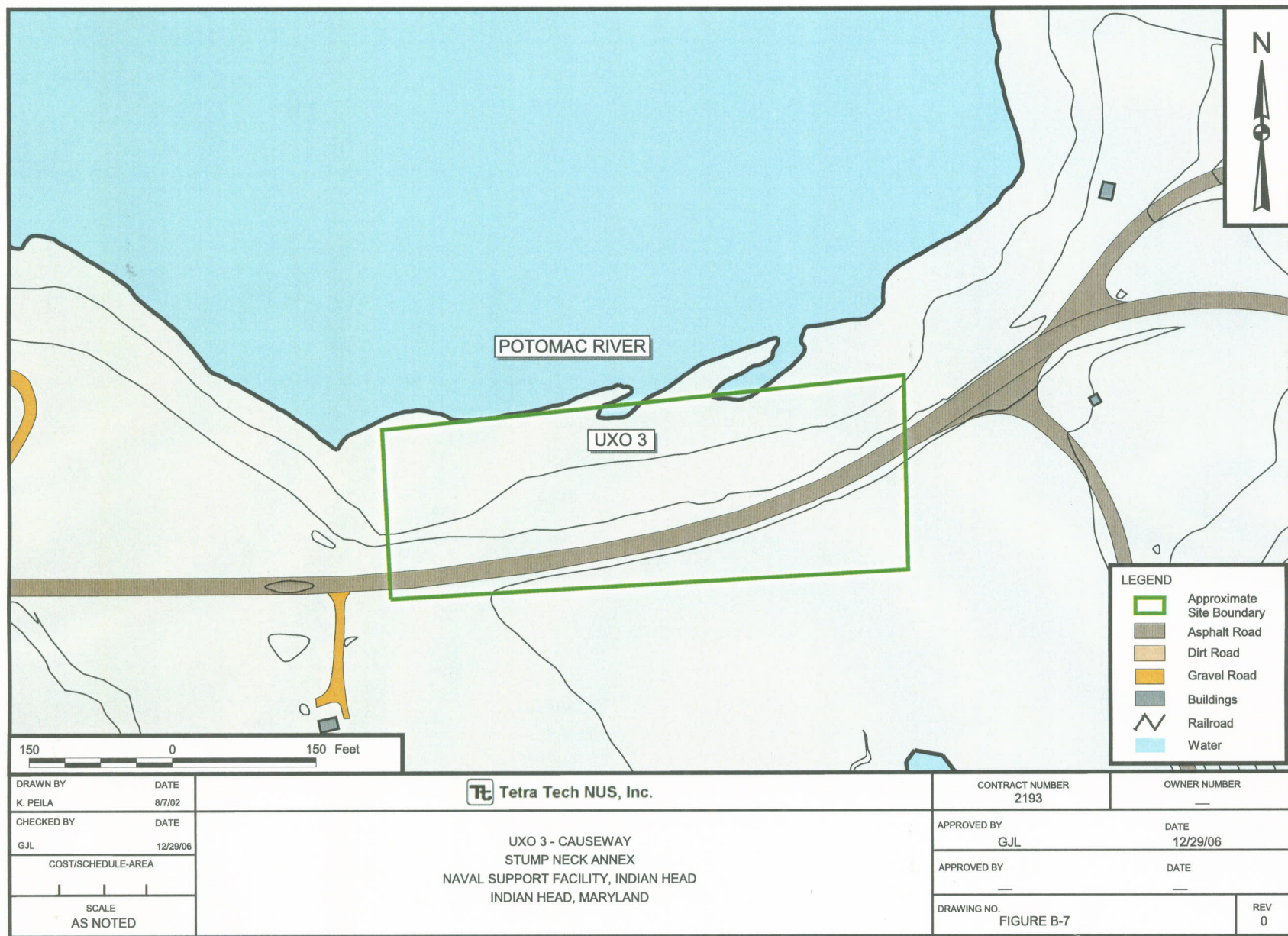




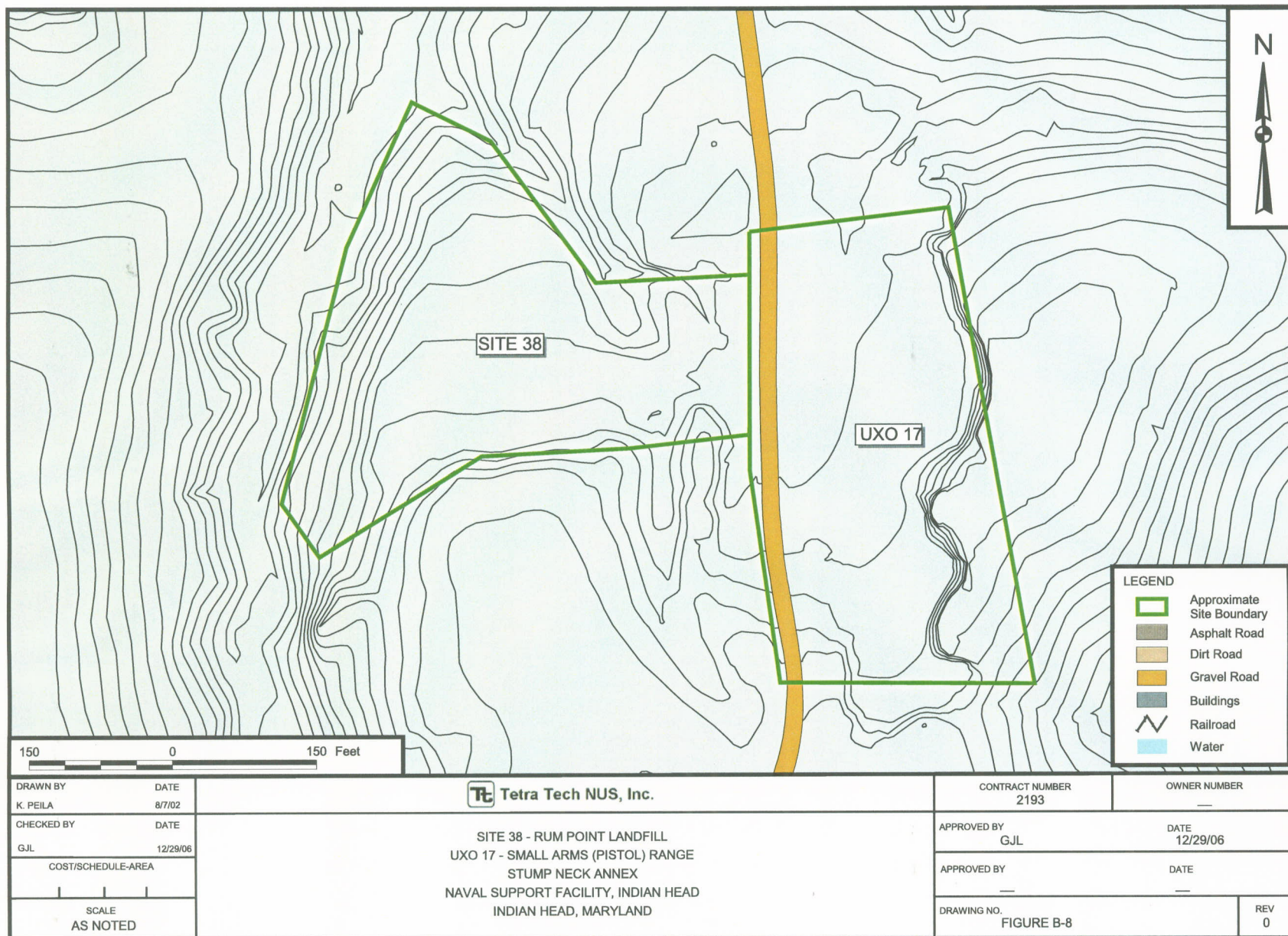










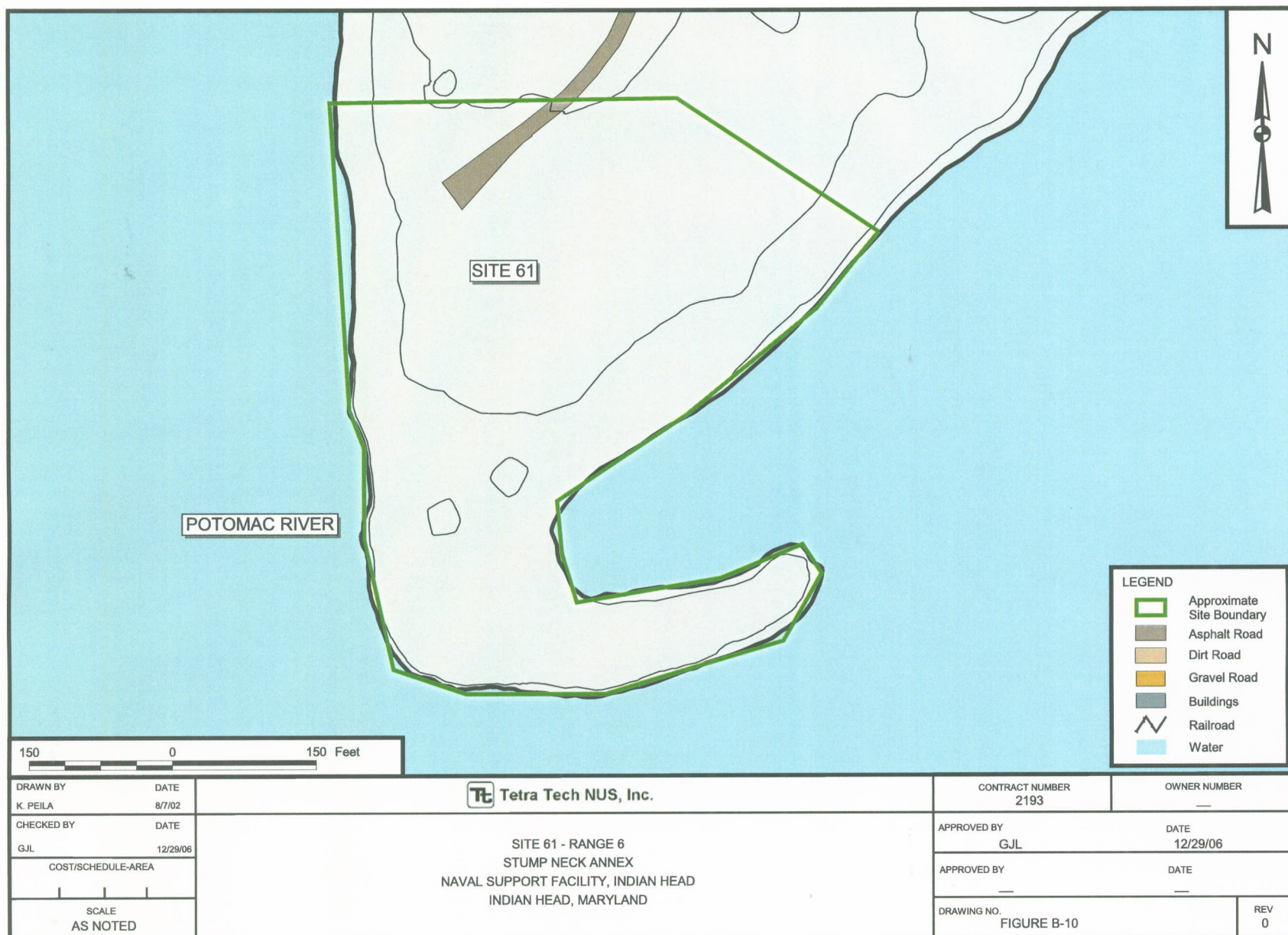




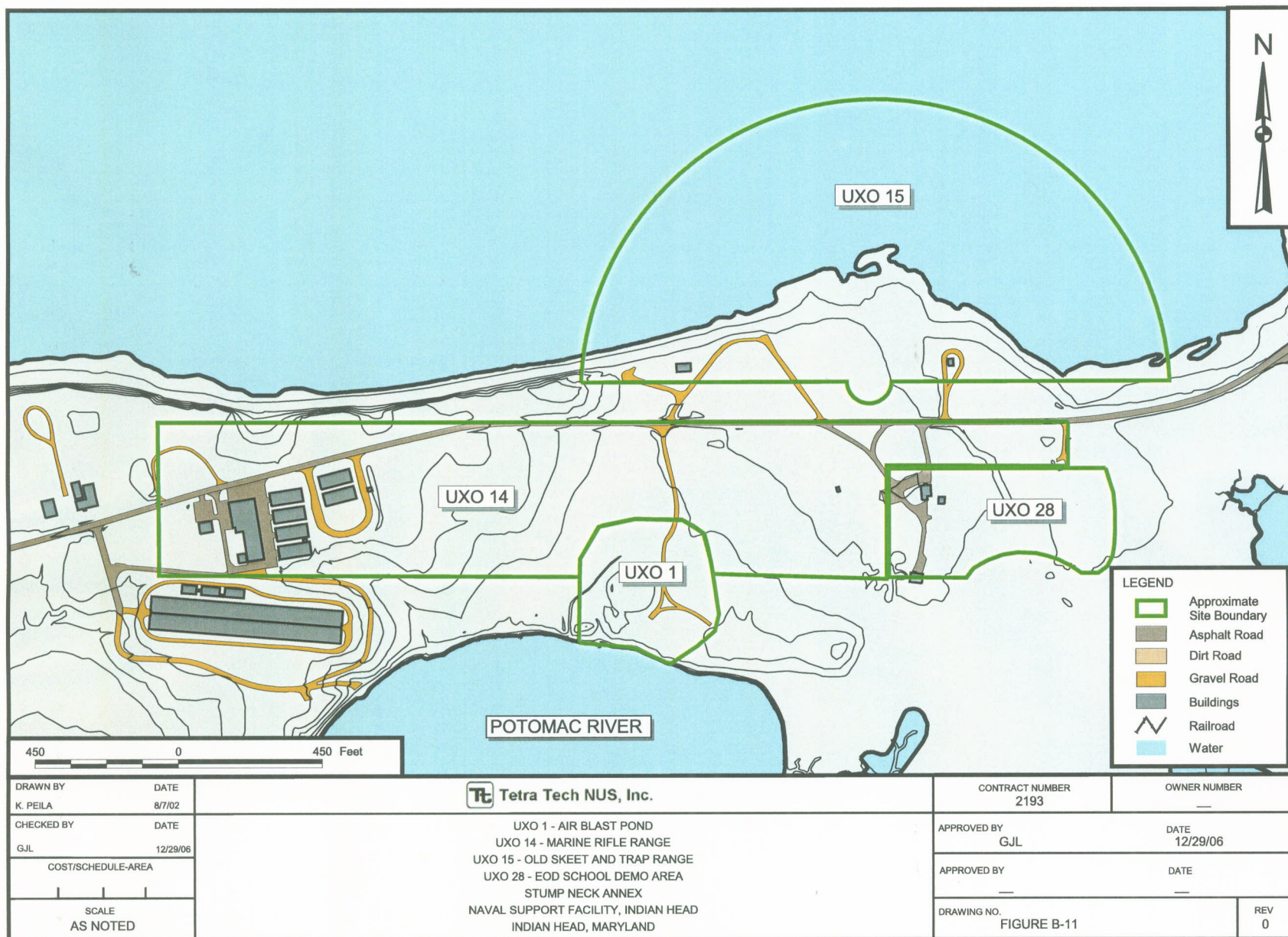


DRAWN BY K. PEILA	DATE 8/7/02	<div data-bbox="798 1209 1050 1242">  Tetra Tech NUS, Inc.         </div> <div data-bbox="756 1258 1134 1388">           SITE 58 - RANGE 3 BURN POINT AND            SITE 59 - CHICAMUXEN CREEK'S EDGE SITE A            STUMP NECK ANNEX            NAVAL SUPPORT FACILITY, INDIAN HEAD            INDIAN HEAD, MARYLAND         </div>	CONTRACT NUMBER 2193	OWNER NUMBER —
CHECKED BY GJL	DATE 12/29/06		APPROVED BY GJL	DATE 12/29/06
COST/SCHEDULE-AREA <div data-bbox="252 1339 399 1364"> </div>	SCALE AS NOTED		APPROVED BY —	DATE —
SCALE AS NOTED			DRAWING NO. FIGURE B-9	REV 0

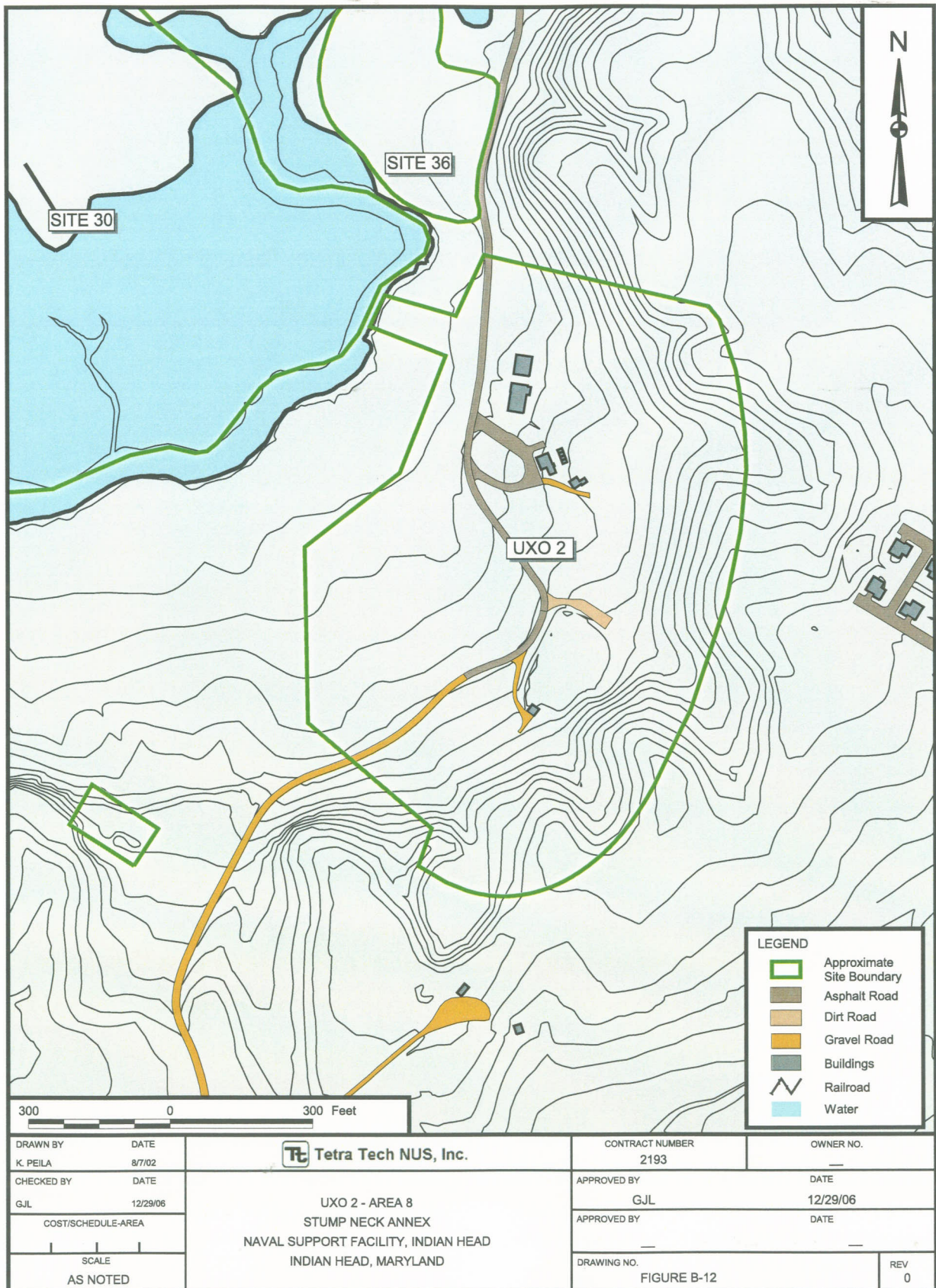




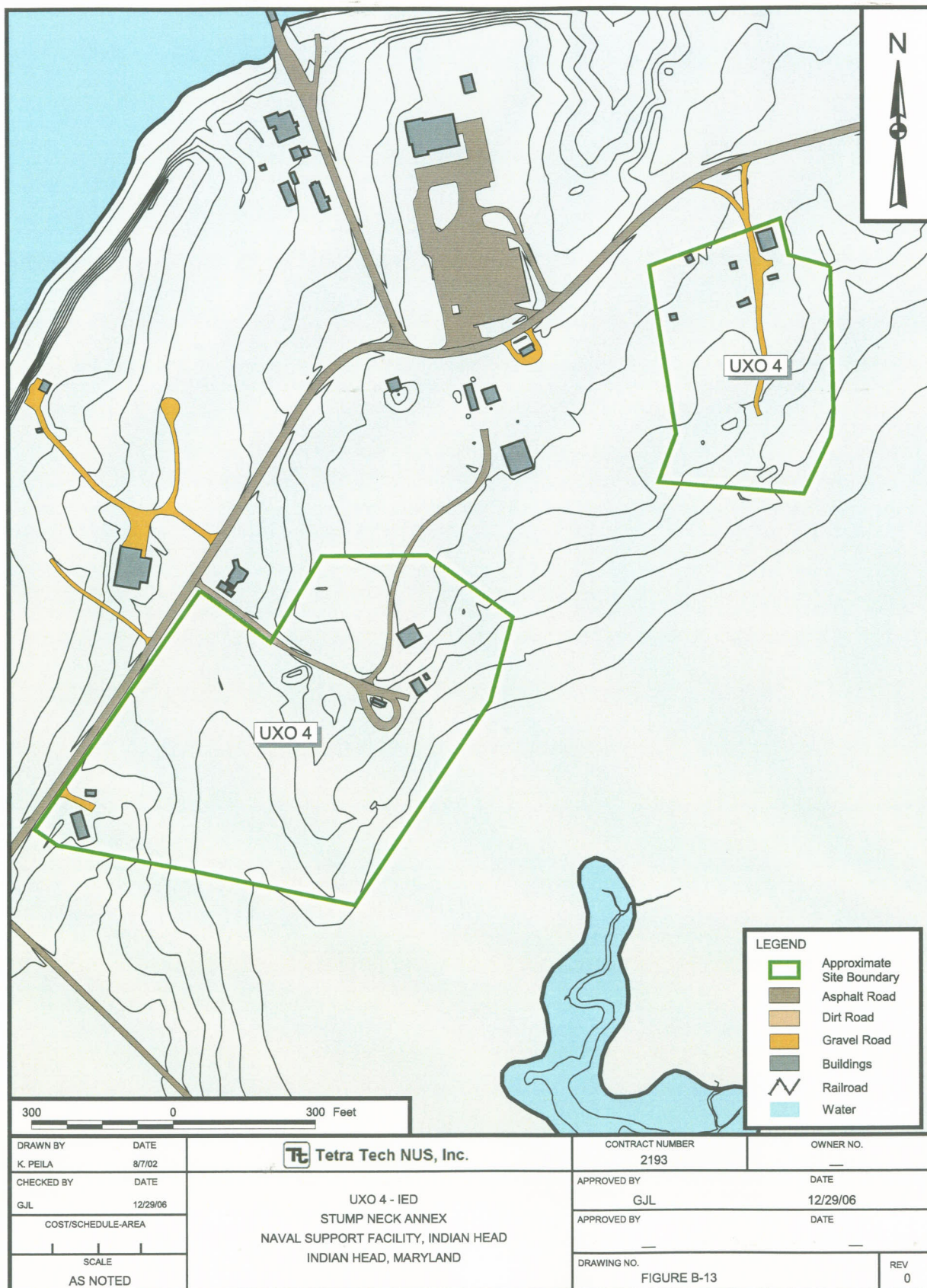


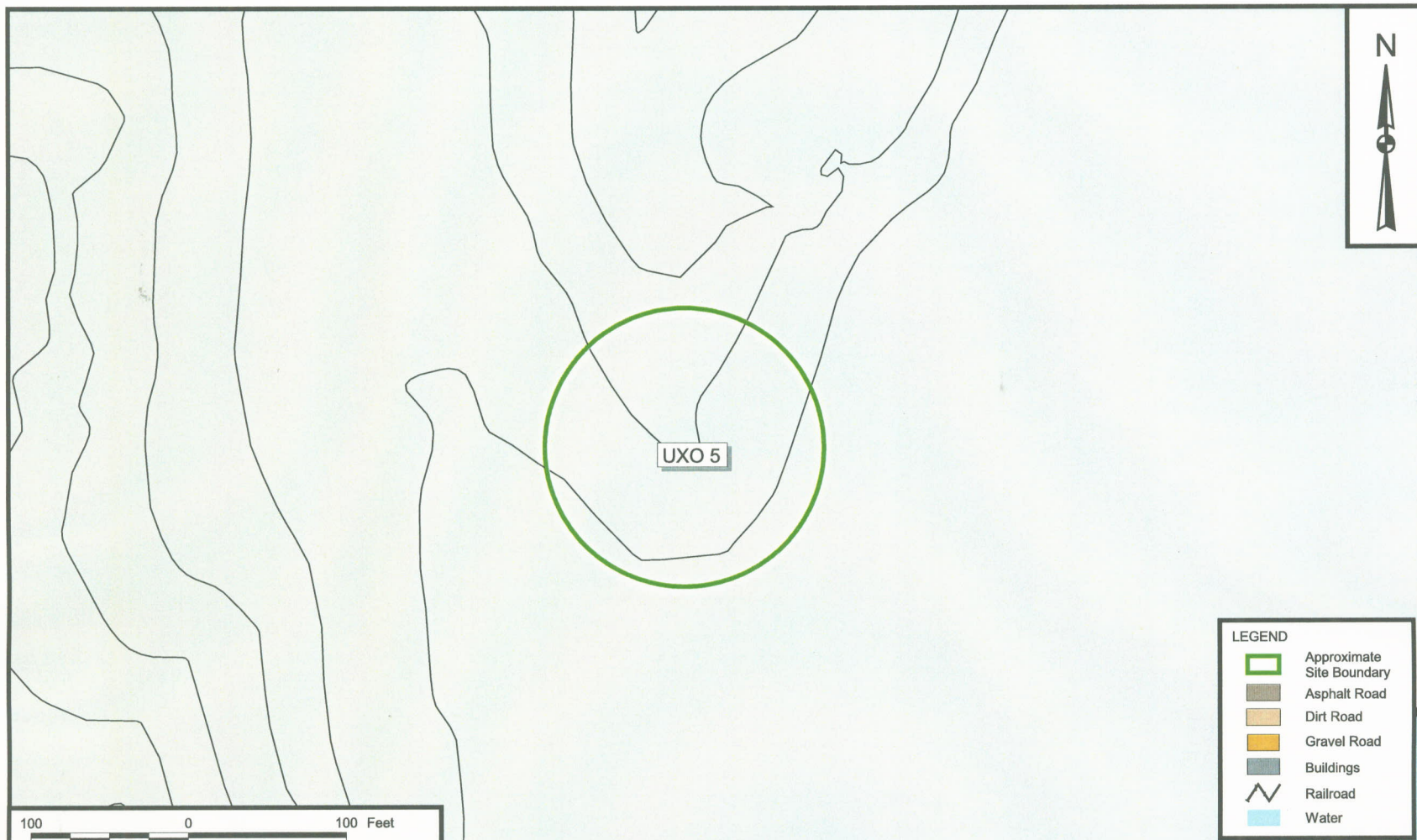












DRAWN BY	DATE
K. PEILA	8/7/02
CHECKED BY	DATE
GJL	12/29/06
COST/SCHEDULE-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

UXO 5 - IOD  
STUMP NECK ANNEX  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NUMBER  
2193

OWNER NUMBER

APPROVED BY  
GJL

DATE  
12/29/06

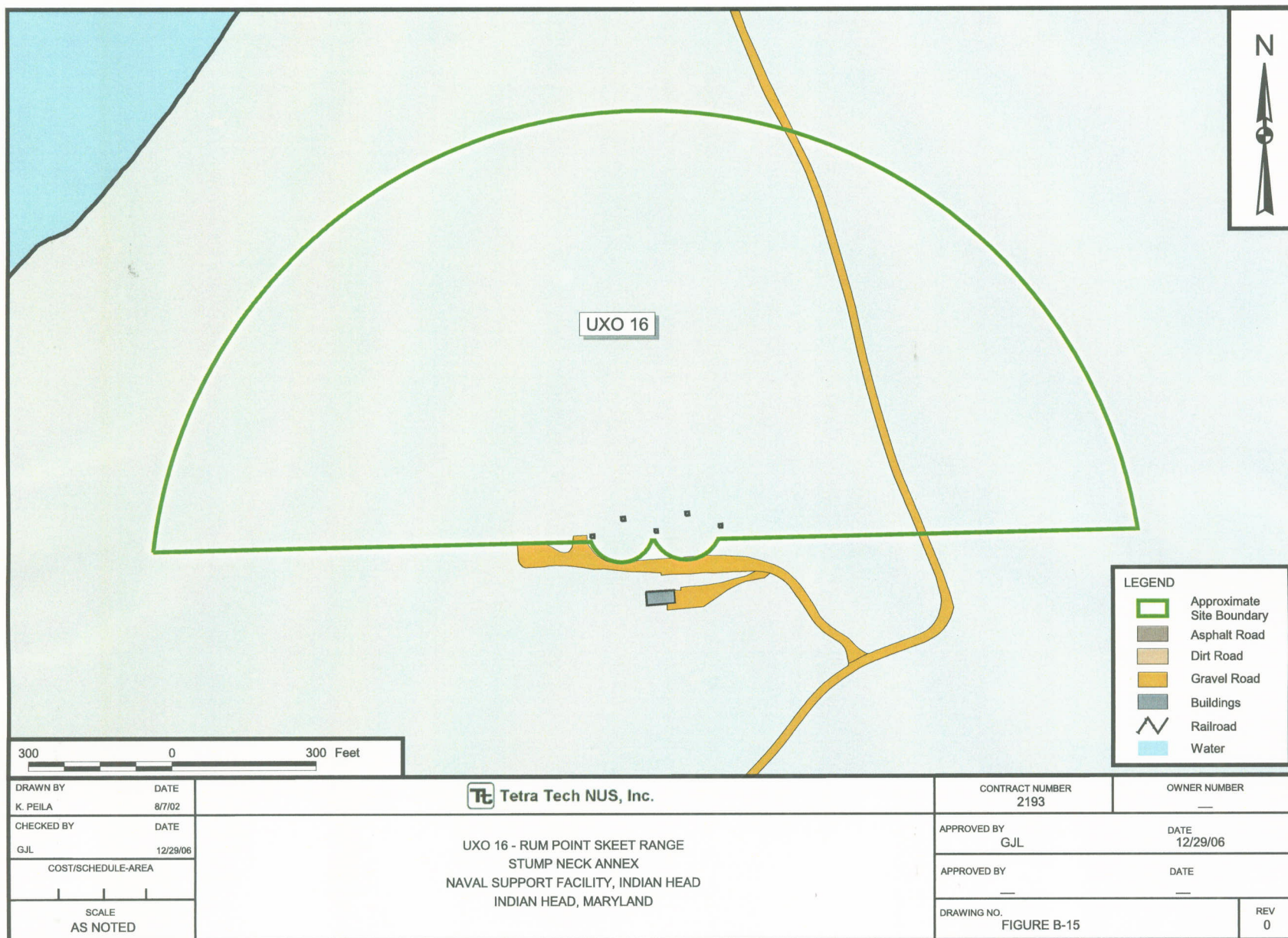
APPROVED BY

DATE

DRAWING NO.  
FIGURE B-14


REV  
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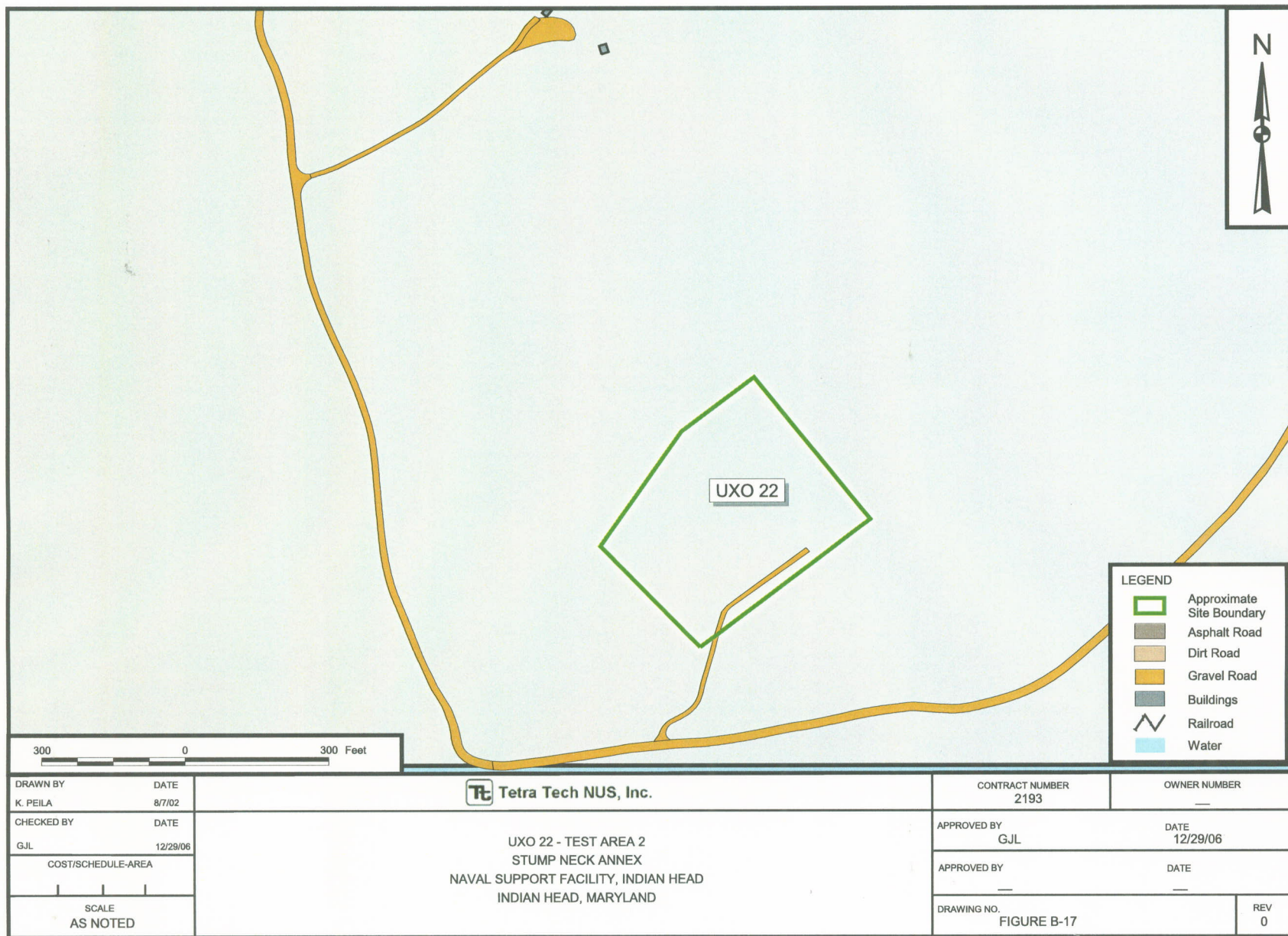




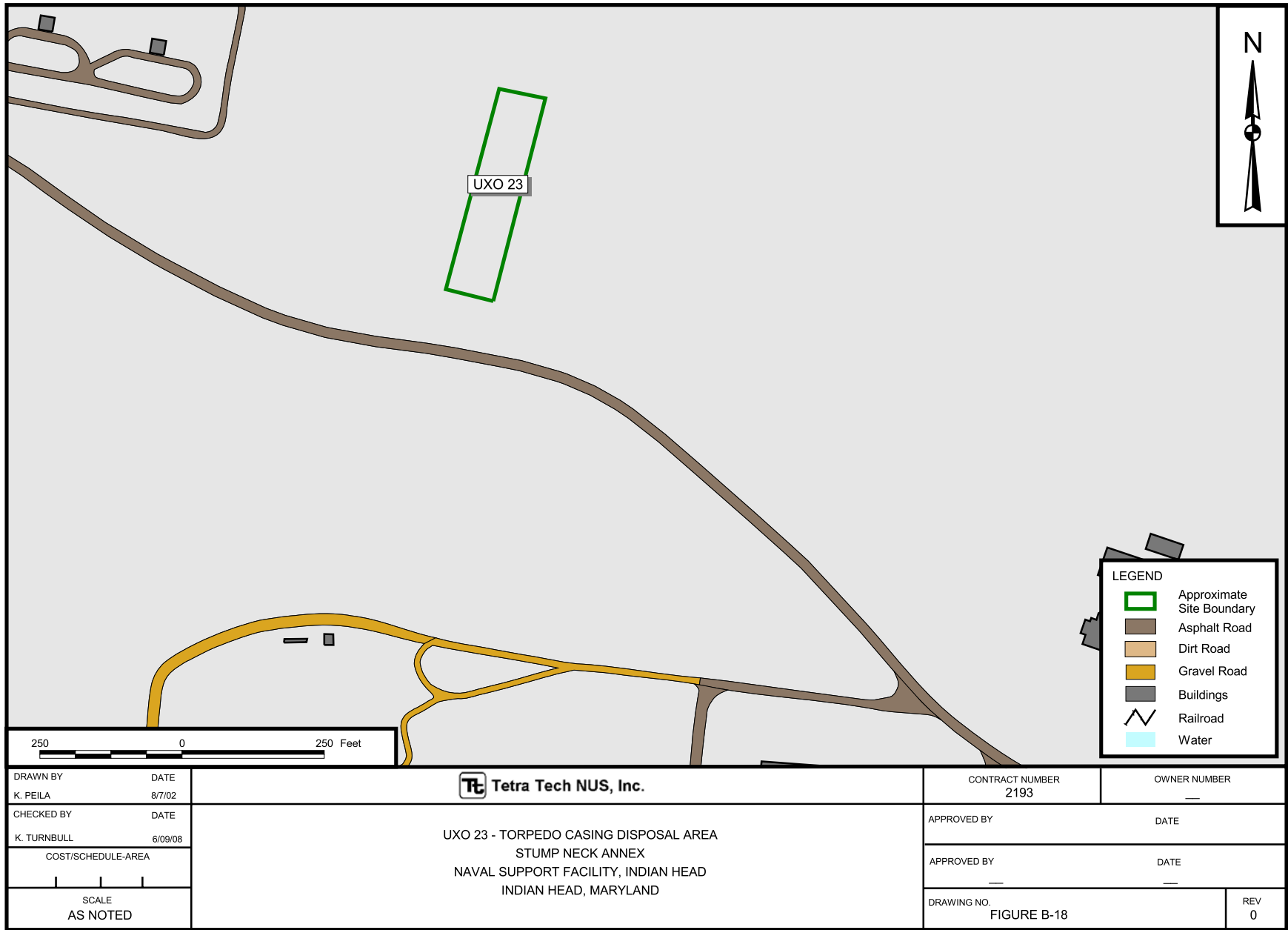


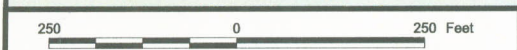


DRAWN BY K. PEILA CHECKED BY GJL DATE 12/29/06 COST/SCHEDULE-AREA SCALE AS NOTED		 Tetra Tech NUS, Inc. UXO 21 - TEST AREA 1 STUMP NECK ANNEX NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND		CONTRACT NUMBER 2193 APPROVED BY GJL DATE 12/29/06 APPROVED BY _____ DATE _____ DRAWING NO. FIGURE B-16		OWNER NUMBER _____ REV 0	
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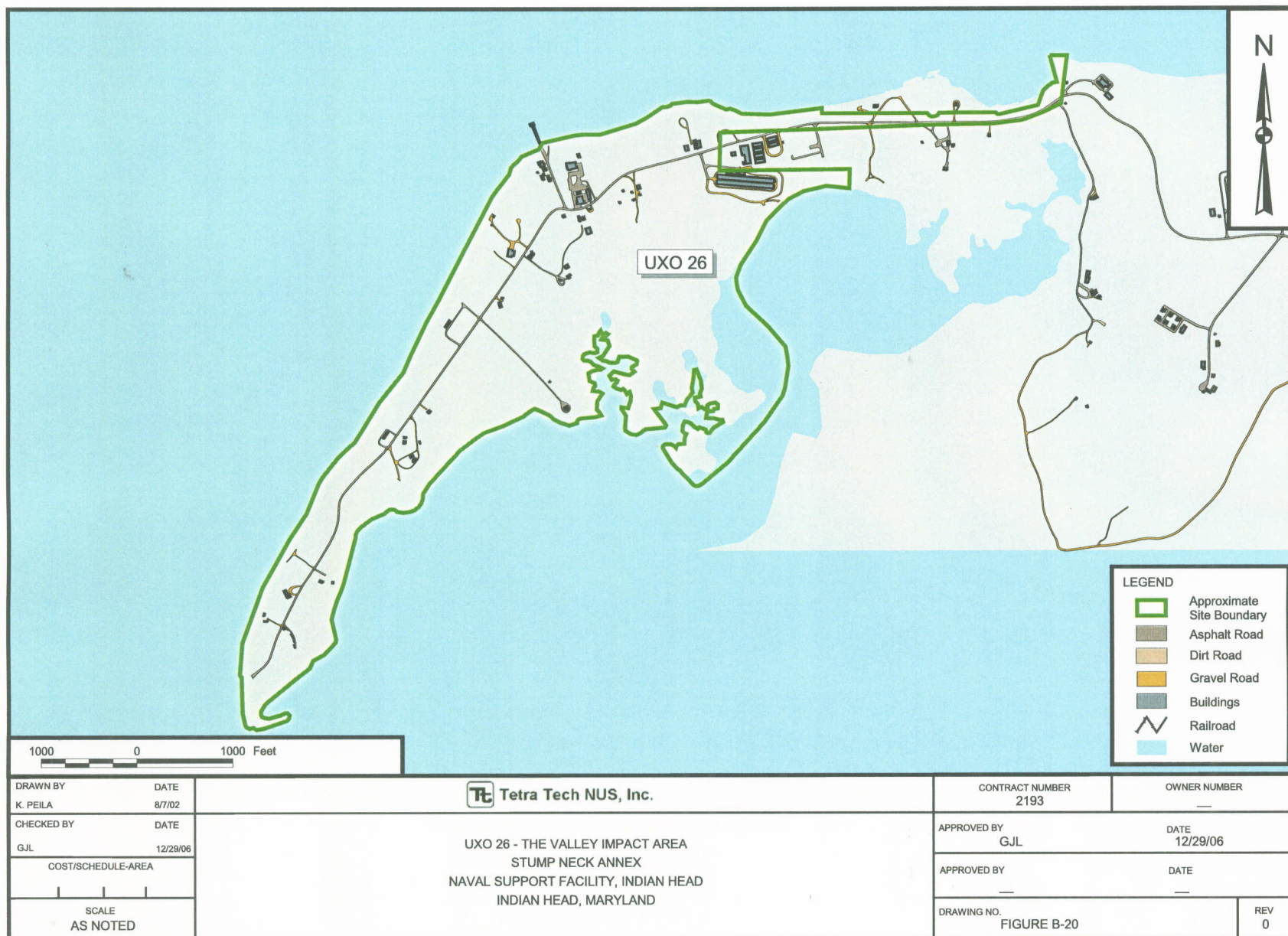




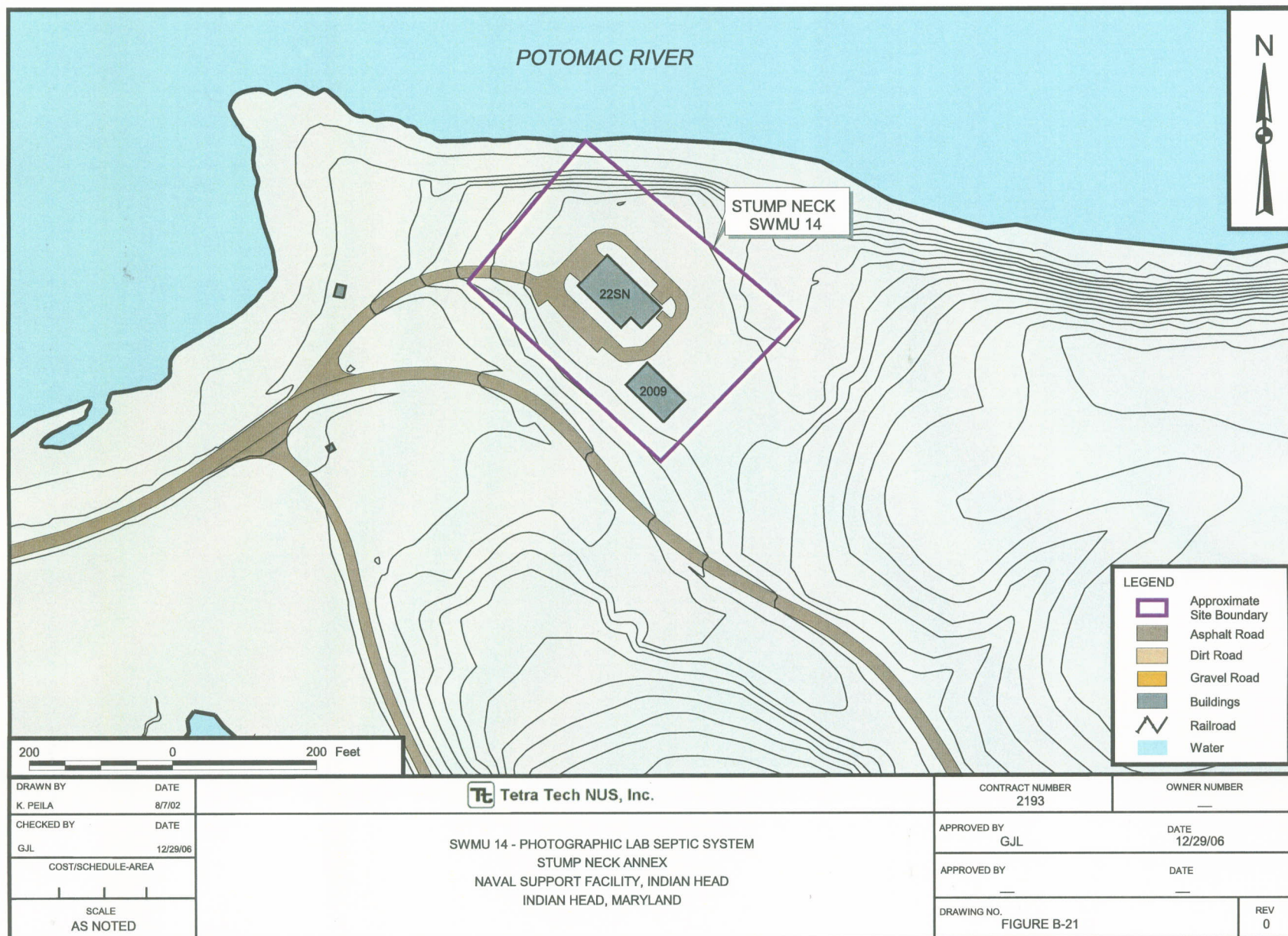
LEGEND	
	Approximate Site Boundary
	Asphalt Road
	Dirt Road
	Gravel Road
	Buildings
	Railroad
	Water

DRAWN BY K. PEILA		DATE 8/7/02	<div> Tetra Tech NUS, Inc.</div> <div>UXO 25 - ROACH ROAD RIFLE RANGE STUMP NECK ANNEX NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND</div>	CONTRACT NUMBER 2193		OWNER NUMBER —	
CHECKED BY GJL		DATE 12/29/06		APPROVED BY GJL		DATE 12/29/06	
COST/SCHEDULE-AREA				APPROVED BY —		DATE —	
SCALE AS NOTED				DRAWING NO. FIGURE B-19			REV 0



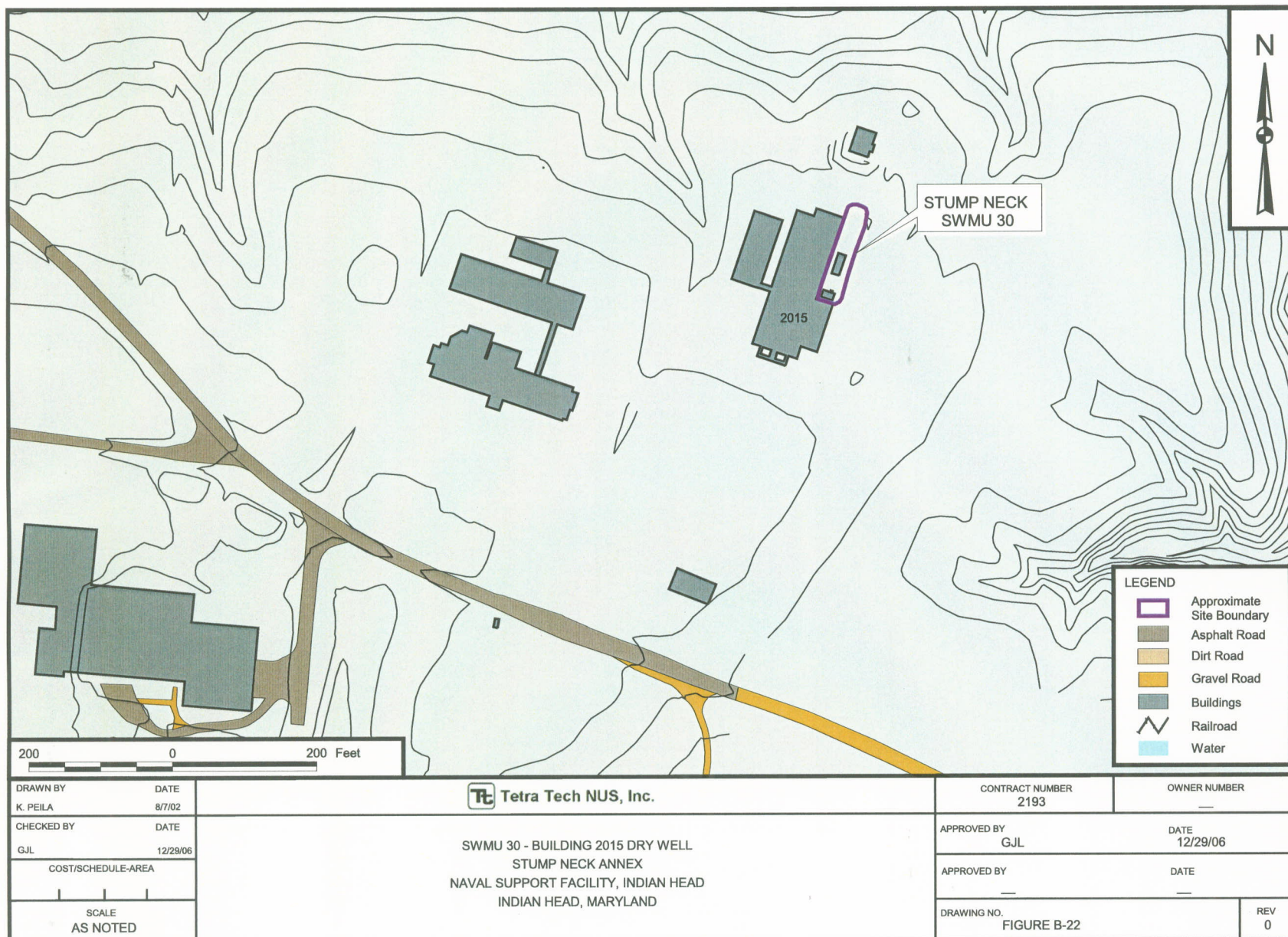






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## Legend

Topographic Contour  
(5-ft interval)

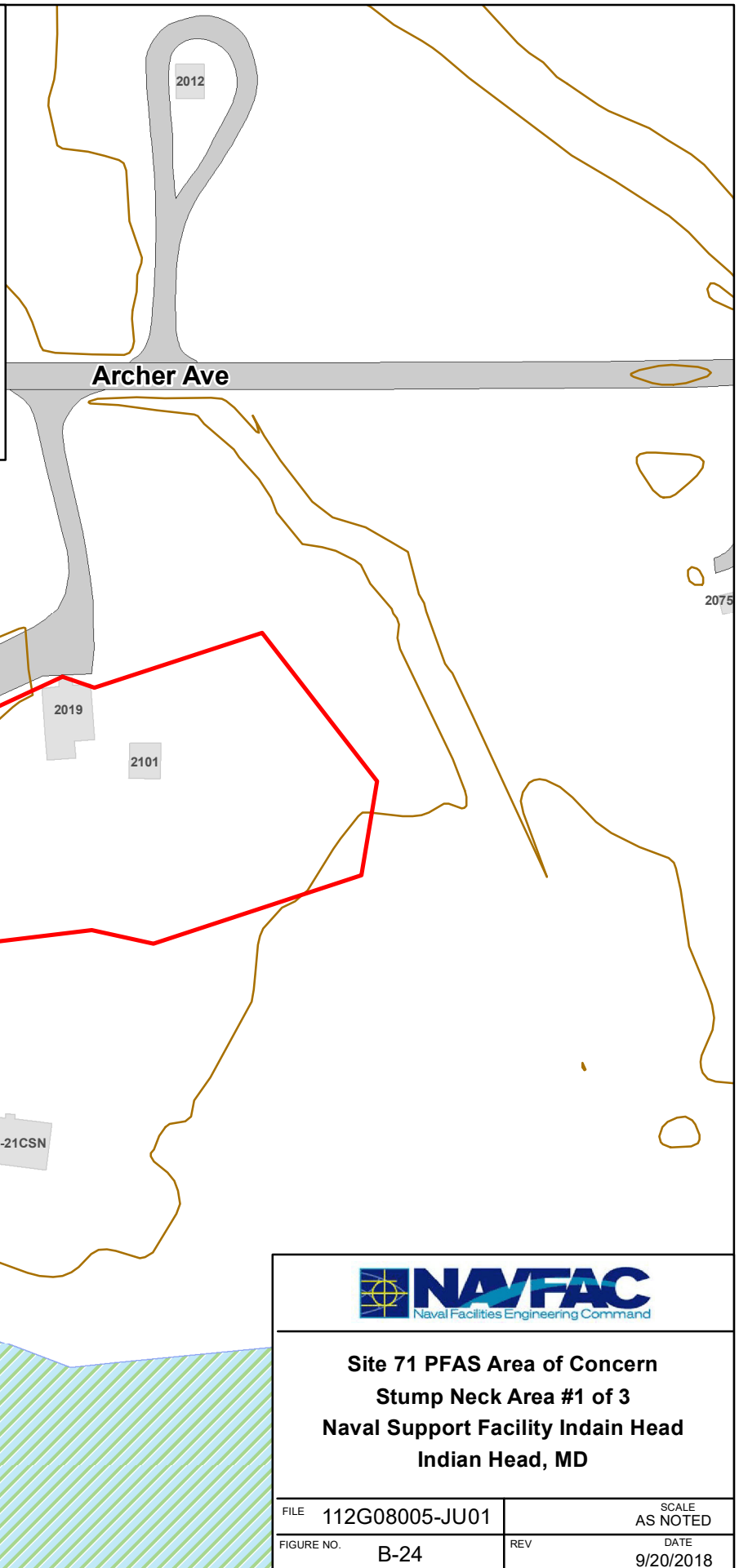
Wetland

Building

Road Area

PFAS Area of Concern

0 50 100 200 Feet



**Site 71 PFAS Area of Concern**  
**Stump Neck Area #1 of 3**  
**Naval Support Facility Indian Head**  
**Indian Head, MD**

FILE 112G08005-JU01

SCALE  
AS NOTED

FIGURE NO. B-24

REV  
DATE  
9/20/2018

## Legend

Topographic Contour  
(5-ft interval)

Wetland

Building

Road Area

PFAS Area of Concern

0 50 100 200 Feet

Archer Ave

2174



**Site 71 PFAS Area of Concern  
Stump Neck Area #2 of 3  
Naval Support Facility Indian Head  
Indian Head, MD**

FILE 112G08005-JU01

SCALE  
AS NOTED

FIGURE NO. B-25

REV DATE  
9/20/2018

## Legend

Topographic Contour  
(5-ft interval)

Wetland

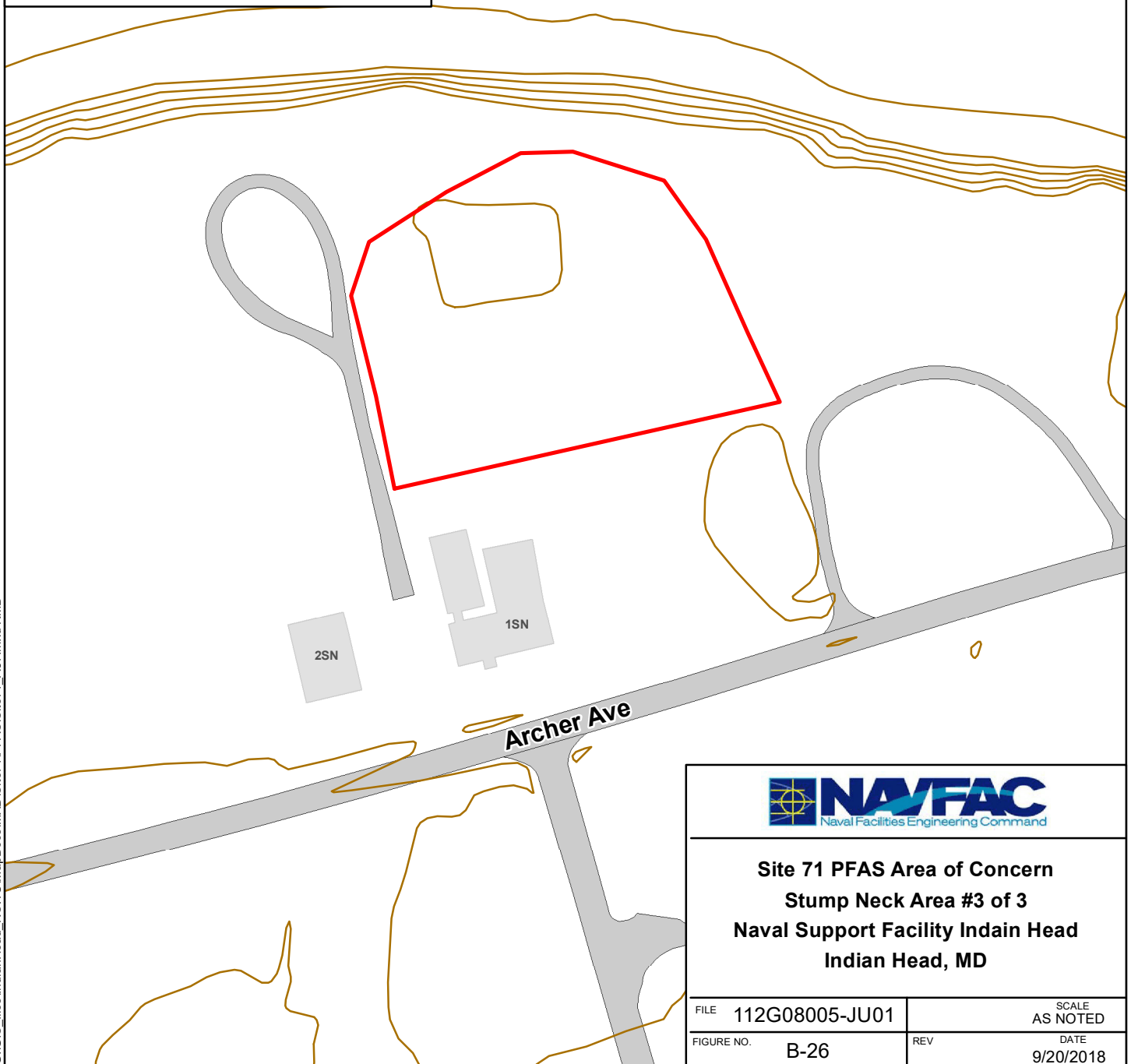
Building

Road Area

PFAS Area of Concern

0 50 100 200 Feet

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**Site 71 PFAS Area of Concern**  
**Stump Neck Area #3 of 3**  
**Naval Support Facility Indian Head**  
**Indian Head, MD**

FILE 112G08005-JU01

SCALE  
AS NOTED

FIGURE NO. B-26

REV  
DATE  
9/20/2018

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## **APPENDIX C**

### **Photo Log**

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# Site Management Plan **Photographic Log**

## Installation Restoration Program Naval Support Facility Indian Head

Indian Head, Maryland



September 2018

TABLE C-1

**PHOTO INDEX**  
**INSTALLATION RESTORATION PROGRAM AND MUNITIONS RESPONSE PROGRAM SITES**  
**MAIN AREA AND STUMP NECK ANNEX**  
**NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND**  
**PAGE 1 OF 2**

IR Site ID	SWMU ID	MRP UXO ID	Name of IR Site	Main Area (MA)/ Stump Neck (SN)	Photo Log Page No. "C-##"
1			Thorium Spill	MA	1
2			Waste Crank Case Oil Applied to Torrence Road	MA	3
3			Nitroglycerin Explosion, Nitration Building Area	MA	4
4			Lloyd Road Oil Spill Sites	MA	5
5			X-Ray Building 731	MA	7
6			Building 1349, Hypo Spill, Radiographic Facility Accelerator	MA	8
7			Building 682, HMX Spill	MA	10
8			Building 766, Mercury Deposits	MA	11, 97
9			Patterson Avenue, Oil Spill	MA	12
10		9	Single-base Propellant Grains Spill	MA	120
11			Caffee Road Landfill	MA	13
12			Town Gut Landfill	MA	14
13			Paint Solvents Disposal Ground	MA	17
14			Waste Acid Disposal Pit	MA	19
15			Mercury Deposits in Manhole, Fluorine Lab	MA	20
16			Laboratory Chemical Disposal	MA	none
17			Disposed Metal Parts Along Shoreline	MA	21
18			Hog Island	MA	22
19			Catch Basins at Chip Collection Houses	MA	31
20			Single-base Powder Facilities	MA	33
21			Bronson Road Landfill	MA	36
22		6	NG Slums Burning Site	MA	118
23			Hydraulic Oil Spill Discharges From Extrusion Plant	MA	35
24			Abandoned Drain Lines	MA	36
25			Hypo Discharge X-Ray Building No. 2	MA	39
26			Thermal Destructor 2	MA	41
27			Thermal Destructor 1	MA	42
28		8	Original Burning Ground	MA	43
29		11	The Valley	MA	49
30	22	10	Stump Neck Impact Area	SN	121
31	23	7	Old Demolition Range	SN	119
32	11		Suspected Tool Burial Site	SN	none
33	7		Scrap Metal Pit	SN	50
34	8		Tool Burial Site	SN	none
35	9	12	Torpedo Burial Site	SN	123
36	10		Closed Landfill	SN	51
37	24	3	Causeway	SN	52
38	1		Rum Point Landfill	SN	53
39			Silver Release to Sediments	MA	65
40			Palladium Catalyst in Sediments	MA	66, 67
41		32	Scrap Yard	MA	140
42			Olsen Road Landfill	MA	68
43			Toluene Disposal Site	MA	69
44			Soak Out Area	MA	71
45			Abandoned Drums	MA	72
46			Cadmium Sandblast Grit	MA	73
47			Mercuric Nitrate Disposal Area	MA	75
48			Nitroglycerin Plant Disposal Area	MA	84
49			Chemical Disposal Pit	MA	85

TABLE C-1

**PHOTO INDEX**  
**INSTALLATION RESTORATION PROGRAM AND MUNITIONS RESPONSE PROGRAM SITES**  
**MAIN AREA AND STUMP NECK ANNEX**  
**NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND**  
**PAGE 2 OF 2**

IR Site ID	SWMU ID	MRP UXO ID	Name of IR Site	Main Area (MA)/ Stump Neck (SN)	Photo Log Page No. "C-##"
50			Building 103, Crawl Space	MA	86
51			Building 101, Dry Well	MA	87
52			Building 102, Dry Well	MA	89
53			Mercury Contamination of the Sewage System	MA	91
54			Building 101	MA	87
55			Building 102	MA	89
56			IW87 - Lead Contamination	MA	93, 97
57			TCE Building 292 Area	MA	99
58	2		Range 3 Burn Point	SN	none
59	3		Chicamuxen Creek's Edge Site A	SN	none
60	4		Chicamuxen Creek's Edge Site B	SN	none
61	5		Range 6	SN	none
62	6	1	Air Blast Pond	SN	114
63	25	2	Area 8	SN	115
64	26	4	IED (+SN SWMU 19)	SN	116
65	27	5	IOD	SN	117
66			Turkey Run Disposal Area	MA	102
67			Hog Out Facility	MA	111
69			Building 1018, Oxidizer Process Building	MA	112
70			Groundwater Contamination Along Water Works Way	MA	113
		13	FDR Skeet Range	MA	124
		14	Marine Rifle Range	SN	125
	28	15	Old Skeet and Trap Range (+SN SWMU 20)	SN	126
		16	Rum Point Skeet Range	SN	127
	29	17	Small Arms (Pistol) Range	SN	128
		18	Battle Range Firing (Water Site)	SN	none
		19	Igniter Area - (Water Site)	MA	129
	20	20	Safety Thermal Treatment Point	MA	130
		21	Test Area 1	SN	131
		22	Test Area 2	SN	132
		23	Torpedo Casing Disposal Area	SN	133
		24	Water Impact Area - (Water Site)	MA	none
		25	Roach Road Rifle Range	SN	134
		26	The Valley Impact Area	SN	135
		27	Sonar Training Area (Water Site)	SN	none
		28	EOD School Demo Area	SN	136
		29	Southwestern Pistol Range	MA	137
		30	Gate 3 Burning Ground	MA	138
		31	Pope's Creek (Water Site)	--	139
	14		Photographic Lab Septic Tank System		144
	30		Building 2015 Dry Well		147
		33	Water Impact Area	MA	143



Site 1 – Looking southeast from the parking lot on northwest side of Building 900. (2004)



Site 1 – Looking northeast from the eastern corner of Building 1662. (2004)





Site 1 – Looking north from southeast of Building 1662. (2004)



Site 2 – Looking south along Torrence Road. (1995)



Site 3 – Looking southeast from the side of Travers Road at former Building area. (1995)





Site 4 – Former dumpster location facing northwest. (2004)



Site 4 – Looking forward northwest. (2004)





Site 4 – Looking toward north. (2004)



Site 5 – Looking northwest, across the lower swale from the dirt road. (1995)



Site 5 – Looking northeast from the swale bend up toward Building 731. (1995)





Site 6 – Looking north from grassy area south of Building 1349. (1995)



Site 6 – Looking east down channel from above the CMP south of Building 1349. (1995)



Site 6 – Looking east from concrete driveway up at open drainage grate. (1995)





Site 7 – Looking west at tank and Building 682 from grassy area near stream channel. (1995)



Site 7 – Looking north from grassy area at tank, sign, and stream channel in background. (1995)





Site 8 – Looking south from above the rip-rap and RCP. (1995)



Site 9 – Looking east from in front of asphalt turnaround, West of Building 320. (1995)





Site 11 – Looking south across the landfill cover towards Mattawoman Creek. (2016)



Site 11 – Looking southeast from the access road leading into the landfill. (2016)





Site 12 – Looking northwest from Atkins Road Extension. (2004)



Site 12 – Looking north from Atkins Road Extension. (2004)





Site 12 – Looking north from Atkins Road Extension. (2004)



Site 12 – Looking south from Atkins Road Extension. (2005)

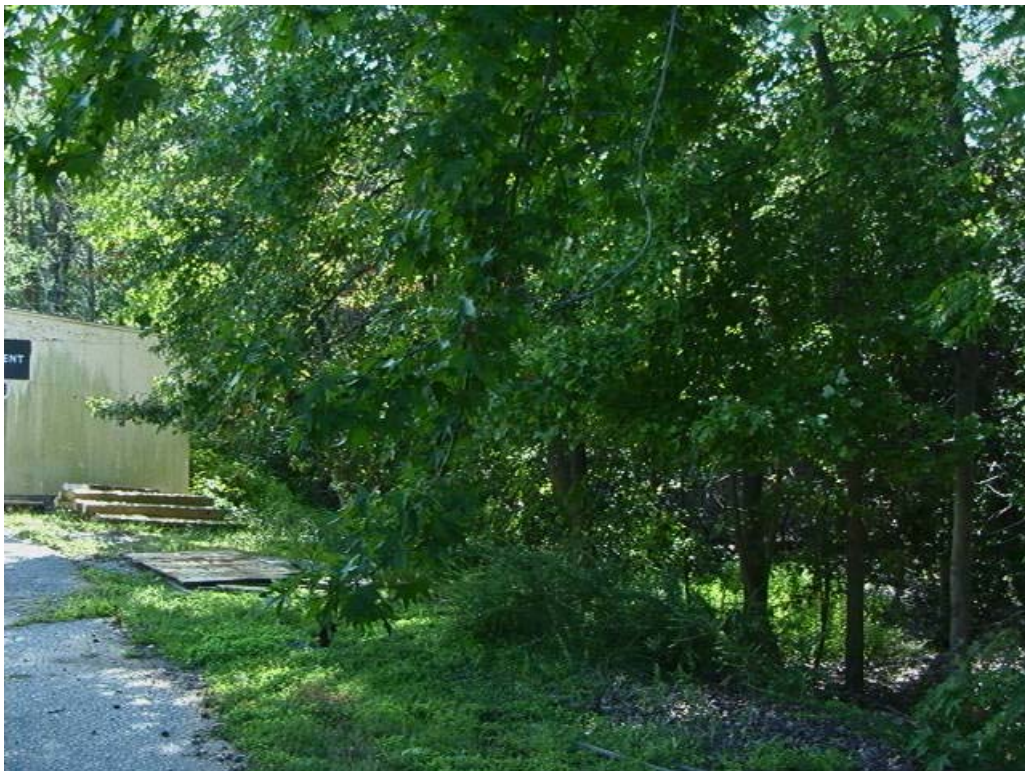


Site 12 – Looking south from Atkins Road Extension (2004)





Site 13 – Looking southwest from the north side of Building 1753.



Site 13 – Looking south-southwest from north of Building 1753.





Site 13 – Looking west-southwest from north of Building 1753.



Site 13 – Looking west from directly behind Building 1753. (1995)





Site 14 (Lab Area) – Looking east from the top of the grassy-bank, from the northwest corner of Building 881. (1995)



Site 15 (Lab Area) – Looking southeast from directly in front of Pump Station 502. (1995)



Site 15 (Lab Area) – Looking northwest at concrete manhole cover from the southeastern side of McMahon Road. (1995)





Site 17 – Looking northeast across soil mixing treatment area. (2016)



Site 18 – Looking north into grassy area toward Atkins Road. (1995)



Site 18 – Looking toward south and Mattawoman Creek. (2005)





Site 18 – Looking toward northeast across cattails. (2005)



Site 18 – From top of Hog Island looking toward east-northeast. (2005)





Site 18 – From top of Hog Island looking toward northwest (2005)



Site 18 - From top of Hog Island looking toward west-northwest. (2005)





Site 18 – From top of Hog Island looking toward north. (2005)



Site 18 – Looking southwest uphill toward top of Hog Island. (2005)





Site 18 – Looking south along the shore of Hog Island toward Mattawoman Creek. (2005)



Site 18 – Looking southeast from shore of Hog Island toward Mattawoman Creek. (2005)





Site 18 – Looking toward the east from the center of the site. (2005)



Site 18 – Looking from the southern edge of Site 18 toward the south-southwest across cattails. (2005)





Site 18 – Looking south from the southern edge of Site 18 across cattails toward Mattawoman Creek. (2005)



Site 18 – Looking southwest from road through gate to the site. (2005)





Site 18 – Looking north at pile of debris on the northern edge of the site. (2005)



Site 18 – Looking from the site toward the northeast and the gate to the site. (2005)





Site 18 – Looking from the site toward the west. (2005)



Site 19 – Looking from inside Building 1051 down into drainage outlet. (1995)



Site 19 – Looking northeast at the Building 1051 discharge point above the stream. (1995)





Site 19 – Looking northeast from directly above the discharge pipe behind Building 785. (1995)



Site 20 – Looking north from the parking lot in front of Building 163. (1995)





Site 21 – Looking northeast from the southern corner of landfill. (2016)



Site 23 – Looking southeast at concrete manhole cover from the northern side of Hersey Road. (1995)





Site 24 – Looking northwest up Thomas Road at the intersection of Hersey Road and Thomas Road.  
(2005)



Site 24 - Looking southeast towards Building 292 from Building 167. (2005)





Site 24 – Looking north along the west side of Thomas Road. (2005)



Site 24 – Looking west from Thomas Road at Building 167 (former ether vault) and Building 166 (alcohol storehouse). (2005)



Site 24 - Looking south from Building 295A towards Building 164 along the Single-Base Line. (2005)





Site 25 – Looking northeast into drainage pipe from asphalt driveway. (Pipe is located in the right corner, under the striped warning tape.) (1995)



Site 25 – Looking east from on top of Sidney Way down into stream bed. (1995)



Site 26 – Looking northwest from the edge of the gravel road in front of Building 1596. (1995)





Site 27 – Looking west from the western edge of the asphalt road. (1995)



Site 28 / UXO 8 – From northwest corner of the site looking toward the east southeast to Mattawoman Creek. (2005)



Site 28 / UXO 8 – From the northwest corner of the site looking toward the south southeast to Mattawoman Creek. (2005)





Site 28 / UXO 8 – From the south end of the site looking toward the southwest. (2005)



Site 28 / UXO 8 – From the center of the site looking toward the northwest. (2005)





Site 28 / UXO 8 – From the northeast side of the site looking toward the northeast. (2005)



Site 28 / UXO 8 – From the northeast side of the site looking toward the south. (2005)





Site 28 / UXO 8 – From the northwest side of the site looking toward the southwest. (2005)



Site 28 / UXO 8 – From northeastern side of the site looking toward the southeast. (2005)





Site 28 / UXO 8 – From the eastern corner of the site looking toward the west. (2005)



Site 28 / UXO 8 – From near the eastern corner of the site looking toward the east. (2005)





Site 28 / UXO 8 – From near the northwest corner of the site looking toward the southeast. (2005)



Site 29 / UXO 11 – Looking south from the landing up the grassy hill. (1995)



Site 29 / UXO 11 – Looking southeast from the landing up Torrense Road. (1995)





Site 33 – Looking east from fence. (2004)



Site 33 – Looking northwest toward southeast side of Building 2116. (2004)





Site 36 – Looking east toward abandoned tank. (2004)



Site 36 – Looking north toward abandoned machinery. (2004)





Site 37 – Looking south along Causeway. (2010)



Site 37 – Looking north on shoreline along Causeway. (2010)





Site 38 – Looking west from Rum Point road. (2004)



Site 38 – Looking west from East side of landfill. (2004)





Site 38 – Debris at toe of slope. (2004)



Site 38 – Debris on slope. (2004)





Site 38 – Monitoring well. (2004)



Site 38 – Landfill slope. (2004)





Site 38 – Waste on landfill slope. (2004)



Site 38 – Waste on landfill slope. (2004)





Site 38 – Debris on landfill slope. (2004)



Site 38 – Monitoring well. (2004)





Site 38 – Debris on landfill slope. (2004)



Site 38 – Debris on landfill slope. (2004)





Site 38 – Top of Landfill slope. (2004)



Site 38 – Landfill debris. (2004)





Site 38 – Landfill debris. (2004)



Site 38 – Landfill debris. (2004)





Site 38 – Landfill debris. (2004)



Site 38 – Landfill debris. (2004)





Site 38 – Landfill debris. (2004)



Site 38 – Landfill debris. (2004)





Site 38 – Gully along Northeast side of landfill. (2004)



Site 38 – Area at bottom of Northeast landfill slope. (2004)





Site 38 – Gully on East side of landfill. (2004)





Site 39 – Looking south through fence from dirt road above pipe. (1995)



Site 39 – Looking east through fence from dirt road above pipe. (1995)





Site 39 & 40 – Looking west at outfall area from man-made jetty located behind scrap yard. (1995)



Site 40 – Looking east through fence from dirt road above pipe. (1995)



Site 40 – Looking south through fence from dirt road above pipe. (1995)





Site 42 – Looking south across landfill cap from behind Building 1866. (2016)



Site 43 (Building 1041) – Looking toward northeast along Gallery Road. (1994)



Site 43 (Building 1040) – Looking toward southeast. (1994)





Site 43 (Building 1040) – Looking at northwest side of Building 1040 and Schuyler Road. (1994)



Site 44 – Looking northwest from the western berm of Boyd Road. (1995)





Site 45 – Looking northwest from directly in front of the drum collection. (1995)





Site 46 – Looking northeast from the sidewalk toward the area adjacent to Building 1280. (1995)



Site 46 – Looking east into grassy area between the wooded area and the sidewalk. (1995)





Site 46 – Looking northwest from the southwest side of Building 855. (1994)



Site 46 – Looking northwest from southwest side of Building 855. (2005)





Site 47 – Looking south from Building 856 along the drainage ditch.



Site 47 – Looking southeast along the lower end of the drainage ditch from Building 856.





Site 47 – Looking north towards Building 856 with the drainage ditch on the right.



Site 47 – Looking northeast towards Building 856.





Site 47 – Looking northeast towards the beginning of the drainage ditch at Building 856.



Site 47 – Looking north towards Building 856.





Site 47 – Looking southeast at drainage ditch from Building 856.



Site 47 – Looking south-southeast at drainage ditch from Building 856.





Site 47 – Looking west at drainage ditch.



Site 47 – Looking at Industrial Wastewater Outfall 91 (IW91) located north-northwest of Building 856 which previously use to receive discharges from Building 856.





Site 47 – Looking northwest towards the Potomac River from the southwestern corner of Building 856.



Site 47 – Looking southeast towards the rear of Building 856.





Site 47 – Looking south towards the rear of Building 856 from Building 857.



Site 47 – Looking southeast towards Building 856 and IW91 (manhole).





Site 47 – Looking at lower end of drainage ditch from Building 856.



Site 47 – Looking northeast directly in front of the thermal destructor on the west side of Building 856.  
(1995)





Site 47 – Looking northeast up the grassy swale from the edge of Boyd Road. (1995)



Site 47 – Looking northwest up the grassy swale from the edge of the asphalt parking lot in front of Building 856. (1995)





Site 48 – Looking south from site boundary, approximately 70 foot south of Site 8. (1995)



Site 48 – Looking north from site boundary. (1995)





Site 49 (Lab Area) – Looking east from grassy area west of Building 444. (1995)



Site 49 (Lab Area) – Looking directly down onto Site 49 manhole. (1995)





Site 50 (Lab Area) – Looking east from front of Building 103. (1995)



Site 50 (Lab Area) – Looking west from rear of Building 103. (1995)





Site 51 & 54 (Lab Area) – Looking east toward Building 101. (1995)



Site 51 & 54 (Lab Area) – Looking south toward Building 101. (1995)





Site 51 & 54 (Lab Area) – Looking west toward Building 101. (1995)



Site 51 & 54 (Lab Area) – Looking north toward Building 101. (1995)





Site 52 & 55 (Lab Area) – Looking east toward Building 102. (1995)



Site 52 & 55 (Lab Area) – Looking along western side of Building 102 toward Building 102. (1995)





Site 52 & 55 (Lab Area) – Looking west toward Building 102. (1995)



Site 52 & 55 (Lab Area) – Looking north toward Building 102. (1995)





Site 53 (Lab Area) – Looking north from grassy area behind Building 102. (1995)



Site 53 (Lab Area) – Looking north from directly above manhole west of Building 102. (1995)





Site 53 (Lab Area) – Looking north from grassy area behind Building 102. (1995)



Site 53 (Lab Area) – Looking north from directly above manhole southwest of Building 103. (1995)





Site 56 – Looking directly down into pipe outlet manhole adjacent to Building 790. (1995)



Site 56 – Looking directly down into pipe outlet manhole adjacent to Building 790. (1995)





Site 56 – From the northeast end of the site looking southwest toward Building 790. (2005)



Site 56- From the northeast end of the site looking northwest. (2005)





Site 56 – From the northeast end of the site looking west. (2005)



Site 56 – From the northeast end of the site looking northeast. (2005)





Site 56 – From the northeast end of the site looking northeast. (2005)





Site 8 & 56 – Looking west up Lower Stream 56 toward the buried ceramic outlet pipe. (1995)



Site 8 & 56 – Looking north up Lower Stream 8 from stream intersections. (1995)





Site 8 & 56 – Looking east from 56 & 8 stream intersections toward Town Gut area. (1995)



Site 57 – Looking north at manhole and Building 292. (1995)



Site 57 – Looking at the discharge pipe in Building 292. (1995)





Site 57 – Looking north at manhole and Building 292 from asphalt drive. (1995)



Site 57 – Looking east from behind Building 160. (1995)





Site 57 – Looking down into manhole south of Building 292. (1995)



Site 66 – Looking north towards Site 66 and Industrial Wastewater Outfall 21 (IW21) from Olsen Road.



Site 66 – Looking north at Site 66 just north of IW21.





Site 66 –Clinker at Site 66.



Site 66 – Lead flooring at Site 66





Site 66 – View of the stream at Site 66.



Site 66 – Looking towards the northwest at the stream at Site 66.





Site 66 – Looking towards the northwest at the stream at Site 66.



Site 66 – View of an old tire located in the stream along Site 66.





Site 66 – View of the concrete rubble along the stream of Site 66.



Site 66 – From the stream located east of Building 1192, looking west. (2005).





Site 66 – From the stream located east of Building 1192, looking upstream toward the northwest. (2005)



Site 66 – From the stream located east of Building 1192, looking downstream toward the southeast. (2005)





Site 66 – From the stream located east of Building 1192, looking downstream toward the southeast. (2005)



Site 66 – From the stream located east of Building 1192, looking downstream toward the southeast. (2005)





Site 66 – From the stream located southeast of Building 1192, looking downstream toward the southeast. (2005)



Site 66 – From the stream located southeast of Building 1192, looking downstream toward the south. (2005)





Site 66 – From the stream located southeast of Building 1192, and north of Olsen Road, looking downstream toward the south. (2005)



Site 66 – From the stream located southeast of Building 1192 and north of Olsen Road, looking downstream toward the south and Olsen Road. (2005)





Site 67- Looking northwest from behind Building 1419. (2016)



Site 67- Looking northeast towards Building 1419. (2016)



Site 69- Looking south-southwest from the location where Building 1018 was removed. (2016)





Site 70- Looking east along Water Works Way. (2014)



Site 70- Looking southeast towards Hersey Road. (2014)



UXO 1 – Vegetation surrounding Air Blast Pond. (2003)





UXO 2 – View of pond at Area 8 and the surrounding vegetation. (2003)





UXO 4 – Access road and vegetation across the Basic IED Area. (2003)



UXO 5 – View of north side of advanced IED Area. (2003)



UXO 6 – Looking northwest from the creek bank, near Building 1451. (1995)





UXO 7 – Current conditions at the Old Demolition Range. (2003)



UXO 9 – Looking northwest from southern side of Carpenter Road near Building 1685. (1995)





UXO 10 – Vegetation at the Stump Neck Impact Area (looking west from Roach Road). (2003)



UXO 10 – Wetlands at the Stump Neck Impact Area. (2003)





UXO 10 – Heavy shrubs observed from the periphery of the impact area. (2003)





UXO 12 – Vegetation at the Torpedo Burial Site  
(looking east down the utility row). (2003)



UXO 12 – Small tributary that bisects the Torpedo Burial site  
(looking south towards the wetlands). (2003)





UXO 13 – Current conditions of FDR Skeet Range Area. (2003)





UXO 14 – View of Marine Rifle Range looking west toward Building 2195. (2003)



UXO 15 – Current conditions at the Old Skeet and Trap Range. (2003)





UXO 16 – Grass Surrounding the concrete firing pad and bordering hardwood forest. (2003)



UXO 16 – Concrete pad and firing lines visible on the southern tip of the range. (2003)





UXO 17 – Silver contaminated soil. (2004)





UXO 19- Looking southeast towards area where IRA was completed. (2016)



UXO 19- Looking northwest to area where DGM survey was completed. (2016)





UXO 20 – Aerial view of STTP at Main Area.



UXO 20 – Wetland area vegetation on the STTP. (2003)





UXO 21 – Antenna dish partially overgrown by vegetation. (2003)



UXO 21 – Test Area 1 is currently a wooded, overgrown area. (2003)





UXO 22 – Current conditions at Test Area 2 – off-set PVC test ports. (2003)



UXO 23 – The Torpedo Casing Disposal Area and wildlife protection area. (2003)





UXO 25 – Vegetation at the Roach Road Rifle Range. (2004)



UXO 25 – Construction debris identified during the site visit. (2004)





UXO 26 – Shoreline of the Valley Impact Area. (2006)



UXO 26 – Shoreline of the Valley Impact Area. (2006)





UXO 28 – Current site conditions at the EOD School Demolition Area. (2003)





UXO 29 – Current conditions of the Southwest Pistol Range. (2004)



UXO 30 – Current conditions at Gate 3 Burning Ground:  
Wooded area along Potomac River. (2004)



UXO 31- Looking southwest along the Potomac River shoreline. (2016)





UXO 32 – Looking toward the west at the east end of the Scrap Yard. (2004)



UXO 32 – Looking toward the west along the south side of the Scrap Yard. (2004)





UXO 32 – Looking toward the northeast at the west end of the Scrap Yard. (2004)



UXO 32 – Looking west at the southern side of the Scrap Yard. (2006)



UXO 32 – Looking west at the northern side of the Scrap Yard. (2006)





UXO 33- Looking northwest across firing fan area. (2016)



SWMU 14 – Looking toward the south from 50 feet east of the Building 22SN east corner. (2004)



SWMU 14 – Looking southwest from 50 feet east of the Building 22SN east corner. (2004)





SWMU 14 – Looking toward the southwest from the northwest corner of the trailer. (2004)



SWMU 14 – Looking south from the southeast corner of the trailer. (2004)





SWMU 14 – Looking north past the east corner of the Building 2209 to the east corner of Building 22SN. (2004)



SWMU 30 – Looking toward the southwest and Building 2015. (2004)



SWMU 30 – Looking from Building 2015 toward the northeast. (2004)